Prime Minister's Office
(Rodrigues, Outer Islands and Territorial Integrity Division),
6th Floor, New Government Centre, Port Louis
Tel: 214 2750

Open National Bidding for Works

REFURBISHMENT OF SMALL HOME AT REHABILITATION YOUTH CENTRE, BEAU-BASSIN

Procurement Reference No: ***PMO/ROT/Q1 /2022-2023/ONB***

Prime Minister's Office
(Rodrigues, Outer Islands and Territorial Integrity Division)
6th Floor, New Government Centre
Port Louis
6 July 2022

Foreword

The Standard Bidding Documents in this publication follow the Standard Bidding Documents of the World Bank and have been prepared pursuant to section 7(c) of the Public Procurement Act 2006 for use by public bodies for procurement of works of values up to 50 million rupees under Open National Bidding method. It has been simplified to facilitate participation of Small and Medium Enterprises.

It can be used in the award of admeasurement (unit prices or unit rates in a bill of quantities) or lump sum types of contracts. In lump sum contracts, the concept of priced "Activity Schedule" is used, to enable payments to be made on the basis of percentage completion of each activity.

This document is to be used where the works are well defined and are unlikely to change in quantity or specification, and where encountering difficult or unforeseen site conditions (for example, hidden foundation problems) is unlikely.
Those wishing to submit comments or suggestions on the Bidding Documents or to obtain additional information on procurement in Mauritius are encouraged to contact:

Procurement proceedings for this standard bidding document have to be conducted as per the process specified in the Instructions contained below. Additionally, the principles governing standard clauses as contained in the Standard Bidding Document for Procurement of Works for values up to Rs300m shall apply to this SBD as well.

Procurement Policy Office
Ministry of Finance, Economic Planning and Development
Level 8, Emmanuel Anquetil Building, Port Louis, Mauritius
Tel: No. (+230)201-3760 & Fax: No. (230)201-3758
Email: pposecretariat@govmu.org

Section I: Instruction to Bidders

1. Introduction

The **Prime Minister's Office (Rodrigues, Outer Islands and Territorial Integrity Division)** also referred as the Employer, invites eligible local contractors to submit their bid for the works described in detail hereunder. Any resulting contract shall be subject to the terms and conditions referred to in this document.

The Works consist of the refurbishment of an existing 3 storey high building located at Barkly, Beau-Bassin. Briefly, work will consist of demolishing existing structures onsite, properly carting away or carefully set aside (as directed by Project Architect), concrete works, granite works, works to floors, including but not limited to tiling works, supply and fixing openings and sanitary and tap wares where required, new furniture including, but not limited to shelf rack (if any, and where required), new partitioning and timber works. Any other builders', civil, electrical & mechanical works, new site works and all other associated works.

Other works as more fully described in the drawings, specifications and other parts of the Bid document.

Participation is limited to citizens of Mauritius or entities incorporated in Mauritius. Joint Ventures should be among entities incorporated in Mauritius

1.1 1.1 Clarifications, if any, should be addressed to: **Ag Permanent Secretary, Prime Minister's Office (Rodrigues, Outer Islands and Territorial Integrity Division), 6th Floor, New Government Centre, Port Louis.** The Employer will respond in writing to any request for clarification, provided that such request is received 14 days prior to the deadline for submission of bids.

The Employer shall respond to such request at latest 7 days prior to the deadline set for submission of bids.

1.2 Bidders are advised to carefully read the complete Bidding document, including the Particular Conditions of Contract in Section IV, before preparing their bids. The standard forms in this document may be retyped for completion but the Bidder is responsible for their accurate reproduction.

2. Validity of Bids

The bid validity period shall be **ninety (90)** days from the date of bid submission deadline.

3. Works Completion Period

The Intended Completion period is **Two Hundred and Seventy (270) days** from start date of works.

4. Site Visit

Bidders or their designated representatives are invited to attend a site visit on **13th July 2022 at 10.00 a.m.** at the Rehabilitation Youth Centre, Beau Bassin.

For site visit, contact **Mrs Shirley Kamanah, Superintendent of the RYC or Mrs Anne Marie Catherine on telephone numbers 467 5822/ 5 802 7914**.

5. Sealing and Marking of Bids

Bids should be sealed in a single envelope, clearly marked with the Procurement Reference Number, addressed to the Public Body with the Bidder's name at the back of the envelope.

6. Submission of Bids

Bids should be deposited in the Bid Box located at the **Prime Minister's Office (Rodrigues, Outer Islands and Territorial Integrity Division), 6th Floor, New Government Centre, Port Louis** not later than **10th August 2022 at latest by 13 30 hrs**. Bids by post or hand delivered should reach the above-mentioned address by the same date and time at latest.

Late bids will be rejected. Bids received by e-mail will not be considered.

7. Bid Opening

Bids will be opened by the "Public body" at **Prime Minister's Office (Rodrigues, Outer Islands and Territorial Integrity Division), 6th Floor, New Government Centre, Port Louis** on **10th August 2022 at 13 45 hrs.**

Bidders or their representatives may attend the Bid Opening if they choose to do so.

8. Evaluation of Bids

The Public Body shall have the right to request for clarification during evaluation. Offers that are substantially responsive shall be compared on the basis of evaluated cost to determine the lowest evaluated bid.

9. Eligibility Criteria

To be eligible to participate in this bidding exercise, Bidder should:

(a) have the legal capacity to enter into a contract to execute the works;

(b) be duly registered with the CIDB under the grade that would allow him to perform the value of works for which he is submitting his bid. (Note 1)

(c) not be insolvent, in receivership, bankrupt, subject to legal proceedings for any of these circumstances or in the process of being wound up;

(d) not have had your business activities suspended;

(e) not be under a declaration of ineligibility by the Government of Mauritius in accordance with applicable laws at the date of the deadline for bid submission or appearing on the ineligibility lists of African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank Group and World Bank Group;

(f) not have a conflict of interest in relation to this procurement requirement; and

(g) have a Business Registration Card.

Note 1 Sub-contractors undertaking works are also subject to registration with CIDB as applicable to Contractors.

10. Qualification and Experience Criteria

Bidders should have the following minimum qualifications and experience:

(a) valid registration certificate with the CIDB under the grade that will enable the contractor to perform the works quoted for, under the following class(es): **Building Construction Works.** and specialization **N/A**

(b) experience in two works of a similar nature over the last 5 years, each of value not less than ***Rs 20 million.***

(c) Contract Manager having as minimum qualification: A diploma in construction related field and 5 years' experience in the construction sector; or any equivalent qualifications acceptable to the Public body.

(d) minimum amount of liquid assets and/or credit facilities net of other contractual commitments of the Bidder of **Two Million and Four Hundred Thousand (2.4M) Rupees**.

11. Contents of bid

The Bid shall comprise the following:

(a) duly filled Bid Submission Form;
(b) duly filled Priced Bill of Quantities/Activity Schedule;
(c) duly filled Qualification Information Form and attachments required
(d) report on the financial standing of the Bidder for the last three years, such as certified copies of Financial Statements or Audited Accounts as filed at the Registrar of Companies before the deadline set for submission of bids
(e) Valid Registration certificate with the CIDB, as applicable
(f) Signed C.V of Contract Manager;
(g) Documentary evidence of liquid assets and/or credit facilities (Note 1);
(h) Any other documents deemed necessary as per the requirements of this bidding document

Note 1
Bidders to demonstrate access to, or availability of, financial resources such as liquid assets, lines of credit, and other financial means, other than any contractual advance payments to meet the overall cash flow requirements for the contract and its current commitments. Documentary evidence may comprise but not limited to Bank certificate, Certificate from Auditors, Certificate from a Professional Accountant registered with MIPA, Certificate from Insurance companies.

12. Joint Venture

Bids submitted by a joint venture of two or more firms as partners shall comply with the following requirements:

i. the Bid shall include all the information required as per the Qualification Information form for each joint venture partner;
ii. the Bid shall be signed so as to be legally binding on all partners;
iii. the Bid shall include a copy of the agreement entered into by the joint venture partners defining the division of assignments to each partner and establishing that all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms; **alternatively**, a Letter of Intent to execute a joint venture agreement in the event of a successful bid shall be signed by all

partners and submitted with the bid, together with a copy of the proposed agreement;

iv. one of the partners shall be nominated as being in charge, authorized to incur liabilities, and receive instructions for and on behalf of any and all partners of the joint venture; and

v. the execution of the entire Contract, including payment, shall be done exclusively with the partner in charge.

13. Prices and Currency of Payment

Bidders should quote for the whole works. Prices for the execution of works shall be quoted and fixed in Mauritian Rupees. Items for which no rate or price is entered by Bidders, shall not be paid for by the Public Body when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities.

Bids shall cover all costs of labour, materials, equipment, overheads, profits and all associated costs for performing the works, and shall include all duties. The whole cost of performing the works shall be included in the items stated, and the cost of any incidental works shall be deemed to be included in the prices quoted. Bidders are required to submit their bid prices **exclusive of VAT**.

14. Bid Securing Declaration

Bidders are required to subscribe to a Bid Securing Declaration in the Bid Submission Form.

15. Margin of Preference

Margin of Preference shall not apply.

16. Award of Contract

The Bidder having submitted the lowest evaluated responsive bid and qualified to perform the works shall be selected for award of contract. Award of contract shall be by issue of a Letter of Acceptance in accordance with terms and conditions contained in Section IV: General Conditions of Contract and Particular Conditions of Contract.

17. Performance Security and signing of contract

Within twenty-eight (28) days of the receipt of the Letter of Acceptance from the Employer, the successful Bidder shall furnish a Performance Security, in the amount equal to 10% of the Bid price (exclusive of VAT), in accordance with the conditions of contract, using for that purpose the Performance Security Form included in Section V Contract Forms.

The contract agreement shall be signed within 28 days after the successful bidder receives the letter of acceptance unless the parties agree otherwise.

Failure of the successful Bidder to submit the above-mentioned Performance Security or sign the contract within the required time may constitute sufficient grounds for the annulment of the award.

18. Notification of Award and Debriefing

Prior to the expiration of the period of bid validity, the Employer shall, for contract amount above Rs 15 million, notify the selected bidder of the proposed award and accordingly notify

unsuccessful bidders. Subject to Challenge and Appeal, the Employer shall notify the selected Bidder, in writing, by a Letter of Acceptance for award of contract. Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract.

The Public Body shall after award of contract, exceeding Rs 1 million and up to Rs 15 million, promptly inform all unsuccessful bidders in writing of the name and address of the successful bidder and the contract amount.

Furthermore, the Public Body shall attend to all requests for debriefing for contract exceeding Rs 1 million, made in writing within 30 days the unsuccessful bidders are informed of the award.

19. Advance Payment

The Public Body shall provide an Advance Payment on the Contract Price as stipulated in the General Conditions of Contract. The Advance Payment shall be guaranteed by an Advance Payment Security as per the format contained in Section V.
The Advance Payment shall be limited to 10% percent of the Contract Price, less any provisional and contingencies sums.

20. Integrity Clause

The Public Body commits itself to take all measures necessary to prevent corruption and ensures that none of its staff, personally or through his/her close relatives or through a third party, will in connection with the bid for, or the execution of a contract, demand, take a promise for or accept, for him/herself or third person, any material or immaterial benefit which he/she is not legally entitled to.

21. Rights of Public Body

The **Prime Minister's Office (Rodrigues, Outer Islands and Territorial Integrity Division)** reserves the right:

(a) to split the contract as per the lowest evaluated cost per lot; and

(b) to accept or reject any bid or to cancel the bidding process and reject all bids at any time prior to contract award without incurring any liability to the Public body.

22. Challenge and Appeal

Unsatisfied bidders shall follow procedures prescribed in Regulations 48, 49 and 50 of the Public Procurement Regulations 2008 to challenge procurement proceedings and award of procurement contracts or to file application for review at the Independent Review Panel.

(a) The address, Telephone number, Fax Number. & Email address to file Challenges in respect of this procurement is:

Ag Permanent Secretary
Prime Minister's Office
(Rodrigues, Outer Islands and Territorial Integrity Division)
6th Floor, New Government Centre
Port Louis.
Tel-(+230) 201 1733
Email: brajahbalee-cader@govmu.org

(b) The address to file Application for Review is:

The Chairperson
Independent Review Panel,
5th Floor, Belmont House
Intendence Street,
Port Louis
Tel : +230 2602228
Emal : irp@govmu.org

Section II: Bidding Forms

Note: Bidders are required to fill all the forms in this section and submit as part of their bid. Non-submission of any form may lead to rejection of the bid

Bid Submission Form

Date: _____
Bid's Reference No.: _____
Procurement Reference No:……

To:

We, the undersigned, declare that:

(a) We have examined and have no reservations to the Bidding Documents, including Addenda issued;

(b) We offer to execute in conformity with the Bidding Documents the following Works: _____;

(c) The total price of our Bid excluding VAT is: _____(MUR):

(d) Our bid shall be valid for a period of **ninety (90)** days from the date fixed for the bid submission deadline in accordance with the Bidding Documents.

(e) We hereby confirm that we have read and understood the content of the Bid Securing Declaration attached hereto and subscribe fully to the terms and conditions contained therein, if required. We understand that non-compliance to the conditions mentioned may lead to disqualification.

(f) If our bid is accepted, we commit to obtain a Performance Security in accordance with the Bidding Document;

(g) We, including any subcontractors or suppliers for any part of the contract, do not have any conflict of interest in accordance with ITB 8;

(h) We are not participating, as a Bidder in more than one bid in this bidding process;

(i) Our firm, its affiliates or subsidiaries, including any Subcontractors or Suppliers for any part of the contract, has not been declared ineligible under the laws of Mauritius;

(j) We have taken steps to ensure that no person acting for us or on our behalf will engage in any type of fraud and corruption as per the principles described hereunder, during the bidding process and contract execution:

i. We shall not, directly or through any other person or firm, offer, promise or give to any of the Public Body's employees involved in the bidding process or the execution of the contract or to any third person any material or immaterial benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

ii. We shall not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications,

certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelisation in the bidding process.

iii. We shall not use falsified documents, erroneous data or deliberately not disclose requested facts to obtain a benefit in a procurement proceeding.

We understand that transgression of the above is a serious offence and appropriate actions will be taken against such bidders.

(k) We understand that this bid, together with your written acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;

(l) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive; and

(m) If awarded the contract, the person named below shall act as Contractor's Representative:

Name: .....

In the capacity of: .....

Signed: .....

Duly authorized to sign the Bid for and on behalf of: .....

Date: .....

Seal of Company .....

BID SECURING DECLARATION

By subscribing to the undertaking in the Bid Submission Form:

I/We accept that I/we may be disqualified from bidding for any contract with any Public Body for the period of time that may be determined by the Procurement Policy Office under section 35 of the Public Procurement Act, if I am/we are in breach of any obligation under the Bid conditions, because I/we:

(a) have modified or withdrawn my/our bid after the deadline for submission of bids during the period of bid validity specified by the Bidder in the Bid Submission Form; or

(b) have refused to accept a correction of an error appearing on the face of the bid; or

(c) having been notified of the acceptance of our bid during the period of bid validity, (i) have failed or refused to execute the Contract, if required, or (ii) have failed or refused to furnish the Performance Security, in accordance with the Instructions to Quote.

I/We understand this Bid Securing Declaration shall cease to be valid (a) in case I/we am/are the successful bidder, upon our receipt of copies of the contract signed by you and the Performance Security issued to you by me/us ; or (b) if I am/we are not the successful Bidder, upon the earlier of (i) the receipt of your notification of the name of the successful Bidder; or (ii) thirty days after the expiration of the validity of my/our bid.

In case of a Joint Venture, all the partners of the Joint Venture shall be jointly and severally liable.

Qualification Information

*[The information to be filled in by **bidders** in the following pages shall be used for purposes of post-qualification or for verification of prequalification as provided for in ITB Clause 6. This information shall not be incorporated in the Contract. Attach additional pages as necessary. Pertinent sections of attached documents should be translated into English. If used for prequalification verification, the Bidder should fill in updated information only.]*

1. Individual Bidders or Individual Members of Joint Ventures

1.1 Constitution or legal status of Bidder: [*attach copy]*

Place of registration: [*insert]*

Principal place of business: [*insert]*

1.2 Bidder shall provide *[insert number]* of works of a nature and amount similar to the Works performed as Contractor over the last 5 years.

Project/Contract name and country	Name of client and contact person	Type of work performed and year of completion	Value of contract (national currency)
(a) (b)			

1.3 Proposed subcontracts and firms involved. Refer to General Conditions of Contract Clause 7.

Sections of the Works	Value of subcontract	Subcontractor (name and address)	Experience in similar work
(a) (b)			

[Bidders have to ascertain that sub-contractors executing works are duly registered with the CIDB in accordance with CIDB Act 2008.

1.4 Name, address, and telephone, telex, and facsimile numbers of banks that may provide references if contacted by the Public Body.

2. Additional

2.1 Bidders should provide any additional information Requirements requested in the Bidding Document.

Section III: Statement of Requirements

Scope of Works

The project consists of the following:

The Works consist of the refurbishment of an existing 3 storey high building located at Barkly, Beau-Bassin. Briefly, work would consist of below mentioned items:

2nd Floor(Ground+2)

a) Proposed scullery

- Concrete workshop + granite on workshop and fascia + new sink.
- New tiles flooring and wall tiles up to 2,100 mm height.

b) Proposed kitchen

- New aluminium lockers.
- Granite top to R.C worktop + new sink + wall tiles up to 2.1 m height.
- New aluminium door.
- Aluminium partitioning up to ceiling wit hatch to insulate kitchen.
- New tiles flooring.

c) Store

- New aluminium door.
- New tiles flooring

d) Officer's Mess

- New tiles flooring.
- New sink + granite worktop + fascia.

e) WC (x2) and shower (x2)

- 2 new showers with floor tiles and wall tiles up to 2.1 m height and new separation walls.
- 2 new toilets with floor tiles and wall tiles up to 2.1 m height and new separation walls.

f) Laundry

- New R.C workshop with granite top and stainless-steel wash tray.
- Wall tiles up to 2.1 m height.
- New door.
- Water trough next to laundry.
- New 1,200 mm wide metal door to dining and playroom.

g) Library

- New aluminium partitions to library.
- New timber reading table fixed to wall.

h) Consultation Room

- New tiles flooring.

i) Hairdressing Room

- 2 new wash hand basins in existing R.C workshop.
- Granite finish to worktop.

j) Playroom/Dining in left wing

- New 1,200 mm metal door
- New shower (2 Nos) + separating door.

k) Laundry

- R.C workshop with granite finish and fascia + new stainless-steel wash tray.

l) Store

- New shelf rack.
- New door, new wall.

m) Toilets[2 Nos]

- New floor tiles, wall tiles.
- New sanitaries.
- New door (1 No., D1).
- New R.C table with 2 new W.H.B.

n) Kitchen at left wing

- New R.C worktop with new double sink and with granite finish and granite splash back (600 mm height).
- New tiles flooring.

3rd Floor (Ground + 3)

Right Wing

- Tiles to all spaces.
- New aluminium partitioning along grid R–R.
- 4 No.s new WHB and concrete workshop finished with granite + 3 new shower trays and 3 toilets.
- Refurbish all flash doors on 3rd floor.
- Demolish all bedrooms' separation block walls.
- Fill void with timber.
- New aluminium partitioning to monitoring room.
- New block wall along grid M-M.
- Waterproofing to whole toilet/bath area before fixing tiles and fixtures.

Left Wing

- New block wall and 1,200 wide metal doors along grid J-J.
- New aluminium partitioning to monitoring room.
- Demolish all separation block walls to bedrooms to be converted to dormitory.
- Fill void with timber.
- New aluminium partition + door along grid D-D.
- New floor tiles to toilet.
- Refurbish all flush doors.
- 4 No.s new WHB + associated R.C table finished with granite.
- 3 new toilets pan and 3 new shower trays.

  Waterproofing to whole toilet area before fixing tiles and fixtures.

  (1) Demolition works as required.

  (2) Any other Builders'& Civil works and any other associated works

  (3) New Electrical works and all other associated works.

  (4) New Mechanical works and all other associated works.

  (5) New Site works and all other associated works.

  Other works as more fully described in the drawings, specifications and other parts of the Bid document.

Access to site

Access to the site for construction will be as directed by the Project Architect and as per drawings & specifications, careful consideration is to be given and maintained with respect to health and safety of users' and civilians' movements.

Contractor to make sure of a proper flow of vehicles movement along this drive way during loading and unloading of materials and during execution of the works.

Provision of hoarding and security net

Appropriate hoarding as per drawing to be provided for the security of the end users, existing building, vehicles circulation and for site office and stack of materials.

Hoarding to be provided to the satisfaction of the Project Architect and Project structural Engineer.

Appropriate security net and other security means to be provided along the facades and scaffoldings.

General Notes

All necessary precautions such as security nets among others have to be installed all along the scaffolding for security of the premises & its users. It is to be noted that the facilities will be operational during the construction works.

Contractor to take note

(i) Any damage of existing services and property during execution of works shall be reinstated or replaced to the satisfaction of the Architect/ Engineer at no additional cost.

(ii) To ensure cleanliness throughout the circulation and construction areas.

(iii) Contractor to ensure that no disturbances are caused to the premises of the construction during execution of the movement of materials and works.

(iv) Contractor to make his own arrangement for power supply and provision of water on site.

SPECIFICATIONS

The Government of Mauritius Standard Specifications issued by the Ministry of National Infrastructure & Community Development shall form part of the contract documents (Refer Appendix I).

All materials used in this project should be to the approval of the Architect and Engineer.

With reference to the "Standard Specifications", kindly note that:-
An Approved Testing Authority is further defined as:-

(i) Materials Testing Laboratory
(ii) Mauritius Standard Bureau
(iii) The Laboratory of the University of Mauritius

Additional Specifications

GRASS PLANTING

(a) Clean the whole site, remove bushes, shrubs, plants vegetarian and boulders. Uproot all existing trees trunks and roots, cart away all unwanted materials.

(b) Level the ground by cutting and filling, bringing the levels as shown on the whole area with heavy roller and make good all depressing by additional imported good soil wherever necessary.

(c) Supply and spread a layer of 300 mm vegetable soil compacted thickness.

(d) Plant grass 'Chiendent &Bourique' using fertilizer and maintain watering till there is sign of healthy spread over.

ANTI-TERMITE TREATMENT

The anti-termite treatment must create a complete chemical barrier in the sub-structure of the buildings. A 10-year guarantee certificate must be provided to the approval and satisfaction of the Employer.

PAINTS

External coating paints shall be waterproof and be guaranteed against discoloration, bacterial growth, cracking, chipping and peeling off from the masonry surfaces for a period of not less than Five (5) years.

All paints, stains and varnishes applied shall be eco-friendly with zero VOCs (Volatile Organic Compounds) or low VOCs (less than 5%).

ALUMINIUM WINDOWS AND DOORS

1.0 GENERAL
1.1 Submission

1. Submit shop drawings

2. Show detailed window assembly, including: large scale details of members and materials, of brackets and anchorage devices and of connection and jointing details fully dimensioned layouts for positioning of brackets and anchorage devices structures, dimensions gauges, thickness, glazing details, description of materials including catalogue members, products and manufacturer's names, aluminium alloy and temper designations, finish specifications and all other pertinent data.

3. All the above submissions shall be duly signed by a registered Professional Engineer

1.2 DELIVERY AND STORAGE

1. Adequately protect aluminium and aluminium finishes to prevent damages thereto during fabrication, storage shipping, handling and installation.

2. Deliver, handle and store units by methods approved by manufacturer. Protect from damage and staining.

3. Protect stills and stools after installation with boards heavy paper or other suitable protection, secured in place, to prevent staining or scratching. Do not remove protection before final cleaning.

1.3 WARRANTY

1. The contractor shall submit a warranty of five years in writing from the manufacturer.

2. In addition to the above, insulating glass units shall carry manufacturer's standard warranty of minimum five years for defective materials.

3. The warranty shall include resistance to cyclonic winds of not less than 280 km/hr and water tightness.

4. The contractor shall submit a certificate from a registered professional engineer certifying that Aluminium openings fixed in place shall withstand wind speed of not less than 280 km/hr. This certificate shall in no way waive or diminish the contractor's liability towards the employer.

5. The contractor shall fill and submit the "Certificate for Aluminium openings" as annexed form.

2.0 PRODUCTS

2.1 MATERIALS

1. Powder coated (colour to Architect approval) to be indicated to all aluminium openings, (except where specified).
2. Notes for Aluminium Openings to be simplified as follows:

(a) Aluminium Openings shall be of aluminium alloy 6060 A.G.S.
(b) Aluminium extrusions – powder coated .
(c) Openings to be water tight, air tight and resistant to wind load and to withstand cyclonic winds as per current wind gusts pressure over 280km/hr substantiated with calculations and certificates as required and to the approval of the Architect/Engineer.
(d) Handles, locks, hinges & knobs to be of heavy duty type.
(e) Bolts, screws and fasteners: 316 Stainless Steel.(Certificate to be produce for stainless steel grade).
(f) Glazing (Glass: Laminated glass of minimum thickness 6 mm).
(g) Gasket (E.P.O.M) as per manufacturers' specifications.
(h) Corner cleat and any other reinforcement to be used must be of same aluminium mat.

3. Glazing Tape: Vulcanised butyl tape with continuous neoprene spacer, colour as selected by Architect

4. Setting Block: Neoprene 10 mm long, 80A durometer.

5. Steel: Brake formed, galvanized sheet steel.

Notes: All Aluminium Openings including fittings to be of BS or EN or equivalents (to Architect's approval). For equivalents, Contractor to submit Compliance Certificate from an independent and approved body.

3. EXECUTION

DESIGN

1. Allow full expansion and contraction of window framing members without causing stress within the window assembly as result of such expansion and contraction.

2. Tolerate structural deflection and distortion structure, under design criteria conditions, without imposing load on window assembly

FABRICATION

1. Make profiles of framing members as shown on drawings.

2. Entire assembly shall be weather- tight throughout.

3. Fabricate complete units in shop to provide minimum tolerance and hairline joints throughout.

4. Assemble members by stainless steel screws. All connections shall be internally sealed in factory with approved sealing compound. Exposed frame sealants are not acceptable.

5. Aluminium extrusions shall be designed to provide sufficient section modules to safety resist imposed loads but minimum thickness of any part of the load bearing extrusion shall be 3 mm. Glazing stops may be 6 mm. Be prepared to submit design date as requested by Architect.

6. Conceal interconnecting members and fasteners in completed assembly.

7. Do not place manufacturer's name plates, labels or any other finished means of identification on exposed of finished parts.

8. Provide weep holes on tubular members to drain and condensation.

9. Glass stops shall provide edge margins recommended by glass manufacturer.

10. Paint all metal surface in contact with concrete or masonry, plastic, mortar or dissimilar metals with protective lacquer or bituminous coating.

11. Mitre and full strength vulcanize joints in weather- stripping.

4. INSTALLATION

1. Provide all fastenings or anchors required to be built in under work of other Sections.

2. Use only concealed fastenings.

3. Securely install components so that they line up square in true, straight flat and/or flush planes, plumb and level free from distortion.

4. Make joints neat and fine as practicable. Allow for full expansion and contraction and take into consideration climatic conditions prevailing at time of installation.

5. Fasten galvanized steel supports and clips with galvanized bolts and fasten aluminium members with stainless steel screws and bolts.

6. Ensure that corner joints of frames are weather-tight.

7. Clean aluminium and glass surfaces that are to receive glazing materials with an oil removing solvent and wipe dry.

8. Glaze windows with factory glazed wrap around vinyl glazing channels.

9. Place setting blocks at quarter points for each type of glass.

10. Comply with tape manufacturer's recommendations regarding use of spacers for certain glass sizes.

11. Install glass with clean cut edges, leaving spaces to expansion and contraction between edge of glass and inside of frame as recommended by glass manufacturer.

12. Finish tape and glazing wedge with straight unwaving sight lines.

13. Conform to sealant manufacturer's written recommendations for cleaning, priming, backing and joint design to suit type and location of joint and temperature conditions at time of application.

14. Mask adjacent surface likely to become marred with sealant or primer, using non-thermosetting easily removed masking.

15. Apply sealant using pressure operated gun fitted with suitable nozzles approved by the sealant manufacturers. Apply in accordance with manufacturer's directions and recommendations.

16. Apply sealant in such a manner as to assure good adhesion to sides of joints and to completely fill voids in joints. Form surfaces of sealant smooth, concave, free from ridges, wrinkles, sags, air pockets and imbedded impurities.

17. Remove masking tape, soils and sealant which may have been deposited on surfaces near joints.

18. Seal all window frames to adjacent materials both sides.

5. CLEANING

    1. When directed, inspect work and remove protective wrappings, coatings and devices and clean glass and aluminium surfaces. Use methods which will not scratch or damage glass, paint or coatings.

CERTIFICATE FOR ALUMINIUM OPENINGS

In accordance with the requirements of (Clauses 1.1 and 1.3) of the Specifications of the contract for the Supply and fixing of Aluminium Openings for the project (Name of Project)…… …… I, the undersigned Registered Professional Engineer, hereby certify that the aluminium openings which have been fixed at (Location) ……. have been designed and fixed to resist cyclonic winds of 280 Km/hr.

Name of Engineer:……

Registration Number with the Council of Professional Engineers:……

Signature:……

The following part is to be signed by the Contractor.

In the event of a failure of these openings due to cyclonic winds of 280 km/hr or less, (Name of Contractor) …… ……..undertakes to replace these openings and make good all damages resulting from the failure of these openings.

Name:…….

In the capacity of:……

Signed:……

Duly authorized to Sign the certificate for and on behalf of:……..

Date:…….

Seal of Company:……

SPECIFICATIONS OF THE WATERPROOFING SYSTEM

The Subcontractor for waterproofing works must be specialist waterproofing contractors registered with the CIDB.

1.0 The Waterproofing System

The waterproofing system, unless otherwise specified, shall meet the following performance specifications:

either (a) a SBS elastomeric bitumen system in double layers, torched bonded and of total minimum thickness of 4.2 mm with a granular finish, as described below:

a) The first layer should be a SBS(Styrene – Butadiene – Styrene) elastomeric bitumen system reinforced with non woven glass fibre Md(50 gm2) torched applied with a minimum thickness of 1.7 mm.

2 The second layer should be a SBS (Styrene – Butadiene – Styrene) elastomeric bitumen system reinforced with non woven glass fibre matt having a minimum thickness of 2.5 mm. This layer should have a highly reflective white slate flakes finish to help the cooling down of the surface temperature of the roofing system by reflection and applied by torch.

or (b) a PVC system of minimum thickness of 1.2mm, mechanically fastened and welded at joints.

OR

Any other alternative system, provided it is duly supported with all technical specifications and backup information and literature to allow a proper assessment of the treatment proposed.

2.0 Performance Specifications of the Waterproofing System

2.1 The system shall be capable of accepting minor structural movements without damage.
2.2 The system shall be such as to prevent the growth of plants on it. It shall be root resistant.
2.3 The system shall not be adversely affected by waterponding and shall be rot resistant.
2.4 The system shall be fire resistant up to 3 hours.
2.5 The system shall resist cyclonic winds of 280 Km per hour. This shall be confirmed in writing by the Manufacturer, Socotec, Bureau Veritas or a Registered Professional Engineer.
2.6 The system shall be, unless specified otherwise, resistant to foot traffic and light concentrated loads associated with installation and maintenance operations.
2.7 The system shall comply to European, American or South African Standards.
2.8 The system and its installations shall conform strictly to Manufacturer's specifications.
2.9 The system to be UV stable.

3.0 Preparation of surface to receive the Waterproofing treatment

3.1 The Waterproofing Contractor shall ensure that the slope of the substrate is adequate to prevent waterproofing and is according to Manufacturer's Specifications.
3.2 The surface of the substrate shall be reasonably smooth and free from holes and projections which might puncture or otherwise damage the waterproofing system to be applied.

3.3 The surface of the substrate shall also be dry and shall be thoroughly cleaned of dust and loose materials prior to the laying of the waterproofing system.

3.4 After being satisfied with the above conditions, the waterproofing Contractor shall then issue a certificate stating that the substrate, which is to receive the new waterproofing system, is according to Manufacturer's Specifications.

4.0 Application of the Waterproofing System

The waterproofing system shall be applied by experienced and skilled labour.
The waterproofing Contractor shall be required to provide proof of the experience and skill of its proposed labour on the works.

5.0 Inspection of Waterproofing System

5.1 The waterproofing treatment shall be carried out to the satisfaction of the Architect.

5.2 The Contractor shall ensure that the waterproofing system is free from wrinkles, buckles, blisters (trapped air) and other damage. Any damage or defects to the waterproofing system shall be corrected at the Contractor's cost, and to the Architect's approval.

5.3 The contractor shall carry out a water test on the finished work, and seek the Architect's approval for the same. The test shall consist in filling the whole treated area with water (after plugging the rainwater pipes outlets) and retaining the water on the treated surface for 24 hours, or as directed by the Architect. Any leak/defect found shall be repaired at the Contractor's cost and another water test carried out to confirm the same, the whole to the Architect's satisfaction.

5.4 The contractor shall clean adjacent surfaces of spillage and spatterings of any adhesive materials used in the works.

6.0 Water Test

6.1 The contractor shall allow in his rates for a water test to be carried out after laying the screed to fall, to confirm the absence of any water-ponding. The Test shall be verified and approved by the Architect.

7.0 Guarantee Certificate

7.1 On satisfactory completion of the waterproofing works, the Contractor shall submit a certificate of guarantee against leakage, defective materials and defective installation of the completed waterproofing system. Any such defects or leakage occurring during the guarantee period shall be promptly and completely corrected, including all affected work, at no additional cost to the Employer.

7.2 The said guarantee shall be in effect for a period of ten (10) years from the date of the practical completion certificate. The guarantee shall be signed by the Contractor and countersigned by the Manufacturer's representative and shall be submitted to the Employer.

TIMBER SPECIFICATIONS

JOINERY WORK GENERALLY

All joiner's work generally shall be cut and framed together on the commencement of the works, but shall not to be wedged up or glued until the building is ready for fixing same.

All work shall to be properly, tennoned, shouldered, wedged, pinned, bradded, etc. as directed and to the satisfaction of the Interior Designer and all properly glued up with best quality approved glue. Oval or round brads or nails shall be used for fixing on face work, heads properly mails punched in and the holes filled with putty or as otherwise described.

WARRANTY
The contractor shall submit a guarantee of five (5) years against warping, cracks, shrinkage and distortion.

FINISH TO WOODWORK

All exposed faces of woodwork shall be wrot, which shall mean bringing up the surface after planning with sand paper to a smooth satin like finish.

DOOR FRAMES AND LININGS

Door frames and linings shall be constructed to the sizes and details shown on the drawings. Joints between style and head shall be mitred.

Fixing irons shall consist of 300 mm long g.m.s hoop not less than 3 mm thick bent up at 75 mm at one end and twice screwed to the frame and the other end built into the walls, and cast into lintols to the depth of 225 mm deep, the straps shall be cut off to the full depth of the lintol.

10 mm diameter galvanized metal dowels shall be fixed to each end of the frames and let into the floor concrete to a depth of at least 50 mm.

Door linings shall be screwed to wooded fixing dovetail shaped and let into the walls and lintol with the same number of fixing irons to frames.

DOORS

Doors shall be provided and fixed to the sizes and details shown on the drawings. Doors shall be free from all blemishes and shall be rubbed down to a satin like finish. Framed, ledged and braced doors shall be made to the sizes shown on the drawings and the nailing in construction shall be driven from the face side, the heads of nails shall be punched d the holes filled with putty.

Butts and hinges shall be to the sizes and type specified and be fixed with the full number of screws and on no account shall nails be used.

PLYWOOD

Plywood shall be to the specified thickness and shall comply with BS 1455, plywood shall be Grade 1 where varnished and Grade 2 where painted. Concealed side of plywood can be Grade 3.

BLOCKBOARD

Blockboard shall be to thickness shown on drawings and shall conform to BS 3444 and 3583.

GLUES

All glues to be used for joinery works shall be the best of their respective kind and shall conform to BS 745,1444,1203 and 1204.

SCREWS

Screws to be used for the joinery works shall be brass and shall conform in every respect to BS 1210.

NAILS

Nails shall be galvanized mild steel wire nails – all on accordance with BS 1202.

MOISTURE CONTENT OF TIMBER

The Contractor is to ensure that the moisture content of the various items if joinery delivered to the site should be at least 12%.

SHRINKAGE

The arrangement, jointing and fixing of all joinery works shall be such that shrinkage in any part and in any direction shall not impair the strength and appearance of the finished work and shall not cause damage to contiguous materials or structure.

TOLERANCE

Reasonable tolerance shall be provided at all connections between joinery works and the building carcass, whether of masonry or frame construction, so that any irregularities, settlements or other movements shall be adequately compensated.

FABRICATION

The joiner shall perform all necessary mortising, tennoning, grooving, matching, tonguing, housing, rebating and all other works necessary for correct jointing. He shall also provide all metal plates, screws, nails and other fixings that may be ordered by the Interior Designer or that may be necessary for the proper execution of the joinery works specified. The joiner shall also carry out all works necessary for the proper construction of all framings, linings, etc. and for their support and fixing in the building.

JOINTS

The joinery shall be constructed exactly as shown on the Interior Designer's details. Where joints are not specifically indicated they shall be the recognized forms of joints for each position.

The joints shall be made so as to comply with BS 1186, Part 2: 1971.

Loose joints are to be used where provision must be made for shrinkage or other movement acting other than in the direction of the stresses of fixing or loading.
Glued joints are to be used where provision need not be made for shrinkage or other movements in the connections, and where sealed joints are required.

All glued joints shall be cross-tongued or otherwise reinforced.

All nails, sprigs, etc., are to be punched and puttied.

Where glued joints are to be carried out surfaces in contact are to have a good swan of planed finish. All cutting edges of tools are to be sharp to avoid "burnishing". The surface of plywood to be glued should be lightly dressed with sand or glass paper. The sand or glass paper must not be allowed to clog and cause "burnishing".

Members in constriction to be joined by gluing are to be of similar conversion. All surfaces to be glued are kept clean, free from dirt, sawdust, oil and any other contamination.

Adequate pressure should be applied to glued joints to ensure intimate contact is maintained whilst the glue is setting.

Mixing application and setting conditions should be in accordance with the glue maker's instruction.

"Adhesives" for joints in non-loadbearing internal work and for joints in work where the moisture content is always less that 16 per cent can be casein or organic glues.

For work under damp conditions (moisture content normally 20 per cent or more or conditions liable to fungal attack): resin type adhesive are to be used.

SCRIBING

All skirtings, architraves, plates and other joinery works shall be accurately scribed to fit the contour of any irregular surface against which they may be required to form a close butt connection.

FLUSH DOORS
Flush doors shall be semi-solid cored and shall be lined on both sides with 4 mm Grade 2 plywood for painting or 4 mm Grade 1 teak plywood where shown.

The doors shall be lipped with 10 mm thick hardwood strips on (4) for sides and shall be fitted and hung to frames as detailed on drawings and specified previously.

Doors shall otherwise conform to BS 459.

PROCEDURE

MEASUREMENTS FOR JOINERY

The Contractor is to take all measurements for joinery works at the building, and not from the Interior Designer's drawings, except where the work is specified to be "built in".

FIXED-IN-JOINERY

Where joinery works are specified to be "fixed-in" or inserted in the positions, they are to occupy after the surrounding or enclosing carcass has been constructed. It shall be the responsibility of the contractor to ensure that the necessary fixings are incorporated in the carcass. Alternatively, the Contractor shall construct such ground works as are required to provide a suitable base and fixing for the joinery works. The spaces enclosed in the ground works and behind joinery works, shall be filled in solid with plaster. The Contractor is to secure "fixed-in" joinery works so that they are plumb and true to the shapes and dimensions shown on the working drawings and details. Vertical junctions shall be solidly bedded with mortar, wedged or otherwise secured, as may be specified or as is most appropriate in the circumstances, but a clearance is to be maintained in all overhead junctions so that settlements in the building carcass may take place without stressing or otherwise loading the joinery works.

Joinery works shall not be fixed in position until after all floor, wall and ceiling surfaces have been formed or constructed, unless otherwise specified.

JOINERY ASSEMBLED IN-SITU

Where joinery works are specified to be "assembled in situ" and all stresses of support and fixing are to be engaged in the building, it shall be the responsibility of the Contractor to ensure that the necessary fixings are incorporated in the carcass; alternatively, the Contractor shall construct such ground works as are required to provide a suitable base and fixing for the joinery works.

The spaces enclosed in the ground works and behind the joinery works shall be filled in solid with plaster or weak concrete.

In situ joinery works shall not be executed until after all floor, wall and ceiling surfaces have been formed or constructed, unless otherwise specified.

DRAWINGS

Work is not the commence until the Interior Designer has approved the manufactured full-size setting out drawings to be provided by the Contractor. Suggestions which the manufacturer may wish to make modifying the construction and joints shown on the Engineer's drawings will be considered.

INSPECTION

Facilities are to be given for the Interior Designer to inspect all work in progress in shops and on the site.

TIME FOR DELIVERY

None of the joinery is to be delivered until it is required for fixing in the building. Joinery which does not require to be built in as the work proceeds is not to be brought to the site and fixed until the building in enclosed.

TRANSPORT AND PROTECTION

The joinery is to be kept under a waterproof cover during transit and it is to be similarly covered and kept clear of the ground on the site. It is to be handled and stacked carefully to avoid damage.

MAKE GOOD DEFECTIVE WORK

Should any shrinkage or warping occur or any other defects appear in the joiner's work before the end of the defects liability period such defective work is to be taken down and renewed to the Interior Designer's satisfaction and any work disturbed in consequence must be made good at the Contractor's expense. Should any shrinkage or warping occur or any defects appear, which cannot be rectified the Contractor shall remove such defective work and replace by new one at his own expense.

ELECTRICAL SPECIFICATIONS FOR CONSTRUCTION OF SMALL HOMES AT REHABILITATION YOUTH CENTRE (GIRLS)

1.0 Note to Bidders

(i) Instruction

The bidder is advised to read carefully these instructions and to ensure that he has complied with the requirements herewith in all respects before submitting the bid.

(ii) Bid Documents

The bid documents are to be based on the following set:

1. Note to bidders
2. Scope of Works
3. Conditions of Contract
4. Technical Specifications
5. Priced Activity Schedule
6. Schedule of Materials
7. Legend
8. Drawings: (i) General Layout/s (Indicative Only)
   (ii) Schematic Layout/s
   (iii) Earthing

The bidder should check that he is in the possession of a complete set of Bid Documents, as above, and by reference to index and content summary pages, he should ensure that all pages are in correct sequence and that none is missing. Any discrepancy or other irregularity should be immediately notified to the Client.

(iii) Discrepancies

Should the Bidder conclude from the bid document that there exists any inconsistency, discrepancy or conflict within the content thereof of figures and words indistinct or be in doubt as to the true meaning of any part of the Bid Documents, he must notify the Client for clarifications, prior to the submission of the bid.
For any other information, please contact Client Ministry/Department.

2.0 Scope of Works

The scope of works for electrical and allied works shall consist of but not limited to the supply, installation, testing and commissioning of the following: -

a) Distribution boards, control panels, switch gears, etc.
b) Switches, sockets and accessories.
c) LV cables/wirings in conduit/trunking/cable trays.
d) Indoor and outdoor lighting
e) Air Conditioners, Wall/Ceiling Fans, Extract Fans, Hand Driers etc.

f) Fire Alarm System
g) Earthing System.
h) Civil Works icw Electrical Works

2.1 Manner of Execution

The contractor shall supply, install, test and commission the equipment and Electrical Works in the manner set out in the non exhaustive specifications or where not set out, to the satisfaction of the ESD Engineer and all reasonable variations on site shall be carried out in accordance with such directives as the Engineer may give.
It is understood that the project shall be completed for the fixed sum awarded inclusive of any item which might not be mentioned in the specifications, schedules, drawings but deemed necessary for the completion of the project and proper functioning of the system/equipment.

2.2 Schedule of Materials

The bidder shall submit the schedule materials along with the bid and specify clearly the makes of various equipment/materials they propose to use. Equipment/materials for this project shall be as per specifications/schedules or as indicated on the drawings. These shall be accompanied by original documentations, catalogues, samples, etc.
No materials/equipment shall be supplied/installed for the project without the approval of the ESD Engineer. Samples or technical datasheet to be provided to the ESD Engineer for approval.

2.3 Schedule of Works

The bidder shall submit a detailed programme of works for Electrical Works inclusive of shipment dates and delivery on site. The bidder shall indicate the time period for the execution and completion of the installations and for the whole project.

2.4 Site Exigencies

The selected contractor shall respect security arrangements in force at the site and shall seek necessary permission and security pass for yard access if any for execution of the work. The contractor shall carry out works outside normal office hours where deemed necessary and authorised by ESD Engineer without any increase in contract cost. Claims for overtime works shall not be entertained. The site shall be kept tidy and no materials/refuse shall be kept which may cause obstructions.
The contractor shall mention the site of storage if the equipment are not stored at the official site.
The contractor shall provide all site amenities, testing equipment and tools inclusive of articulating booms/lifts for verification/testing purposes for the ESD staff.

3.0 Conditions of Contract

3.1 Site Visit

Bidders are advised to visit the site before submission of bid so as to be fully acquainted with the nature of the site and extent of work involved. Bidders shall contact the Client Ministry/ESD for site visit arrangement.

3.2 Priced Activity Schedule, Drawings & Compliance Sheet

The bidders shall fill in the Priced Activity Schedule and Compliance sheet and submit same together with the bid documents.

The PAS and Compliance sheet have been prepared with a view to provide a common basis for bidding. Before submission of bid, it is deemed that the bidder has acquainted himself with all conditions prevailing on site. All the specifications, PAS, drawings are complementary and should be read accordingly. The bidders are advised to carry out measurement and check the quantities of materials. In case of discrepancies, omissions or errors, the bidder shall inform the Client prior to submission of the bid. No extra claim shall be entertained afterwards on this issue.

The Bidders shall fill in the compliance sheets for the major equipments and submit same together with the bid documents. Equipment/materials for this project shall be as per specifications/schedules or as indicated on the drawings. Before supplying materials for the project, the proposed materials shall be vetted by the ESD Engineer.

3.3 Liaison with CEB/Client Ministry

The contractor shall liaise with the representatives of the CEB and Client Ministry/ESD for connection /disconnection facilities or switching of the main supply etc. for the electrical installations. All structural/civil works icw with sheds/cubicles for switchgears, earthing, etc. shall be included in the contract.

3.4 Civil/Structural Works

All structural/civil works icw with LV pillars, sheds/cubicles switchgears, earthing, etc. shall be included in the contract. All structural/civil works to be approved by the structural Engineer MNI & CD.

3.5 Guarantee Period

The Electrical installations shall be guaranteed against manufacturing defects, bad workmanship and other defects not related to normal wear and tear for a period of one (1) year or as mentioned from date of successful commissioning in presence of representatives of ESD.

In the event of a defect, the Contractor shall at his own expense, within 48 hours, make good such defects as instructed to the satisfaction of the Engineer.

Retention money will normally be released at the end of the one-year guarantee period, subject to maintenance being carried out satisfactorily during that period.

3.6 Provisional Sum/Contingencies

Provisional sum/contingencies included in the contract price shall be expended or used as the Engineer may in writing direct and not otherwise. In so far as the sum included in the contract price is not expended or used, it shall be deducted from the contract price.

3.7 Removal of existing Electrical installations

The existing Electrical installations in second and third floor along with all electrical accessories shall be dismantled and removed. Removal of the existing fire alarm system of the building. Prior to removal the client will provide all lists of items that need to be handed-over and other items shall be carted away.
All items in working condition that should be handover to client shall be removed with care without them being damaged in the process

3.8 **Continuity of Electrical supply**

The contractor shall liaise with the Client Ministry to ensure a smooth running and minimum disruption before submitting the detailed programme of works. The contractor shall ensure the continuity of electrical supply to the ground floor and first floor of the building. Temporary electrical installation/supply shall be provided as and when needed. All electrical items required shall be supplied.

3.9 Maintenance work

It is required to carry out servicing and maintenance work to the electrical items and electrical installation as mentioned below. The servicing shall be carried out as mentioned in this document or as per manufacturer recommendation:

- Electrical Installation, Electrical panels and electrical items.
- Air-Conditioning system.
- Fire alarm system.
- Lighting System

3.10 Key Personnel & Site Staff

The bidder should have the following qualified staff:

(a) One Electrical Engineer registered with the Council of Registered Engineers of Mauritius having at least 5 years post registration experience to attend all site meetings, to supervise all electrical works, to submit all shop drawings and technical datasheet, to reply to queries on technical issues and to act as the representative of the Contractor for Electrical Works.
(b) One experienced Electrical Technician holding the Part II Electrical Engineering Technician's Certificate of the City and Guilds of London or equivalent.
(c) At least one experienced Electrician holding the National Trade Certificate (NTC) in electrical installation works or equivalent.

The bidder should also provide the following:

(i) all details including CV, experience and qualifications of the above staff;
(ii) signed agreements from the persons to be deployed on site in this respect.

ELECTRICALWORKS REQUIREMENTS

4.0 Electrical Installations

This section provides a brief description of the electrical works related to this contract. The selected Electrical Contractor shall carry out the works to the full satisfaction of the Director of Energy Services Division and his representatives.

4.1 Regulations

The installations shall conform in all respects to the latest edition of Institution of Electrical Engineers (IEE-U.K.), Wiring Regulations (BS 7671) with any subsequent amendments.

4.2 Electrical Supply

The new installations shall be furnished with a 400V/230V, 50Hz power supply derived from a CEB source.

4.3 Distribution Boards (DBs) - Electrical Panels Main Distribution Boards, Sub-main Distribution Boards, Sub Distribution Board, SubSub Distribution Boards

The **DB** shall be to IP 65, IK 10 and shall be vandalproof made of galvanised steel with textured polyester resin finish, self-extinguishing type, reversible hinged lockable door and removable rear panel. It shall have having the wordings "DANGER ELECTRICITY" neatly & prominently painted. The outdoor DB shall have breaking capacity ≥ Busbars. It shall have adequate natural or fan assisted ventilation. It shall be mounted & enclosed in concrete acceptable to the Engineer.

The panels shall be integrated with rails/perforated plates and shall be big enough to accommodate incoming and outgoing feeders and the following:

1. MCCBs/MCBs and RCDs/RCBOs as per schematic layouts.
2. Bus bars/Distribution blocks of specified ratings with supports and spare connectors.
   Copper Earth Bar Terminal with suitable number of outlets & sizes.
3. Meters, Selector/Timer switches, Contactors, Indicators etc.
4. All accessories (Terminals, Distribution Blocks, Face Plates etc.) to make a complete panel.

Distribution boards shall be wall mounted or floor standing type as specified. All circuits and instruments in the board shall be properly labeled with perspex and danger notices fixed on panels. Plasticised schematic layout shall be fixed in respective Distribution Boards.
Panels shall be located as shown in drawings and shall be solidly & properly earthed.

4.4 Busbars and Distribution Blocks

Compact rigid copper busbar to BS 5486 of specified ratings at least 440V, 3 phase TPN c/w Earth bar. The busbars shall be enclosed in a metal DB to IP 659, IK 10 as specified above.
The busbars shall be able to sustain faults currents of at least 25 kA.

The system shall include the following:
i. Junction/feeder boxes for connection to cables
ii. Accessories such as Tees, bends, etc.
iii. Transparent protective front cover
iv. Galvanised supports and fixing brackets.

The busbar shall be marked prominently at the outside with the wording **"DANGER"**.

Distribution Blocks shall be self-extinguishing type to EN 60695-2-11. They shall be rail mounted and supplied with insulated black plate and transparent protective front cover. They shall be 2P or 4P as specified with minimum Isc 16/25 kA.

4.5 Labels and Danger Notices

Identification labels of laminated plastic materials (perspex) engraved, black on white with no less than 6mm 'Limo' style letters shall be fixed on or adjacent to all distribution gears with at least 2 brass screws.

Suitable warning notices in red lettering on white background shall be provided on each distribution boards. Label shall bear identifications on drawings and voltage also.
Suitable "Danger" plates shall be securely affixed on the distribution boards and mounted in prominent position. Each danger notice shall be fabricated in enamel sheet steel. Symbols shall be in red on white background and shall be to British Standards.
All cables ending in electrical panel shall be properly labelled as per a cable schedule.

4.6 Switchgears

 # Moulded Case Circuit Breaker MCCBs shall comply with BS EN 60947, shall be 4 poles of minimum breaking capacity 25 kA at 440 Volts, shall have adjustable nominal (Io), thermal (Ir~0.6-1 In) and magnetic releases (Im~3.5-10 In). It shall be supplied with all necessary accessories such as adaptor for fitting, auxiliary contacts, alarm contacts, shunt trip, under voltage releases and all mounting accessories such as terminals, spreaders and insulation seals etc. It shall incorporate the following:

i. Positive opening indication
ii. Test button for mechanical release control
iii. Rotary retractable door mounted handle on the front of the unit of the Main MCCBs

 # Miniature Circuit Breakers (MCB) shall be to BS EN 60898 and shall be 2/4 poles as specified or as per schematic layouts. The minimum breaking capacity of the MCBs shall be 6/10 kA and shall have type B/C/D tripping characteristics as specified.

 # RCBOs or **Residual Current Device (RCD)** to IEC 61008-1 **Type AC, 2P/4P** of sensitivity 30-300 mA with minimum breaking capacity 6/10 kA associated with MCBs shall be used where specified. These shall provide protection against earth leakages and short circuit/overload. ***Type Hpi*** *shall be used for computer and sensitive equipment.*

 # Power Contactor

The contactor shall conform to IEC 61095 and shall have the following characteristics:

- Power: 25-40 A, 230 V/50 Hz supply or as specified
- Voltage relay coils – 230 V/50 Hz or as specified
- At least 2 N/O & 2 N/C contacts
- Self cleaning contacts
- Easy frontal/lateral clipping of auxiliaries

- Mechanical life : around 10^6 cycles

These shall be used as directed

 # Selector Timer Switch

The selector timer switch shall conform to IEC 61095 and shall have the following characteristics

- 230 V/50 Hz supply
- Programmable time switch
- Change Over Switch with manual override
- Ample Working Reserve
- Analogue Dial

These shall be used for yard lighting or as directed

 # PIR Motion Detector

The PIR Motion/Presence Detector shall have the following specifications:

- AC supply 230V/50Hz
- Light level adjustment: 5-1000 lux
- Delay Timer: Pulse 5-300s
- Flexible detection range mounting
- Reset button incorporated
- Manufactured to BS

The PIR Motion/Presence Detector shall be used for toilets (extract fans) or as directed.

(i) ***4.7 Switches and Sockets***

-The lighting switches (including LED dimmers of relevant BS standards) shall be to BS 3676 recessed metal clad vandal proof and IP 65 outdoor-weather proof type complete with very flat base plate, rated as specified. The number of gangs and ways shall be as indicated in the drawings. The lighting switches shall be flush mounted and fixed at around 1500mm above the finished floor level.
-All sockets shall be to BS 1363 switched recessed metal clad vandal proof and IP 65 outdoor-weather proof type with shuttered openings and shall be provided with neon indicators. The number of gangs shall be as indicated in the drawings. The sockets shall be flush mounted and fixed at around 300mm from the finished floor level, or as specified.

4.8 Type of Installation and Cables

The cables shall be routed via existing concealed conduit routing. Chasing works shall be carried out wherever required and as per electrical drawings. The cables shall be neatly grouped without any crossing and shall be properly clipped at recommended interval of 1 metre and at bends according to recommended cable space factor requirements. All cabling shall be complete with end terminations, cable glands, lugs, etc. Bending radii of cables shall conform to BS.

Cables shall comply with BS 6500 and IEC 60502. Cables shall be of 1 KV grading conductors of high conductivity copper wires. The cabling between the Main Distribution Panel/Board and various distribution boards shall be of copper conductor XLPE/SWA/PVC insulated and of specified sizes as per schematic drawings. Sufficient Inspection boxes to the nearest minimum requirements shall be provided to permit periodical inspection and to facilitate replacement of wires if necessary. The inspection/junction boxes shall be mounted flush with the wall or ceiling concrete. Ventilating holes shall be provided in the installation where required.

Colour code of cable shall be as follows:

First phase	Brown
Second phase	Black
Third phase	Grey
Neutral	Blue
Earthing	Yellow-Green

The contractor shall submit shop drawings for indicating the cable routes, type of installation including dimensions for the cables and associated details to ESD for approval.

Note: After chasing works, the contractor will have to make good the damage caused to the infrastructure such that it is homogeneous to the existing surfaces.

4.9 Wiring & Conduit for Final Circuits

Wiring for final circuits shall, unless otherwise specified, be carried out in non-armoured 1kV grade single-core PVC-insulated cables manufactured in accordance with BS 6004. Cables shall be stranded copper conductor and self-coloured insulation to BS EN 50525.
All cables shall be within concealed heavy duty orange conduits as approved by the ESD. Within the trunking/conduits/cable trays, circuits shall be bunched at reasonable intervals and shall be properly labeled. They shall be supplied with cable straps at 2000mm intervals. Inspection boxes shall be provided to permit periodic inspections and maintenance works where needed.
Flexible fire retardant trunkings/ heavy duty conduits/cable trays of adequate dimension shall be used in order to satisfy cable space factor. Manufacturer's standard fittings (e.g bends, tees, end plates) shall be used throughout.

5.0 LIGHTING AND LUMINAIRES

Lighting Installations

All luminaires shall comply with IEC 62717, IEC 62722 and manufactured to European Standards.

All luminaires shall be carefully stored before erection and handed over in new conditions.

TYPE A
Flat LED Rectangular Panel Light Fitting - 1200x300mm (TYPE A)

- Light source: LED modules
- Shall have dimmable drivers via 0-10V controller (in dormitories only)
- Power supply to be 230 V~ 50Hz.
- Luminous flux to be at least Φ 3500-4500 Lm
- Efficacy: at least 90lm/W

- Color temperature 6000 K cool white
- CRI > 80
- Diffuser to be anti-glare high transparency clear and Photometric to be symmetrical type > 120^0
- Shall be at least IP 40 with class II electrical insulation.
- Body to of PC cover and high quality aluminium base for excellent heat dissipation
- Constant current Driver & Luminaire shall comply with EN Standards, and shall be from a reputable manufacturer

TYPE B
Flat LED Rectangular Panel Light Fitting - 1200x300mm (TYPE B)

- Light source: LED modules
- Power supply to be 230 V~ 50Hz.
- Luminous flux to be at least Φ 3500-4500 Lm
- Efficacy: at least 90lm/W
- Color temperature 6000 K cool white
- CRI > 80
- Diffuser to be anti-glare high transparency clear and Photometric to be symmetrical type > 120^0
- Shall be at least IP 40 with class II electrical insulation.
- Body to of PC cover and high quality aluminium base for excellent heat dissipation
- Constant current Driver & Luminaire shall comply with EN Standards, and shall be from a reputable manufacturer

TYPE C

LED Panel – 1200x300 mm, Surface Mounted Fitting, complete with emergency power pack

- Light source: LED modules
- Power supply to be 230 V~ 50Hz.
- Luminous flux to be at least Φ 3500-4500 Lm
- Efficacy: at least 90lm/W
- Color temperature 6000 K cool white
- CRI > 80
- Diffuser to be anti-glare high transparency clear and Photometric to be symmetrical type > 120^0
- Shall be at least IP 40 with class II electrical insulation.
- Body to of PC cover and high quality aluminium base for excellent heat dissipation
- Constant current Driver & Luminaire shall comply with EN Standards, and shall be from a reputable manufacturer

LED panel shall have an autonomy of at least 1.5 Hrs with power bank Ni-Cd batteries

TYPE D

- Compact floodlights with white LEDs
- Integral power supply, driver and transformer
- Die cast Aluminium body
- Tempered glass/acrylate

- Silicone gasket sealing and hot galvanized steel mounting bracke**t**
- Fitted with **180-220W**, **230 V LEDs**
- Luminous Efficacy: at least 100 lm/W
- Insulation Class I/II to IP 66, IK 08
- Manufactured to European Standards.

TYPE E

- Compact floodlights with white LEDs
- Integral power supply, driver and transformer
- Die cast Aluminium body
- Tempered glass/acrylate
- Silicone gasket sealing and hot galvanized steel mounting bracke**t**
- Fitted with **280-320W**, **230 V LEDs**
- Luminous Efficacy: at least 100 lm/W
- Insulation Class I/II to IP 66, IK 08
- Manufactured to European Standards.

TYPE F

Watertight LED surface mounting fitting, (1200mm) complete with SMD LED light source,

- Supply: 230 V~ 50Hz.
- Luminous flux to be at least Φ 3000 Lm
- Efficacy : at least 100lm/w
- Diffuser to be anti glare high transparency clear and Photometric to be symmetrical type > 150^0
- Body to of PC cover and high quality aluminium base for excellent heat dissipation
- Color temperature 4000 K cool white
    - Body of injection moulded polycarbonate & joints to be of poured polyurethane foam, photometric distribution
- Shall be dust protected and water resistant to at least IP 65 and impact resistant to at least IK08 with class II electrical insulation
- CRI > 80
- Constant current Driver & Luminaire shall comply with EN Standards, and shall be from a reputable manufacturer

6.0 Extractor Fans

Extractor Fans shall be to the following specifications:

a) Wall/glass mounted
b) Steel protected by polyester spray paint or High impact resistant thermoplastics
c) Single phase 230 V, 50 Hz
d) Air flow rate: Kitchen/Mess - around 750 m^3/h (210 l/s)
Toilet - around 350 m^3/h (100 l/s) /
e) Motor/electrical connection protected to IP 55
f) Automatic external shutters to prevent ingress of water
g) Removable safety grille for maintenance/servicing
h) Noise level shall not be greater than 50 dBA at 1 metre.
i) Wired remote switch for fan speed control
j) Connected to PIR Controller for presence detection in Toilets

7.0 Air Conditioners

Air Conditioner of capacities as specified in drawings shall be supplied, installed, commissioned and tested at the locations shown on the drawings. The units shall be to the specifications given below.

A. Split Wall Mounted Air Conditioner

Indoor unit :

1. The units shall be of capacity as specified
2. The units shall be of the wall mounted type, slim, compact and of elegant design
3. Horizontal air flow with Orientable 4 way Air Deflection
4. Auto/Variable fan speed and thermostatic temperature control
5. Wireless LCD Remote Control Operating Unit
6. Auto Restart feature
7. One touch anti fungus electrostatic multistage air filter
8. Aluminium Coil Fin & Seamless Copper Tube
9. Environmentally friendly refrigerant
10. Variable Speed Control on compressor (DC Inverter Technology)

Capacity Btu/hr	Noise level at 1 metre at high fan speed/high cool	Moisture removal
12,000	36/43 dBA	1.4 lt/hr
18,000	38/46 dBA	2.1 lt/hr

Outdoor Unit: 1. Weatherproof and suitable for use in tropical climates
2. Rotary type compressor with EER> 3.2 or SEER>6.0

GENERAL NOTES

1. The exact location of AC outdoor units shall be indicated during implementation stage.
2. Quotation for the above shall include supply, installation, testing and commissioning.
3. Delivery period after order is placed shall be mentioned.
4. Original leaflet containing technical data shall be attached to the quotation as proof of compliance with specifications.
5. Make and country of origin of the air conditioner shall be clearly specified.
6. The compressor of the air conditioner shall be guaranteed for a period of **5 years** and all other parts shall be guaranteed for a period of at least 1 year. These guarantee periods shall be effective only as from the date of successful commissioning of the air conditioner.
7. The position of the indoor/outdoor units may be subject to changes, if any, and this shall be considered by the bidder when quoting. Note that no variation will be accepted upon this item after award of this contract.
8. The contractor shall undertake all the electrical installations from the existing DB to the oudoor unit and indoor unit of the air conditioner using appropriate MCB, RCD, cables and trunking. **A DP switch with neon of appropriate rating will be supplied and installed for the indoor unit of the air conditioner by the Electrical Contractor.**
9. Any supports, mounting brackets, etc. (to be hot dipped galvanised) shall be supplied and installed by the successful bidder, who is expected to make a site visit before quoting. Should the indoor/outdoor unit of the air conditioner require some base (metal or concrete), this shall be provided by the bidder who shall quote for this item too.

10. The air conditioner shall be provided with suitable drain pipes, with sufficient slope for perfect drain. The drain pipes shall be leakproof and shall be securely fixed as and where required on the wall inside and outside the building till about 50 mm from ground level (outdoor) or connected to the nearest service drain.
11. The installation of the air conditioners may necessitate some civil and masonry works (drilling of holes in order to pass the pipes) and/or modifications to window panes/frames/metal work which shall be undertaken by the successful bidder and these openings shall be properly sealed in order to avoid leakage or loss of cool air. It is imperative for the bidder to include civil works separately in his quotation.
12. All the refrigerant pipes (which shall be vapour sealed) and drain pipes inside the building shall be enclosed within trunkings of suitable dimensions and shall be securely fixed to the wall. The successful bidder shall be expected to execute a high-quality trunking work by making use of accessories (i.e. angle exterieur, interieur, embout, jonction, etc.).
13. The air conditioner shall be equipped with wireless remote control by means of which the air conditioners may be switched on and off, the temperature and fan speed may be controlled and from which one may read the room/office temperature via an LCD display.
14. The air conditioner shall be equipped with appropriate valves along the refrigerant pipes so as to allow isolating and separating the indoor unit from the outdoor unit without any loss of refrigerant.
15. The bidder shall submit as part of the contract, upon completion of works, a comprehensive operations and maintenance manual inclusive of an exploded diagram of the air conditioner showing the different parts and associated part numbers.
16. The bidder shall, upon completion of works, test the air conditioner in the presence of an ESD Engineer. All test equipment (decibel meter etc.) to be provided by the Contractor. Test certificates shall be submitted in duplicate copies to the Client.
17. The bidder shall provide free servicing on a quarterly basis during the one year guarantee period. Such servicing shall consist of cleaning of filters and checking the performance of the unit/s. The reports shall be submitted to the ESD & Client Ministry. 10 % of bid/contract value shall be retained against the above.
18. Any breach to comply with the above during quotation shall lead to disqualification of the bidder

7.1 **Maintenance of Airconditioning system**

During the one-year maintenance period (defect liability period) the contractor shall be responsible of the Preventive Maintenance and Servicing of the **Airconditioning** System as describe below:

a) Semesterly Servicing to be carried out on the system upto the end of the Maintenance period.
All servicing shall be carried out as per manufacturer recommendation.
b) Attending/Intervening to breakdowns and/or emergencies on the system
c) All maintenance/servicing works to be scheduled and notified at least 2 weeks before to Client/ESD and service reports handed to Client/ESD after satisfactory completion of maintenance/servicing

8.0a Specifications for Fire Alarm System

The contractor shall supply, installation, testing and commissioning of equipment and associated items for Fire Detection System and Fire Alarm System to BS 5839 and EN 54 in the building.

8.1

I. Main control and indicating panel.

The main flush mounted panel shall be located in Reception or as specified
Appropriate Surge Protector shall be installed for protection of the system.

It shall consist of a 4 - Zone Version Addressable panel with the following features:

1. Individual zone alarm relays
2. Individual zone isolation
3. One man walk test facility without interruption to rest of system
4. Monitored outputs for open & short circuit faults
5. Repeater panels - to enable essential signals from main panel to be repeated as specified
6. Integral power supply to provide standby power in case of mains and generator failure. (Maintenance free Nickel cadmium batteries and charger)
7. Integral Manual Call Points, Sounders and Strobe Flashers
8. Micro processor based modular upgradable design for sequential polling of devices.

The main LCD text display & LED indicator panel shall have the following indications: Status, Fire alarm, Maintenance alarm, Device fault, System faulty, Auto reset, Test mode, Supply fault, Mimic display etc.

II. Breakglass Manual Call Points:

- To be compatible to BS 5839. Resettable operating element with incorporated lift flap against accidental activation.
- Shall have LED indication.
- Flush mounting.
- Shall be to IP 54 with weather resistant gasket.
- Test facilities such as key insertion

III. Point and Volumetric Detectors (with at least 3 levels of sensitivity)

(a) Photoelectric (Optical) Smoke Detectors

- shall be to BS 5445 Part 7
- based on light scattering principles c/w infra red LED
- pulse light source
- 3 pulses to trigger alarm
- dual chamber type for visible and invisible smoke detection

(b) Ionisation Smoke Detectors

- shall be to BS 5445
- suitable for detecting visible smoke and invisible products of combustion
- certified radioactive source shall mechanically secure
- dual chamber type for changing environmental conditions

(c) Temperature/Heat Detector

- shall be to BS 5445 Part 8

- electric thermistor detector element
- operating point set at 75^0C for fixed high temperature detector
- operating range 20^0C-60^0C for rate of rise heat detector

IV. Electromechanical Sounders

Indoor Siren:

a) Operated on 230V AC
b) Adjustable Sound output : ≈ 100 dBA at 1m or 5dBA above background noise
c) Two distinct sounds possible for "Alert" & "Evacuate"
d) Continuously rated for 150 hours
e) Vandalproof to IP 44

Outdoor Siren:

a) Operated on 230V AC
b) High sound output: at least 115 dBA at 1m
c) Operation : 2500 Hz
d) Continuously rated for 100 hours
e) Vandal proof to IP 55

V. Strobe Flashers

- High Intensity RED colour Xenon Flashers/bright LED
- Flash cycle: at least 30Hz
- Minimum 100mm tall and 70mm diameter
- Rated to IP 44

8.2 Power Supply

Integral power supply to provide at least 24 hours of standby power in case of Mains/Generator failure. (Maintenance free Nickel cadmium batteries and charger)

In case of Mains/Generator failure, the battery unit shall be capable to sustaining the normal load of the alarm system for a period of 12 hours, followed by the load of all sounders for a period of 45 minutes. It shall include the following:

i. enough space for batteries
ii. protection for battery/regulator circuits
iii. reverse polarity protection
iv. automatic battery load test

The power supply shall also incorporate the appropriate charging circuit.

8.3 Cabling

The wirings shall be carried out in non flammable propagating type conduits and accessories to BS 4607. One pair of cables shall be used. The conductor size shall be at least 1.5 mm^2. The fire resistant MICC cables or acceptable equivalent shall have "Fire Alarm Cable" printed on them.

NOTE:

- Instructions to operate the panel during a fire or fault shall be affixed next to the FAP.
- Free training to users and technical staff shall be dispensed by the contractor

8.4 Maintenance of the Fire alarm System

During the one-year maintenance period (defect liability period) the contractor shall be responsible of the Preventive Maintenance and Servicing of the **Fire alarm System** as describe below:

a) At least Semesterly servicing to be carried out on the system upto the end of the Maintenance period.
All servicing shall be carried out as per manufacturer recommendation and as per actual regulations
b) Attending/Intervening to breakdowns and/or emergencies on the system
c) All maintenance/servicing works to be scheduled and notified at least 2 weeks before to Client/ESD and service reports handed to Client/ESD after satisfactory completion of maintenance/servicing

Symbol plate with Escape Sign	Scratch resistant/Polycarbonate plate with standard symbols conform with IEC directive 9258 & ISO 3864 English version - Green Lettering - EXIT/FIRE or EXIT/EMERGENCY shall be installed as per fire requirement

9. Maintenance of the Electrical system

During the one-year maintenance period (defect liability period) the contractor shall be responsible of the Preventive Maintenance and Servicing of the **Electrical system** as describe below:

a) At least Semesterly servicing to be carried out on the system upto the end of the Maintenance period.
All servicing shall be carried out as per manufacturer recommendation and as per actual regulations
b) Attending/Intervening to breakdowns and/or emergencies on the system
Faults occurring during a critical time shall be attended immediately upon notification
c) All maintenance/servicing works to be scheduled and notified at least 2 weeks before to Client/ESD and service reports handed to Client/ESD after satisfactory completion of maintenance/servicing
d) Other associated works.

TESTS ON COMPLETION

On completion of all the installations, the electrical contractor shall carry out tests in the presence of ESD Engineer or his representatives and submit to the Director of ESD three signed copies of the tests certificates by a Registered Professional Electrical Engineer.

Testing and measuring equipment shall be of very good quality and shall be provided by the electrical contractor in all cases.

The following tests shall be carried out:

(i) Insulation test
(ii) Continuity and Polarity tests
(iii) Earth loop impedance test
(iv) Earth Resistance test
(v) RCD tripping time
(vi) Operation of protective devices
(vii) Load test
(viii) Voltage test
(ix) Phase Sequence and Phase Rotation tests
(x) Functional Test
(xi) Any other test requested by the ESD

Tests on equipment/plant/electrical device

Tests on the above shall be carried out as per Manufacturer's recommendations or as directed by the ESD Engineer.

Drawings

Upon completion of the works, the bidder shall submit to the Director of the Energy Services Division three copies of as "fitted diagrams" signed by the Registered Professional Electrical Engineer

(i) the Electrical installations and layouts
(ii) schematic diagrams of circuits and protective gears
(iii) location of Distribution Boards & cable routes

One copy of Manuals and Drawings shall be provided on USB Pen Drive. Softcopy of drawing shall be both in CAD and PDF format

LIST OF 'ELECTRICAL WORKS' DRAWINGS

List of 'Electrical Works' layout and schematic drawings (attached to this bid document.)		
SN	**Description**	**Drawing No.**
1	Ground Floor Plan Electrical Layout	G741/EL/01
2	First Floor Plan Electrical Layout	G741/EL/02
3	Second Floor Plan Electrical Layout	G741/EL/03
4	Third Floor Plan Electrical Layout	G741/EL/04
	Note: Refer to Architect Drawings for exact layout, layout dimensions and drawing details. Dimension of Luminaire symbols are indicative only	

CONTRACT NOTES

1. The bidder is advised to effect a site visit before bidding so as to properly assess the scope of work.

2. Upon award of the contract, the successful bidder shall submit in triplicate to the Energy Services Division, a detailed program of works/bar chart for supply of equipment/materials, installation, testing, commissioning and handing over.

3. All liaison with ESD/Client Ministry/CEB, shall be undertaken by the successful bidder as part of the contract.

4. The contractor shall be deemed to have examined the bid documents, detailed specifications, date, etc. and ascertaining all relevant details for offering suitable equipment/materials and installation work.

5. The contractor is requested to go over the design completely to ensure and point out anything that has not been mentioned in the specifications/drawings, but necessary to make the system complete and functional. No variations will be accepted after award of contract.

6. The contractor shall be responsible for supplying all the materials, equipment, fittings and accessories necessary to complete the work to the satisfaction of the Engineer.

   The contractor shall ascertain himself as to the availability of the materials required and specified on the local market and if ever part or all of these should be ordered, this shall be clearly mentioned in his bid. If the contractor fails to do so, his quotation shall be taken as firm for all the materials specified and he will be responsible for supplying such materials timeously to meet the program.

   All fittings, equipment and accessories shall be unused and new and any material damaged during installations shall have to be replaced by new ones at no extra cost before handing over.

7. It will be the responsibility of the contractor to provide samples free of charge, in case alternative fittings/accessories are being proposed. ESD reserves the right to reject such fittings/accessories in case they do not conform to specifications.

   Samples shall be provided whenever specified and when non-standard items or products are to be used by the contractor or when requested by the ESD when in doubt about the quality or finish of a product.

8. **All distribution boards and switchgears shall be properly labeled by means of type written stickers of sufficient size and two copies of as fitted schematic layout of the distribution board shall be submitted to the ESD after completion of works. The third copy shall be enclosed in a non-inflammable transparent plastic envelope securely fixed to the inside of the door.**

   The label shall show the number of each ways reference as indicated in the schedules or drawings, the rating of the MCBs, the cable size and the apparatus connected. The labels shall be so arranged that the circuit details can be modified at a later stage.

Distribution boards, if unavoidably fixed in places likely to be exposed to weather drip or to abnormal moisture atmosphere, the outer casing shall be weatherproof and shall be provided with glands or bushing. PVC and double flanged gland buses shall be fitted in the holes of the switches for entry and exit of wires.

9. Quotation shall be inclusive of civil and associated works. The approval of the Civil Engineer MNI shall be obtained for all civil/structural works icw Electrical works/equipment.

   Manholes shall be of sizes as specified. The blockwork inside manholes shall be plastered. All accessories such as foundation bolts, terminal blocks for connection, cable glands, lugs, etc and miscellaneous materials which are useful and necessary for the works shall be deemed to have been included within the scope of work.

10. Care shall be taken in handling, stacking of materials to avoid damage to any structure. On completion of installation, the contractor shall remove all the debris and leave the entire area in a clean state.
    It will be the responsibility of the contractor to make good all damaged materials, items or building finishes at no extra cost.

11. The contractor shall be responsible for the preparation of shop drawings, as made drawings and test certificates for the works as per schedule of works. Working drawings shall include fully dimensioned details and positions of all supports and fixings. They shall clearly define the details and arrangement of all installed equipment and systems including access allowances for service and maintenance.
    The drawings shall include details of penetrations through the structure, builders work supports and bases. Full details of access requirements for commissioning, servicing and maintenance through suspended ceilings and floors, together with access to riser ducts and the like shall be provided.

    The Employer shall review and approve shop drawings and sample with reasonable promptness so as to cause no delay, but only for conformance with the design concept of the project and with the information given in the contract documents.

    The contractor shall make all corrections required by the Employer and shall resubmit the required number of corrected copies of shop drawings or new samples until approved. The contractor shall direct specific attention in writing on submitted shop drawings to revision other than the corrections required by the employer on previous submission.

    The employer's approval of shop drawings or samples shall not relieve the contractor of responsibilities for any deviation from the requirements of the contract unless the contractor has informed the employer in writing of such deviations at the time of submission and the employer has given written approval to the said deviations nor shall the employer's approval relieve the contractor from responsibilities of errors and omissions in the shop drawings or samples.

    The as fitted as made drawings and test certificates shall be submitted to the ESD duly signed by a Registered Professional Electrical Engineer prior to handing over.

12. The ESD Engineer shall be responsible for the inspection of the works and for making sure that the installation generally complies with the specifications of the contract. It is not the responsibility of the Engineer to instruct the sub contractor how to perform any part of the work.

The Engineer shall carry out inspections periodically (at least every two days and for every meeting) at the frequency and time that he may judge necessary to satisfy himself that the works are executed generally in accordance with good Engineering practice.

Such inspection are not meant to detect all possible errors, deviation or defects that may have been made by the sub contractor, or cause by his default or lack of supervision and inspection or approval of any part of the installation by the Engineer does not relieve the sub contractor from his obligations to comply with the conditions of contract and from liability at common law.

Inspection and approval of any part of the installation does not therefore relieve the sub-contractor, from his obligations to remedy or correct any defect, deviation or error that may be discovered subsequently, when instructions shall be given to him by the Engineer to that effect.

13. The contractor shall have the responsibility of drawing the attention of the Engineer in writing, to any error or discrepancy he may find on the drawings and in the contract documents. The Engineer shall then make the necessary corrections and amendments if necessary or shall decide on the best step to follow. His decision shall be final and the contractor shall proceed accordingly.

    Should any work executed not be in accordance with the intent of the drawings, documents or Engineer's instructions or be considered by the latter to be of bad workmanship or of poor quality, the contractor shall be ordered by the Engineer to remove and re-execute such works and the expenditure incurred shall be the liability of the contractor.

14. Bidders shall specify clearly the makes of various equipment/materials they propose to use. These shall be accompanied by original documentations, catalogues, samples, etc.

15. Guarantee on all installations shall be **one year** or as mentioned. The contractor shall provide free maintenance of the installations, equipment/s and auxiliaries during the guarantee period. During the maintenance period, the contractor shall carry out regular examination and servicing of the installations, equipment/s at the intervals recommended by the manufacturer. He shall at its own expenses make good all defects as per manufacturer's recommendations.

16. During the warranty period, the contractor shall attend with diligence any such defect that arises; carry out regular examination and servicing of the installations, equipment/s at the intervals laid down by the manufacturer.
    The contractor shall carry out monthly periodic checks and submit monthly reports to the Ministry. The contractor shall submit log books for the servicing, maintenance and repair of each and every equipment. The Intervention sheets shall include the nature/type of fault, date and time of fault, date and time attended. The register/log book shall be counter signed by a responsible officer of the Client Ministry/ESD as proof of presence on site.

17. The contractor shall en sure that the works are carried out as per the provisions of the Occupational Health and Safety Act (OSHA).

18. The installations shall conform in all respects to the respective BS, EN and IEC standards.

19. Should there be any matter which, according to the contractors, should have been considered before allocating any contract especially if this may lead to additional works and hence, additional costs, they shall inform the Client Ministry or Engineer ESD.

SCHEDULE OF MATERIALS				
Item No.	***Description***	***Make***	***Model***	***Country of Origin***
1	**Distribution Board**	**-**	**-**	**-**
2	**Distribution Blocks**			
3	**Isolator switch**	**-**	**-**	**-**
4	**MCCBs**			
5	**MCBs 2/4 P**			
6	**RCBO**			
7	**Switches**			
8	**Sockets**			
9	**Contactors**			
10	**Selector Timer Switch**			
11	**PIR Motion Detector**			
12	**Cables**			
13	**Wirings**			
14	**Conduit & Accessories**			
15	**Lighting Fitting Type A**			
16	**Lighting Fitting Type B**			
17	**Lighting Fitting Type C**			
18	**Lighting Fitting Type D**			
19	**Lighting Fitting Type E**			
20	**Lighting Fitting Type F**			
21	**Lighting Fitting Type G**			
22	**Extractor/ Supply Fans**			
23	**Air Conditioner**			
24	**Fire alarm system**			
25	**Other (specify in additional pages)**			

Compliance and Specifications (Technical sheet to be filled by Bidder)			
Procurement Reference Number:	**_____**		
[Bidders should complete columns C and D with the specifications and performance of the works offered. Also state "comply" or "not comply" and give details of any non-compliance/deviation to the specification required. Attach detailed technical literature if required. Authorise the specifications offered in the signature block below]			
ELECTRICAL EQUIPMENT & ACCESSORIES			
Item No	**Specifications and Performance Required**	**Compliance of Specifications and Performance Offered**	**Details of Non-Compliance/ Deviation (if applicable)**
A*	***B****	***C***	***D***
1	**Distribution Board**		
2	**Distribution Blocks**		
3	**Isolator switch**		
4	**MCCBs**		
5	**MCBs 2/4 P**		
6	**RCBO**		
7	**Switches**		
8	**Sockets**		
9	**Contactors**		
10	**Selector Timer Switch**		
11	**PIR Motion Detector**		
12	**Cables**		
13	**Wirings**		
14	**Conduit & Accessories**		
15	**Lighting Fitting Type A**		

16	**Lighting Fitting Type B**		
17	**Lighting Fitting Type C**		
18	**Lighting Fitting Type D**		
19	**Lighting Fitting Type E**		
20	**Lighting Fitting Type F**		
21	**Lighting Fitting Type G**		
22	**Extractor/ Supply Fans**		
23	**Air Conditioner**		
24	**Fire alarm system**		
25	**Other (specify in additional pages)**		

SCOPE OF WORKS AND SPECIFICATIONS FOR MECHANICAL WORKS

1. Scope of Works for Mechanical Services

The scope of works for Mechanical Services installations for the Construction of a Small Home for Rehabilitation Youth Centre (Girls) at Barkly shall include the following:

(i) Cold water system
(ii) Hot water system
(iii) Waste and sewage systems (including site works)
(iv) LP Gas System
(v) Firefighting system

The Contractor shall be responsible for the supply, delivery, installation, testing and commissioning each of the above systems to the full satisfaction of the Mechanical Engineer. The Contractor shall ensure that he delivers a complete installation in working order and which is in conformity with the specifications defined in the present documents and which is fully compliant to the latest editions of the relevant British Standards.

Bidders are strongly advised to carry out a comprehensive survey of the site prior to submitting their quotes. The Contractor shall be expected to have fully understood the specific requirements of this contract and to have made due provision for same.

These technical specifications are meant to be a general guide to the Contractor and are not meant to replace applicable codes of practice and regulations, nor shall they provide him with any excuse for claiming additional costs and for not executing the job to the full satisfaction of the Mechanical Engineer.

Any discrepancy or other irregularity shall be notified to the Mechanical Engineer immediately for any rectification.

The tender drawings submitted with these specifications are intended to provide the Contractor with the design concept and illustrate the general layout of all equipment and distribution systems. These, together with the specifications, give sufficient information to enable the Contractor to estimate the cost and determine how the system must be installed, tested, balanced, operated, serviced and maintained.

These drawings are not dimensioned installation drawings. Location and dimensions shown are only indicative of routes and zones in which the above-mentioned mechanical services must be installed.

The Contractor shall produce appropriate detailed shop drawings on A1 format for all mechanical installations and submit same to the Mechanical Engineer for approval prior to installation works on site.

All mechanical installations executed on site shall be as per Contractors detailed shop drawings duly approved by the Mechanical Engineer of this Ministry.

"As-Built" drawings **must** be submitted by the Contractor upon completion of all the mechanical installation works. The works shall **not** be certified as being complete until and unless these said drawings and all Operation and Maintenance (O&M) manual have been submitted. The contractor shall bear full responsibility for the accuracy and completeness of the final "As-Built" drawings.

"As Built" drawings shall be submitted by the Contractor on completion of the works. The works shall not be certified as being complete unless these drawings and all Operation and Maintenance (O&M) manual have been submitted.

2. Cold Water System

Water from the incoming CWA mains shall directly feed the two new fiberglass cold water storage tanks installed in the service area at ground floor level as shown in the tender drawings. The cold water distribution shall be a pressurized system consisting of pressure booster set with two pumps located in a new pump room adjacent to the water tanks.

2.1 Cold Water Pipework

Remove, dismantle and cart away all existing aboveground/underground cold water pipework and associated mechanical components including fittings and accessories located on each floor level of the said building and supply, install, test and commission a new pump set and associated cold water pipework and accessories.

All new above ground cold water pipework shall be uPVC pressure type, rated to withstand a pressure of 10 bars and in compliance with the relevant British Standards (BS 4514) and manufactured to MS ISO 4422-2.

Underground pipings buried in trenches shall be High Density Polyethylene (HDPE) PN10 pipe of appropriate dimension conforming to BS 6437 and manufactured to MS ISO 4427 with electrofusion weld joints and fittings.

The New cold water system shall include the following:

- Inlet pipework from CWA mains to two (2) nos. 6500 lts fibre glass cold water storage tanks located at ground floor level.
- Suction pipework from storage tanks to cold water pump set installed in pump room at ground floor level.
- Domestic water pump set for pumping water from storage tanks to cold water reticulation system up to solar water heaters at roof level.
- Cold water supply pipework (pressurized) to all draw-off points located at ground floor level, first floor level, second floor level and third floor level.

Joints shall be solvent welded by use of appropriate PVC solvent glue. Parts to be jointed shall be firstly thoroughly cleaned before being glued together. Joints between PE and uPVC pressure pipe shall be via brass EA connections.

Solvent welded screwed fittings shall be used wherever required namely at stop valves, flexible pipes, etc. At all user ends, chrome plated ringed flexible pipes of appropriate length shall be used.

Each sanitary appliance shall be fitted with an individual isolating valve. In addition to stop cocks provided at each appliance, appropriate easily accessible stop valves shall be provided in the network so as to enable each floor to be isolated independently for maintenance purposes.

Water supply pipings shall be fixed to walls, service risers, floor ducts, furniture panels, etc. by means of colour matching nylon mounting clips at intervals as per manufacturer's specifications.

All water pipework and fittings shall be pressure tested to 8 bars and a certificate to that effect shall be submitted to the Mechanical Engineer.

CWA inlet pipings shall be Polyethylene pipe.

2.2 Domestic Water Pumps

One set of domestic water pumps shall be supplied, installed, tested and commissioned by the Contractor.

These pumps shall provide pressurised cold water to all draw-off points located at ground floor level, first floor level, second floor level and third floor level of the building as well as to four (4 nos.) solar water heaters installed on the roof level.

Each pump shall have a minimum delivery of 8,0 m^3/hr at a manometric head of 40 meters (4,0 bars).

The pumping system shall include a pressure vessel which shall be sized for the set pressure and design flow rate such that the maximum number of pumps starts per hour is limited to 11. Dry running control of pump set shall be by means of level float switches installed in the water storage tank.

Each domestic water pump shall be a standard catalogue item from a renowned manufacturer. Each pump set shall consist of two pumps connected in parallel, pre-wired with control panel and ready for installation, stop valves at inlets and outlets, and non-return valves at outlets.

The pumps shall be centrifugal type having **horizontal or vertical shaft** and shall be **multi-stage** with sequential and cascade operation and shall be complete with electric control panel, 3-phase, 50 Hz, 400 V stop valves, non-return valves, pressure gauges, pressure switches, pressure relief valve, drain cocks and strainers. All critical parts such as impeller, casing, etc. shall be in stainless steel. The pumps shall have high reliability and be quiet running.

Electric motors shall be rated to operate on 3-phase, 400 V. Protection shall be IP 54. They shall be totally enclosed and fan cooled with in-built thermal protection and automatic reset.

2.3 Cold Water Storage Tanks

Two (2) nos. 6500 litres (6,5m^3) cold water storage tanks shall be installed on reinforced concrete base at ground level.

All water storage tanks shall be in fiberglass suitable for potable water. The Contractor shall provide all necessary straps, wire ropes etc. as required for a cyclone-proof installation.

2.4 Other Items

All valves and other pipework accessories shall be of high quality in compliance with the relevant British Standards (BS1010).

Automatic air release valves and water hammer arrestors shall be provided at all high points.

Pressure regulating valves shall be provided at all locations wherever required to ensure satisfactory pressure at all cold water draw-off points.

3. Hot Water System

3.1. Hot water draw-off points

Hot water shall be supplied to all showers, wash hand basins and kitchen sinks located at ground floor level, first floor level, second floor level and third floor level.

3.2 Hot water pipework

All hot water pipework shall be HTA (C-PVC) pressure type, rated to withstand a pressure of 16 bars and high temperatures and shall be manufactured in accordance to the ISO 10508 standard.

All HTA pipework shall be solvent welded.

Hot water dead legs to draw-off point shall be as short as practicable but, in any case, shall not exceed more than 5 metres in total length.

All hot water pipework shall be appropriately insulated in full length.

All hot water pipework running through basement or foundation walls or concrete slab shall be properly protected by a suitable rigid pipe sleeve of appropriate dimension.

All exposed HTA hot water pipework services installed on the roof must be encased in rigid PVC-U sleeves to provide protection against UV degradation.

3.3 Water heaters

Hot water shall be generated, stored and subsequently supplied to the above-mentioned draw-off points by four (4) localized “hybrid” solar/electric water heaters mounted on the roof of the building on hot dipped galvanized stands.

Each solar water heater shall be equipped with at least two flat plate solar collectors and a pressurised hot water storage tank each having a storage capacity of at least 300 litres. A temperature pressure relief valve shall be fitted to the hot water outlet to solar storage tank prior to operating the water heater.

The hot and cold water pipework of the solar heaters between the thermosiphon solar storage tank and the solar collectors shall be of copper conform to BS 2871.

The system shall be pressurised; the hot water storage tank shall be of marine grade 444 stainless steel. Valves shall be installed at both inlet and outlet of each solar water heater and tested up to at least 600 kPa.

A non-return valve shall be installed on the hot water line to avoid an inflow of cold water into the system through the hot water pipe. The non-return valve shall be self-supported on the roof to avoid pressure on the hot water outlet. Insulation shall be of high-quality polyurethane foam. A disconnection union must be provided at the cold water inlet and hot water outlet to allow for disconnection of the water heater.

An isolating valve and a non-return valve shall be installed on the cold water line to the water heater and must be accessible from ground floor level. An expansion control valve shall be installed on the cold water supply pipework after the non-return valve and prior to the solar storage tank. The cold water pipework from the expansion control valve shall be extended to the cold water inlet fitting located on the solar storage tank.

A temperature limiting device shall be installed adjacent to the solar water heater between the water heater and the hot water outlets to reduce risk of scalding. This device shall be capable to withstand a temperature of up to 99^0C.

An electric booster heating unit having rated power of at least 3,5 kW shall be incorporated in each solar water heater system to provide for “topping up” of hot water during bad or cloudy weather conditions or during prolonged periods of poor weather.

The booster heating unit shall be controlled by an electric thermostat, an over-temperature cut-out system and fitted with a pressure relief valve at the water tank for safe operation of water heater. The thermostat shall automatically operate in the event of temperature exceeded the rated preset temperature.

Provision for electricity supply shall be made for the connection of the electric booster, preset to an average temperature of 60^0C, to a thermostat such that the booster is activated automatically when

the temperature of the water stored drops to below the thermostat setting of 40^0C and will automatically turn off when the temperature of the water reaches the thermostat setting.

A booster control switch shall be provided in the electrical meter box for the solar storage tank.

The roof-mounted solar water heaters and storage systems shall be constructed from of at least 1,6 mm thickness Marine Grade 316 stainless steel.

The outer casing of the tank shall be constructed from weatherproof Colorbond Steel for corrosion resistance and durability in a longer life span. Solar collectors shall be constructed from high grade copper and aluminium and housed within Zincalume steel tray.

Warranty period shall be at least 7 years on storage cylinders, solar collectors and spare parts. All solar water heaters shall be positioned so that they face the North in order to allow optimum use of solar energy.

The roof mounted solar water heaters shall be properly secured and must be capable to resist cyclonic or high wind conditions.

All solar water heaters shall be positioned so that they face the North in order to allow optimum use of solar energy.

3.4 Thermal Insulation

a) The whole of the thermal insulation must be at least 25mm thick and be weatherproof and UV resistant.
b) The thermal insulation works shall be in accordance with BS 5970 and BS 5422. The insulations must be weather proof and UV resistant. No insulation material shall contain asbestos. All insulation materials shall be CFC free.
c) Prior to application of the insulation material, all surfaces must be clean, dry and free of all rust and scale. All surplus soldering flux and building material dust and debris must be removed from copper piping.
d) All insulation and ancillary materials shall be used in accordance with manufacturer's application and safety information.

4. Waste and Sewage Systems

4.1 Pipework

An internal waste and sewer reticulation system already exists in the compounds of the Rehabilitation Youth Centre (Girls) at Barkly.

Remove, dismantle and cart away all existing aboveground and underground waste and sewage pipework and associated fittings and accessories and supply, install, test and commission new waste and sewage pipework and accessories.

The Contractor shall carry out a complete survey of the on-site existing installations pertaining to the existing main manhole and associated underground waste and sewage pipework, flush/purge all the said pipework and accessories wherever required, and test these installations (leakage test) to identify defective components of the existing waste and sewage systems and subsequently make good/repair/replace defective components and replace missing items of the installations as required.

The Contractor shall submit detailed "shop drawings" on A1 format pertaining to the proposed waste and sewage systems and shall include detailed design of longitudinal sections for all sewer stretches, the drawing must clearly show the ground level, invert level, cover level, depth, connection details, dimensions and details of manholes, horizontal distance between manholes, size of pipe from proposed connection points, type of cover, etc. for approval by the Mechanical Engineer prior to implementation on site.

All new sanitary pipework shall be installed in accordance with the recommendations made in BS EN 12056-2:2000. Underground drainage and sewerage pipes for conveyance of waste and sewage shall be of ∅110 mm and ∅160 mm diameter SN 8 PVC pipe manufactured in conformity with MS ISO 4435/EN 13476 and shall have rubber ringed joints (RRJ SN 8).

All joints shall be tested for leaks, water-tightness and conveyance. A certificate to that effect shall be submitted to the Mechanical Engineer. All waste and sewage pipework shall have a slope of at least 1:90.

Underground drainage and sewerage pipes for conveyance of waste & soil discharge shall be of 160 mm diameter-PN 10 PVC pipe manufactured in conformity with MS ISO 4435/EN 13476 and shall have rubber ringed joints (RRJ SN 8).

Waste pipe cast in floor slab shall be PVC PN10/SN8.

The sewage pipe shall extend beyond roof level. Roof ended waste and soil pipes shall have cowl vents.

All joints shall be tested for leaks and a certificate to that effect shall be submitted to the Mechanical Engineer.

Cleaning eye shall be provided at the elbow fitted to the WC pan adapter. The sewage pipe shall extend beyond roof level. Roof ended waste and soil pipes shall have cowl vents.

All waste fittings for sanitary appliances (shower trays, wash basins, urinals etc...) shall be compliance with relevant British Standard BS EN 274-1:2002.

PVC bottle traps shall be connected at discharges from wash hand basins, etc.

PVC shower traps with square top shall be provided and these shall be through the slab type.

PVC floor traps (through the slab type) shall be provided for in all wet areas.

Internally ended sewer pipes shall have membrane aerators.

All bends on shower and waste pipes shall be large radius smooth bends.

Roding eyes shall be provided at all changes in direction and wherever required elsewhere.

Cross flow of waste discharge from branches shall be prevented. Opposed small diameter branch discharge connections to stacks (without swept entries) shall be arranged so that the risk of flow from one branch affecting another branch is avoided.

To prevent the discharge from a large branch affecting a smaller opposed discharge branch connection, the latter shall not be connected to the stack within a vertical height of 200 mm below the larger branch. Where this cannot be achieved, a parallel branch shall be used, or a proprietary "Collar Boss" could be utilized.

The waste and sewage systems shall be tested to ensure the system is functioning correctly and shall be carried out in accordance with BS EN 12056-2:2000 and a certificate to that effect shall be submitted to the Mechanical Engineer.

4.2 Gully and grease traps

Grease traps having a capacity of 350 Lts each shall be provided at the outlets of the stacks in service rises discharging waste water from the kitchen sinks and dishwashers as indicated in the tender drawings.

Gully traps shall be provided at the outlets of the stacks in service rises discharging waste water from showers and wash hand basins and washing machines. These shall be fitted with open air type grille covers.

4.3 Waste and sewage disposal system

All wastewater from the building shall be disposed of via manholes to an existing on-site WMA wastewater disposal network in compliance with WMA requirements.

The exact location of the on-site disposal shall be as per clearance issued by the Wastewater Management Authority.

4.4 Ventilation Piping

The new waste/sewage drainage system shall be appropriately vented in order to limit the pressure fluctuations within the drainage system thus maintaining equilibrium of pressure within the waste/sewage system so as to protect the water trap seals from siphonage or compression and ultimately prevent foul odour ingress into the building.

A secondary ventilation system (previously known as the ventilated stack system) shall be installed. The additional vent stack, incorporating a connection to the discharge piping on every storey, shall alleviate excessive pressure fluctuations by allowing air movement within the system.

Where any branch piping does not comply with the requirements for unventilated branches, branch vent piping shall also be required. The limitations for unventilated branches shall be as tabled in the Plumbing Engineering Services Design Guide published by the Institute of Plumbing (2002).

The top end of a ventilated stack may connect to the discharge stack above the spill- over level of the highest appliance, fitted with an air admittance valves, or extended outside the building to form a vent terminal.

Air admittance valves shall be installed in accordance with the recommendations in BS EN 12380: 2002.

5. Centralized LP Gas System

5.1 General

Remove, dismantle and cart away all existing LP Gas pipework and associated mechanical components including fittings and accessories and supply, install, test and commission a new Centralized LP Gas system c/w copper pipework and accessories.

The Contractor shall provide for two (2) new Centralized LP Gas System comprising of a LP gas bulk storage vessels installed inside a new gas chamber and LP Gas pipework from these gas cylinders to all LP Gas draw-off points found on ground floor level and second floor level as shown in the tender drawings. The LP Gas installations shall comply with British Standard (BS) 5482 and shall meet all Fire Regulations and Health & Safety norms.

The Contractor shall ensure that proper clearance and/or authorization is obtained from the Mauritius Fire and Rescue Service as well as from the Architect/Mechanical Engineer of the Ministry of National Infrastructure and Community Development prior to proceeding with their proposed installations on site.

Moreover, all safety devices and equipment shall be provided in this new Centralised LP Gas system including gas automatic change over valve, first stage regulator, second stage regulators, emergency push button, stop valves and gas valves.

All LP Gas installations shall be carried out by a Specialist LP Gas Contractor with at least ten (10) years of experience in the Design, Supply, Installation, Testing, Commissioning of LP gas systems and having successfully completed LP Gas installations of similar nature, magnitude and complexity for at least five (5) projects.

Name of Specialist LP Gas Contractor and list of projects completed by the said Contractor along with year of installation shall be provided at bidding stage.

5.2 Gas Chamber Installations

5.2.1 Gas Cylinders

Two (2) gas cylinders shall be installed in each of the two (2) new gas sheds to be constructed in accordance with the requirements of the Architect drawings. These cylinders shall be of 50 kg capacity each and shall be installed in standing position. These cylinders shall operate in duty and standby mode with a gas automatic change over valve installed for ease of operation as described more fully in Section 1.2.4. Proper weatherproof warning stickers shall be placed at the door of the gas shed which shall always remain locked.

5.2.2 Copper Manifold

Two (2) gas cylinders shall be connected to a copper manifold via high pressure flexible hoses or 'pig tails'. It is essential that this connecting tube is a high pressure flexible hose assembly with factory-made connections conforming to BS 3212: 1991, Type 2, to allow for movement when cylinders are being changed. This manifold shall be rigidly held against the wall above the gas cylinders by means of fixing saddles and screws.

5.2.3 Stop Valves

The manifold connected to the service and reserve cylinders shall have quarter turn valves or non-return valves which allow one or more cylinders to be removed for changing without shutting down the whole system. These valves shall be suitable for use in high pressure gas system and shall be a standard catalogued product from a reputed manufacturer.

5.2.4 First Stage Regulator

A first stage pressure regulating device shall be installed at the manifold. The purpose of this device is to regulate the output pressure to 1.5 bars. It shall have a capacity of 15 kg/hr at an inlet pressure of about 10 bars. This device shall incorporate an automatic change-over system complete with non-return valves. It shall cause the automatic use of one gas cylinder when the other gas cylinder is empty.

Regulators and automatic change-over devices shall conform to BS 3016: 1989 and shall be located so that the inlet to them is at or above the level of the cylinder outlet valve connection.

Vent holes in regulators shall be carefully oriented or otherwise protected against possible ingress of water or substances which could cause blockage, and to allow for drainage.

5.3 LP Gas Supply System

5.3.1 LP Gas Installation Drawings

The successful tenderer shall submit detailed installation drawings (detailed shop drawings) certified by a Mechanical Engineer duly registered with the Council of Registered Professional Engineers of Mauritius for approval prior to implementation on site.

The responsibility of the proper and safe functioning of the gas installations shall rest solely on the appointed Contractor.

5.3.2 LP Gas Pipework

All LP Gas piping and fittings shall be copper conform to BS EN 1057 and shall be colour coded in accordance to BS 1710.

All joints in copper pipes shall be sweated type silver soldered or brazed using a joint material with a melting point exceeding 540^0C. Copper capillary and compression fittings shall conform to BS EN 1254-1 and BS 1254-2. Brazed joints shall be made in accordance with BS 1723 and BS EN 1044 fill metals. Soft solder shall conform to BS EN 29453.

Internal pipework shall be of such internal diameter and length as to ensure that there will not be a pressure drop greater than 2.5 mbar between the outlet of the pressure regulator and any draw-off point when the installation is subjected to the anticipated maximum load.

All pipework shall be properly supported with strong hangers, anchors, brackets, saddles, guides etc. Pipe supports shall be arranged as near as possible to joints and changes in direction and each support shall take its share of load. A gas pipe or fitting must not be installed in a position where it is likely to be exposed to a corrosive environment.

Also, LP Gas pipework shall be physically protected against, or located where it is not liable to be subject to, mechanical damage. The bore should not be restricted by kinks, burrs, foreign matter or in any other way.

The appointed Contractor shall provide 75 mm diameter PVC sleeves with solvent welded fittings for underground gas pipes. Proper warning tapes shall be placed over the whole length of these sleeves. All underground pipework shall be buried at a depth of not less than 800 mm.

Flexible hoses should be as short as practicable whilst being long enough to provide the necessary flexibility without excessive strain on the hose or the end fittings. Rigid pipework shall be used wherever possible.

Where a flexible hose is used for an appliance connection, an appliance isolation valve shall be fitted to the rigid pipework in a readily accessible position immediately prior to the flexible connection. A minimum clearance of 150 mm shall be maintained between LP Gas pipes and electrical cables and conduits.

5.3.3 Emergency Stop Valves

The entry pipe at each floor level shall be directed to emergency push button valves as shown in tender drawings. The valves shall be located on a clearly accessible wall.

The emergency stop valve shall be installed in a metal cubicle which shall be surface mounted on the wall. It shall have its door kept locked at all times with a transparent glass on which a sticker "GAS EMERGENCY VALVE BREAK GLASS" is to be placed.

5.3.4 Stop Valves

Easily accessible stop valves shall be provided at all locations wherever necessary. These stop valves shall be standard catalogued products from a renowned manufacturer and shall be suitable for use in LP Gas Systems.

5.3.5 Gas Cocks

Gas cocks shall be spring loaded with finger operated knobs. They shall be rigidly fixed at the desks to the gas supply pipes. They shall meet BS 1552 with respect to materials and testing. They shall be standard catalogued products from a reputed manufacturer (Armitage Shaks ref. 87332 PG or equivalent). The outlets shall be suitable for 8 mm rubber tube.

All gas cocks must be duly approved by the Mechanical Engineer prior to installation on site. Tenderers shall include in their installations all elbows, tees, reducers in copper as required so that the whole gas system is operational as per the Client's requirements.

5.3.6 Pipe Sleeves

Pipe sleeves shall be provided to enclose all LPG pipework passing through building, walls, floors, partitions, etc. Sleeves shall be of appropriate dimensions larger than the pipe to allow clearance.

5.4 Testing and Commissioning

Prior to charging with LP Gas, a complete flushing of the whole system shall be done using compressed air.

The whole LP Gas installation works shall be thoroughly tested for leaks and other defects prior to commissioning and a certificate to that effect shall be submitted to the Mechanical Engineer of the Ministry of National Infrastructure and Community Development by the appointed Specialist LP Gas Contractor.

Subsequently, the LP Gas System will be commissioned and tested by Specialist LP Gas Contractor in the presence of the representative of the Ministry of National Infrastructure and Community Development.

After installation and testing of the Centralized LP Gas System, the appointed Specialist LP Gas Contractor shall provide a complete demonstration on the operation and maintenance of the system to the relevant staff of the school.

The correct operation of each laboratory fume cupboard system shall be demonstrated by the Specialist LP Gas Contractor on completion of the commission and testing.

Operation and maintenance manuals together with full details and specifications of the various components of the LP Gas installation works, as well as as-made drawings shall be submitted in three complete sets to the Mechanical Engineer during handing over of the installations.

5.5 Schedule of Materials (*to be filled in by bidder*)

The tenderer is requested to complete this section stating the make, reference and origin of the equipment and materials proposed for executing this contract. Catalogues and full technical specifications of equipment and materials proposed must be submitted with this tender.

The appointed Contractor shall seek the approval of the Mechanical Engineer of the Ministry of National Infrastructure and Community Development for all the materials and equipment proposed prior to proceeding with their installation on site.

Item No.	***Description***	***Make***	***Reference***	***Origin***
1	Gas automatic change over valve/first stage regulator			
2	Copper pipes and fittings			
3	Underground LPG pipe (HDPE PE80)			
4	Emergency push button stop valve			
5	Second stage regulator			
6	Gas valves			
7	Gas cocks			

6. Fire Fighting System

4 kg Dry Powder portable fire extinguisher shall be installed for every $100m^2$ on all floor levels of the building as indicated in the tender drawings.

Three (3) nos. carbon dioxide (CO_2) portable fire extinguishers each having a capacity of 5,0 kg shall be provided in the plantroom.

Portable fire extinguisher shall conform to BS 5306-Part 8 (2006)

The locations shown are however indicative only – the Contractor shall liaise with and convene the Fire Services on site during implementation to have the exact location of these extinguishers. These fire extinguishers shall be mounted on varnished, hard wood backing boards.

Portable fire extinguishers shall always be sited on the line of escape routes but not too near danger points, near to room exits inside or outside according to occupancy and/or risk.

Moreover, the fire extinguishers shall be sited in such a place so that no person shall travel more than 30 metres to reach them. These extinguishers shall be sited in such a way that its carrying handle lies 1 metre from the floor level.

7. Additional Works

The appointed Contractor shall be responsible for all additional works required for the installation of all abovementioned Public Health and Mechanical Systems. These shall include trenching and backfilling works for externally buried pipework, minor building works and civil works, etc.

8. Testing and Commissioning

The cold and hot water systems, waste and sewage systems, Centralized LP Gas system and firefighting systems shall be thoroughly commissioned and tested by the Contractor to demonstrate and prove to the Mechanical Engineer that they can achieve the specified performance, to prove the correct and stable operation of all control systems and to demonstrate that they are safe to operate and maintain.

The correct operation of each system shall be demonstrated by the Contractor on completion of the commission and testing.

Fully detailed method statements shall be provided in advance for each system, to indicate the methodology of testing and commission of each of the systems shall be clearly documented and submitted to the Mechanical Engineer.
All tests shall be carried out in accordance with agreed and recognized standards such as those produced by CIBSE.

Operating and Maintenance (O & M) manuals shall be submitted in three copies by the Contractor upon practical completion of the works. This manual shall be of loose leaf type A4 size having stiff plastified covers, plastified sub-divisions for each section, a ready means of reference and a detailed index.

Detailed shop drawings for the whole of the mechanical services works shall be submitted in three copies.
Water supply pipes shall be pressure tested to 8 bars and held for at least 8 hours to test for leaks.

Waste/sewage pipework shall be tested for leaks at joints.

All tests will be witnessed by the Mechanical Engineer. Certificates of testing shall be submitted by the Contractor to the Mechanical Engineer upon successful completion of the testing.

As made drawings for the whole of the cold water, hot water, LP Gas, firefighting, waste and sewerage installations works shall be *duly certified by a Registered Mechanical Engineer* and shall be submitted in three copies by the Contractor to this Ministry upon completion of the works.

PERFORMANCE/CONTRACTUAL REQUIREMENTS

Preliminaries and General Costs

1.Ordering of Materials fitting an equipment	The selected Contractor shall place orders at the very beginning of the contract for materials, fittings and items of equipment required for this work. Non-availability of these items will not be considered as an excuse for delay on the works.
2. Discrepancies	Should the Contractor at any time discover discrepancies between drawings, scope of works or any other documents or in dimensions,instructions, he shall immediately refer same to the Architect who shall decide the course to be followed. Failure on the part of the Contractor to comply with this Clause may invalidate any subsequent claim made by him.
3. Contractor to visit site	Contractor shall visit the site before tendering and ascertain the nature of the ground and subsoil to be excavated, the contours thereof and acquaint himself with local conditions, site conditions, site restriction, working space available, means of access, limitation and restrictions to access, risk of damage to adjacent properties, roads, etc. The contractor will have to carry out any other survey that in his opinion is necessary for him to submit a proper proposal. This survey shall also include the services underground or above that may run on site and he shall allow in his offer for their deviation if required.
4. Area to be occupied	The area of the site which may be occupied by the

by Contractor Contractor for his use as storage or for erection of workshops etc, shall be defined on this site by the Architect.

5. Access to Site and Temporary Roads Means of access to the site shall be agreed with the Architect prior to the commencement of the work and Contractor must allow here for building any temporary access roads, gantries for the transport and lifting of all materials, plants and workmen required for the complete execution of the works, including the provision of temporary culverts, crossing bridges or other means of gaining access to the site. Upon the completion of the works the Contractor shall leave such temporary, access roads, culverts etc. Undisturbed unless ordered otherwise by the Architect. No claims will be entertained for such temporary services left on site or for their removal and restoration on the site to the original condition.

6. Maintenance of Roads The Contractor shall allow for maintaining and keeping public and private roads free from mud debris, etc, arising from the works throughout the duration of the contract.

7. Plant, Tools, Scaffolding etc… The Contractor shall provide all necessary plants, tools scaffolding and vehicles for the efficient and expedious execution of the works and at or before completion clear same from building and site and make all good.

8. Setting Out The Contractor shall set out the works in accordance with the dimensions and levels shown on the approved drawings and shall be responsible for the correctness of all dimensions and levels so set out by him. He will be required to rectify all errors arising from inaccurate setting out at his own cost and expense. In event of error or discrepancy in the dimensions or levels marked out on the drawings being discovered, such errors or discrepancies shall be reported by the Contractor to the Architect for his immediate consideration.

No work connected with such errors shall be continued by the Contractor until he has received written instructions from the Architect to adjust such discrepancies.

9. Discharge of Workmen The Contractor shall only employ qualified foremen, artisans and labourers on the works. If, in the opinion of the Architect any person employed by the Contractor misconducts himself or is likely to cause or has caused strikes, quarrels or delays, or is incompetent the Contractor, when so directed by the Architect in writing shall at once remove such person from the works site.

10. Government Ordinance and Regulations The Contractor must also make himself acquainted with current ordinance and any Government regulations regarding the movement housing security and control of labour camps, passes for transport etc... and allowance must be made in his Tender for compliance therewith in so far as they are practicable. It is

important that the Contractor before tendering shall obtain from the relevant Authority the fullest information regarding all such regulation and/or restrictions which may affect the organisation of work, supply and control of labour, etc... and allow accordingly in his Tender. No claim for want of knowledge in this connection will be entertained.

11. Water, Light and Power, telephone

The Contractor shall provide at his own risk and cost the water, light and power required for use in the work and make them available free of charge to sub-contractor and others.

The Contractor will be required to arrange for the installation of a temporary connection to the main water supply and to provide himself with all necessary temporary water piping and storage tanks as required or directed, remove same and make good disturbed surfaces at completion to the satisfaction of the Architect and pay all charges for meter hire and water consumed until the completion of works.

The Contractor shall provide and maintain a temporary telephone service on site for the full period of the contract at his own costs.

12. Watching and Lighting

The Contractor, from commencement of the contract, shall provide all watching lighting and protection of the works, materials and public through fares as may be necessary for the safety of the works, and for the protection of the public and his own employees.

13. Sheds for Storage of Materials

The Contractor shall provide and maintain to the satisfaction of the Architect and clear away on completion of the works water tight sheds for the storage and protection of all materials required for the proper execution of the work. He shall also provide storage sheds as may be required by sub contractors nominated sub-contractors and nominated suppliers and remove same when ordered.

14. Foreman's Office

The Contractor shall provide a temporary office for the use of the foreman on the site in a position to be agreed by the Architect.

15. Sanitation for work People

Adequate sanitary accommodation for his work people etc... shall be arranged and maintained by the Contractor to a standard satisfactory to the Ministry of Health or Health and Sanitation Department of the Local Authority/District Council and/or Labour Inspector.

The Contractor shall provide satisfactory housing for the watchman and water-borne latrine, accommodation for the labour employed on site. Whether by himself or by nominated sub-contractors and/or suppliers and arrange for and pay all charges in connection therewith and allow for removing same and leaving ground clean and free from pollution to the entire satisfaction of the Architect.

16. Sign Board

The sign boards for the display of the General and sub-contractor's names shall be approved size and design with neat and uniform lettering.

17. Testing of Material

The Architect shall make such tests of the samples of any materials as he may at his discretion deemed desirable, and the cost of such tests

shall be added to the Contract Sum unless the result of such tests causes the Architect to reject any samples or materials as not being in his opinion in accordance with the specification in which case the Contractor shall pay for such tests and the cost thereof shall be recovered there from the Contractor by deduction from the Contract Sum.

18.Protection and Delivery The Contractor shall allow for covering up and protection of work liable to damage, including temporary roofs, gutters, drains etc. If necessary, case up, cover, or in other suitable way protect all finished work liable to injury to the satisfaction of the Architect until completion of the contract. On completion the whole of the works shall be delivered up clean, complete and perfect in every respect to the satisfaction of the Architect.

19. Employer's facilities The Contractor is to allow for the costs of facilities on site but not limited to the following:

(i). **Office for Supervisory Staffs** The Contractor shall provide effect and maintain where directed on the site an approved weather and sunproof temporary office for use of the Supervisory staffs floor size of 6m" x 3m and shall provide the following:

(a) A long suitable table size 80" X 30" (2440 mm X 915 mm)
(b) 8 Chairs
(c) 1 pin Board

(ii) **Survey and Testing Equipment** As may be necessary on site.

20. Removal of Plant and Rubbish The Contractor shall, upon completion of the works, at his own expense remove and clear away all plant, rubbish and unused materials and shall leave the whole of the site in a clean and tidy state to the satisfaction of the Architect. He shall also remove all rubbish and dirt from the site as it accumulates at the discretion of the Architect.

21. Hoardings The Contractor is to provide for all necessary hoardings, as appropriate, along the boundaries allocated to him in order to secure the site.

22. Restrictions Allow for the cost of restrictions including but not limited to the following:

(a)**Limitation of Workmen:**
The Contractor shall keep all persons including those employed by Sub-contractors under control and within the boundaries of the area allocated to him.

(b) **Limitation of construction activity**

The Contractor shall be required to limit the construction activity, Temporary buildings, storage of equipment and materials etc within the boundaries of the area allocated to him.

23. <u>Personnel Required</u>

1) One Contract Manager as referred to Section 1 – Instruction to Bidders section 10 (c). The duties of the Contract Manager shall be amongst others to attend site meetings, coordination meetings and site visits.

(2) One Site agent on site on a full-time basis with a minimum of 5 years' relevant experience and holding at least a diploma in Building and Civil Engineering or any similar qualification from a recognised institution. The site agent shall be full time on site.

(3) One Quantity Surveying Technician with minimum 5 years' relevant experience holding at least a diploma in Quantity Surveying or a similar qualification.

(4) One Electrical Engineer registered with the Council of Registered Engineers of Mauritius having at least 5 years post registration experience to attend all site meetings, to supervise all electrical works, to submit all shop drawings and technical datasheet, to reply to queries on technical issues and to act as the representative of the Contractor for Electrical Works.
(5) One experienced Electrical Technician holding the Part II Electrical Engineering Technician's Certificate of the City and Guilds of London or equivalent
(6)) At least one experienced Electrician holding the National Trade Certificate (NTC) in electrical installation works or equivalent

(7) One General Foreman with minimum 10 years' relevant experience.
The General Foreman shall be full time on site.

(8) One Health and Safety Officer

24. PRELIMINARY PARTICULARS

(i) PUBLIC BODY

The term "PUBLIC BODY" shall mean

Prime Minister's Office
(Rodrigues, Outer Islands and Territorial Integrity Division)
6th Floor, New Government Centre
Port Louis

ii) PROJECT MANAGER

The term "PROJECT MANAGER " shall be as designated by the Public Body

(ii) ARCHITECT

The term "ARCHITECT" shall mean

Ministry of National Infrastructure & Community Development

(iii) ENGINEER

The term "ENGINEER" shall mean

Ministry of National Infrastructure & Community Development

(iv) QUANTITY SURVEYOR

The term "QUANTITY SURVEYOR" shall mean

Ministry of National Infrastructure & Community Development

(v) ELECTRICAL ENGINEER

The term "ELECTRICAL ENGINEER" shall mean
Ministry of National Infrastructure & Community Development (Energy Services Division)

(vi) MECHANICAL ENGINEER

The term "MECHANICAL ENGINEER" shall mean
Ministry of National Infrastructure & Community Development

B. DRAWINGS

List of Drawings Architectural

G741/SW/01: PART SITE AND LOCATION PLAN
G741/01: GROUND FLOOR SURVEY PLAN
G741/02: FIRST FLOOR SURVEY PLAN
G741/03: SECOND FLOOR SURVEY PLAN
G741/04: THIRD FLOOR SURVEY PLAN
G741/05: SECOND FLOOR DEMOLITION PLAN
G741/06: THIRD FLOOR DEMOLITION PLAN
G741/07: PROPOSED SECOND FLOOR PLAN
G741/08: PROPOSED THIRD FLOOR PLAN
G741/09: ROOF PLAN
G741/10: SECTION A-A & SECTION B-B
G741/11: ELEVATION A & ELEVATION C
G741/12: ELEVATION B & ELEVATION D

G741/13: SCHEDULE OF OPENINGS & FINISHES, SANITARY FITTINGS & IRONMONGERY
G741/14: ALUMINIUM PARTITIONING, KITCHEN ALUMINIUM CUPBOARD, BOOK SHELF, METAL SHELVING DETAIL
G741/15: CONCRETE WORKTOP DETAILS

List of Drawings Structural

G741/ST01 - SECOND FLOOR DEMOLITION PLAN.
G741/ST02 - PROPOSED SECOND FLOOR PLAN.
G741/ST03 - THIRD FLOOR DEMOLITION PLAN.
G741/ST04 - PROPOSED THIRD FLOOR PLAN.
G741/ST05 - DETAILS TO BLOCKWALL AND WORKTOP.
G741/ST06 - DETAILS FOR CREATION OF NEW OPENINGS IN BLOCKWALL.
G741/ST07 -SECTIONS THROUGH WALL TYPES & TIE COLUMNS DETAILS.
G741/ST08 - WOODEN FLOORING AND EXPANSION JOINT DETAILS
G741/ST09 - NOTES AND DETAILS FOR NEW BLOCKWALL.

List of Drawings Electrical

G741/EL/01 - Ground Floor Plan Electrical Layout
G741/EL/02 - First Floor Plan Electrical Layout
G741/EL/03 - Second Floor Plan Electrical Layout
G741/EL/04 - Third Floor Plan Electrical Layout

List of Drawings Mechanical

G741/SW/M01 - Part Site Plan Waste & Sewage System & Fire-Fighting System
G741/SW/M02 - Part Site Plan Cold & Hot Water System
G741/M01 - Ground Floor Plan Cold & Hot Water System
G741/M02 - First Floor Plan Cold & Hot Water System
G741/M03 - Second Floor Plan Cold & Hot Water System
G741/M04 - Third Floor Plan Cold & Hot Water System
G741/M05 - Roof Plan Cold & Hot Water System
G741/M06 - Ground Floor Plan Waste & Sewage System & Fire-Fighting System
G741/M07 - First Floor Plan Waste & Sewage System & Fire-Fighting System
G741/M08 - Second Floor Plan Waste & Sewage System & Fire-Fighting System
G741/M09 - Third Floor Plan Waste & Sewage System & Fire-Fighting System

List of Drawings LPG System

G741/LPG/01 - Ground Floor Plan LPG System
G741/LPG/02 - First Floor Plan LPG System
G741/LPG/03 - Second Floor Plan LPG System

C. Supplementary Information/client requirements

ACTIVITY SCHEDULE

GUIDANCE NOTES ON PRICING OF ACTIVITY SCHEDULE

This is a lump sum tender and shall be based strictly on the information provided in the drawings, specifications, scope of works and other conditions laid in the bid document and not according to this Activity Schedule.

1. The prices in the Activity Schedule may be used if judged appropriate for the preparation of interim valuations.

2. Prices in the Activity Schedule **shall not** be used for adjusting the lump sum tender price for extra works or omissions.

3. Any inconsistencies detected in the prices shall be resolved by the Project Manager.

4. The bidder is responsible for ensuring that works are included in his bid price, whether or not an item is given.

5. In the case of the bidder leaving unpriced any items, he will be deemed to have considered that the prices of the remaining items are sufficient to enable him to perform the services and obligations described in the items not priced without extra charge.

ACTIVITY SCHEDULE

ITEM NO	DESCRIPTION	Unit of Measure	Amount / MUR
A	**PRELIMINARIES & GENERAL COSTS**		
A.1	The Contractor is to allow for costs related to Preliminaries and General Conditions of Contract requirements including the following but not limited to setting out of works, site management, Contractor's office, overheads, tools, plants, scaffolding ,store, stacking and storage of materials, Employer's facilities, insurances, bonds, watchmen, light, electricity, , signboard, protection, security of workmen, etc… and works on site, temporary hoardings and gantries, pumping and dewatering, police requirements etc Note: The bidder is advised to visit and inspect the site for which he is bidding prior to submission of his offer as no claims will be allowed on the grounds of ignorance of the Conditions under which the works will be executed. In particular, the bidder must decide for himself the existing ground levels, detection, deviation and protection of existing services, the nature of the ground and subsoil to be excavated at his own risks and costs and shall be responsible to construct the foundation to the full satisfaction of the Engineer.	Sum	
A.1.1	Allow for providing special care so as not to interfere unnecessarily with or so as to accommodate any services installations that may be met with & including for health, safety & security requirements for the users ,third parties in adjoining properties and roads at all times in accordance with laws & regulations.	Sum	
A.1.2	Allow for protection and/or deviation of services underground or above that may run on site	Sum	
A.1.3	Allow for hoarding, as appropriate, along the boundaries of the site allocated to the contractor, in order to secure the site	Sum	
A.1.4	Allow for temporary gate	Sum	
	Total Carried to Collection Page		
	TOTAL CARRIED TO COLLECTION PAGE		

ITEM NO	DESCRIPTION	Unit of Measure	Amount / MUR
B	**MAIN BUILDING SUPERSTRUCTURE**	-	
_	**NOTE: All works to be undertaken in conjunction with Architect's & Engineers'specifications, drawings (list of which available on drawing nos. G741/SW/01 for Builder's & civil works & Mechanical & Electrical drawings all as per bidding documents) & to the Approval of the Architect & Engineers**	-	
B.1	**DEMOLITION WORKS - Refer to Dwaing No. G741/ST01 & G741/ST03**	-	
_	Carefully dismantle, demolish (if any) existing structure and cart away debris from site or disposing the material or setting aside for re-use as directed by the Project Architect - Works to be carted away as directed by Project Architect	-	
-	**2nd Floor**		
B.1.1	Existing Wall to be pulled down	Sum	
B.1.2	Removal of existing carpet tiles	Sum	
-	**3rd Floor**	-	
B.1.3	Existing Wall to be pulled down	Sum	
B.1.4	Removal of existing carpet tiles	Sum	
B.2	**MAIN BUILDING - NEW WORKS TO 2ND FLOOR**	-	
B.2.1	**New 200mm thick Block wall**	-	
B.2.1.1	New Blockwall at Prayer room	Sum	
B.2.1.2	New Blockwall at Blacony Area	Sum	
B.2.1.3	New Blockwall at Library Area	Sum	
B.2.2	**New 100mm thick Block wall**	-	
B.2.2.1	New Blockwall at WC	Sum	
B.2.2.2	Create New opening for new wall	Sum	
B.2.2.3	Granite to top of worktop & 600mm high splashback at Hair dressing room	Sum	
B.2.2.4	New tiling at consultation room	Sum	
B.2.3	**New RC Worktop complete with RC, Formwork & Reinforcement**	-	
B.2.3.1	at Laundry Area	Sum	
B.2.3.2	at Scullery Area	Sum	
B.2.3.3	at WC Area	Sum	
B.2.3.4	at Kitchen	Sum	
B.2.3.5	Granite to top of worktop & 600mm high splashback at Kitchen Area	Sum	
B.2.4	**ROOF COVERINGS**	-	
B.2.4.1	All works to include roof screeds and finishings. Screed laid to slope laid to slope comprising of an approved waterproofing compound.	Sum	
B.2.4.2	Waterproofing membrane as per specifications and to Architect and Engineer's satisfaction and including any necessary flashings	Sum	
B.2.4.3	Other associated works	Sum	

B.2.5	**ROOF DRAINAGE - (if any)**	-	
-	All works to include rainwater heads and roof outlets including all fittings, plugs etc.	-	
B.2.5.1	Rainwater heads and Gargoyles	Sum	
B.2.5.2	Outlets	Sum	
B.2.5.3	Downpipes	Sum	
B.2.6	**EXTERNAL / INTERNAL WALLS**	-	
-	Notwithstanding the 'Standard Form of Cost Analysis' this item shall not include external Wall Finishes. All works forming the external enclosing walls.	-	
-	**HOLLOW CONCRETE BLOCKS**	-	
B.2.6.1	2nd Floor	Sum	
B.2.6.1	3rd Floor	Sum	
B.2.7	**WINDOWS AND DOORS**	-	
-	**ALUMINIUM OPENINGS & BURGLAR BARS**	-	
-	Supply and fix aluminium openings within rendered/ concrete surrounds complete with ironmongery, burglar bars, fixing accessories, glazing, mechanism (where required), colour & painting all as per Architect schedule of openings and specification & drawing No. G741/13	-	
B.2.7.1	**2nd FLOOR**	-	
B.2.7.1	New Aluminium Partition at Library Area	Sum	
B.2.7.1.2	New Glazed Alu opening at Library Area	Sum	
B.2.7.1.3	12 Existing Doors to be renovated - polish & new paint as per Architect's directives	Sum	
B.2.7.1.4	Aluminium Door type - D1 - overal size 900mm wide x 2100mm high	Sum	
B.2.7.1.5	Aluminium Door type - D2 - overall size 700mm x 2100mm high	Sum	
B.2.7.1.6	Metal Door type - D3 - 1500mm wide x 2100mm high	Sum	
B.2.7.1.7	Aluminium Door type D4 - overall size 900mm wide x 2100mm high	Sum	
B.2.7.1.8	Aluminium Window type W1 - overall size 600mm wide x 600mm high	Sum	
B.2.7.1.9	Aluminium Window type W2 - overall size 1500mm wide x 1200mm high	Sum	
B.2.7.1.10	New burglar proofing at 2nd floor	Sum	
B.2.7.2	**3rd FLOOR**	-	
B.2.7.2.1	New Aluminium partitioning full height	Sum	
B.2.7.2.2	12 Existing Doors to be renovated - polish & new paint as per Architect's directives	Sum	
B.2.7.2.3	Aluminium Door type - D1 - overal size 900mm wide x 2100mm high	Sum	
B.2.7.2.4	Aluminium door type -D2 - overall size 700mm widex 2100mm high	Sum	
B.2.7.2.5	Metal Door type - D3 - 1500mm wide x 2100mm high	Sum	

B.2.7.2.6	Aluminium Door type D4 - overall size 900mm wide x 2100mm high	Sum	
B.2.7.2.7	New burglar proofing at 2nd floor	Sum	
B.2.8	**FINISHES**	-	
-	Notwithstanding the 'Standard Form Of Cost Analysis' this item shall include external Wall Finishes. Work to include all Finishes applied to walls both internally and externally. (Refer to Dwg No. ED773/04)	-	
B.2.8.1	**WALL FINISHES - Internally**	-	
-	**2nd Floor FLOOR**	-	
	Rendering/Patching Works - (if any)	-	
B.2.8.1.1	Internally	Sum	
	Wall tiling	-	
B.2.8.1.2	Internally	Sum	
	Painting	-	
B.2.8.1.3	Internally	Sum	
-	**3rd Floor FLOOR**	-	
	Rendering/Patching Works - (if any)	-	
B.2.8.1.4	Internally	Sum	
	Wall tiling	-	
B.2.8.1.5	Internally	Sum	
	Painting	-	
B.2.8.1.6	Internally	Sum	
B.2.9	**WALL FINISHES - Externally to whole building**	-	
-	**Rendering/Patching Works - (if any)**	-	
B.2.9.1	Externally	Sum	
	Painting	-	
B.2.9.2	Externally	Sum	
B.2.10	***FLOOR FINISHES***	-	
-	All works to include screeds, skirtings and finishes to floor surfaces (All works to be as per Architect's specification Drawing No. G741/13)	-	
-	**2ND & 3RD FLOOR**	-	
B.2.10.1	Finish type F1: Heavy duty homogeneous non-skid ceramic tiles 600x600x12mm thick	Sum	
B.2.10.2	Fill up void at existing floors - (2 Nrs x 8m x 1.5m wide) all as per Engineer's Sepcification & drawing No. G741/ST08	Sum	
B.2.11	**CEILING FINISHES**	-	
-	All works to include finishes to surfaces of soffits including sides and soffits of beams	-	
-	**2nd FLOOR**	-	
B.2.11.1	Plastering - (if any)	Sum	
B.2.11.2	Painting	Sum	
-	**3rd FLOOR**	-	
B.2.11.1	Plastering - (if any)	Sum	
B.2.11.2	Painting	Sum	
B.2.12	**BUILDERS WORK IN CONNECTION WITH SERVICES**	-	

B.12.1	Work incidental to sanitary fittings, disposal installations, rainwater pipes, electrical installation, telephone and plumbing installations for the whole project.	Sum	
B.12.2	Coordination with all engineering installations marking and setting of positioning of all works for the whole project	Sum	
B.12.3	Cutting and forming all holes, materials, chases, pvc sleeves and the like and making good finishes for whole project.	Sum	
B.2.13	**SANITARY APPLIANCES - 2nd Floor & 3rd Floor**	-	
B.13.1	All sanitary appliances such as Wash Hand Basins, Water Troughs, W.C`s, Disabled Toilet **(IF ANY)** toilet holders, floor traps Waste fittings, overflows and traps, etc. to be as per Architect's specifications and drawing No. G741/13	-	
B.13.1.1	European WC	Sum	
B.13.1.2	Toilet Roll Holder	Sum	
B.13.1.3	Mirror	Sum	
B.13.1.4	Soap Holder	Sum	
B.13.1.5	Tap	Sum	
B.13.1.6	Wash Hand Basin	Sum	
B.13.1.7	Stainless Steel Sink	Sum	
B.13.1.8	Floor trap	Sum	
B.13.1.9	Hans Spray	Sum	
B.13.1.10	Shower Tray	Sum	
B.2.14	General Cleaning	Sum	
	TOTAL CARRIED TO COLLECTION PAGE		

ITEM NO	DESCRIPTION	Unit of Measure	Amount / MUR
C	**EXTERNAL & SITE WORKS**	-	
1	Underground rainwater pipes including works and connection to catchpits, covered drains, soak aways and septic tank	Sum	
2	Demolish part blockwall	Sum	
3	New Blockwall	Sum	
4	New Blockwall with chainlink fencing	Sum	
5	New Soak Away	Sum	
6	New Concrete platform (Provision made for pump house)	Sum	
7	New Gate	Sum	
8	Repairs to crack to Tarmac	Sum	
9	Provision for new Kerbs	Sum	
10	Provision for new interlocking block	Sum	
11	Clean up Manholes / catchpits & existing soakaways + Rainwater downpipes	Sum	
12	All works to include site clearance, cutting of trees, branches, uprooting of trees, earthworks, site levelling over area, cutting in any type of soil or filling as required and carting away	Sum	

13	Grass planting	-	
13.1	Dig up existing soil ,level and make good area to grass planted with vegetable soil as required, plant approved quality grass, water and maintain until end of making good defects period	Sum	
	TOTAL CARRIED TO COLLECTION PAGE		

ITEM NO	DESCRIPTION	Unit of Measure	Amount / MUR
D	**ELECTRICAL INSTALLATION**	-	
1	**RYC BLOCK – Supply, Installation, Testing and Commissioning of the following:**	-	
A	**Distribution Boards c/w enclosure, protective devices, distribution block & control devices as per schematic layout.**	-	
1	**SDB-E-2**	Sum	
2	**SDB-NE-2**	Sum	
3	**SDB-E-3**	Sum	
4	**SDB-NE-3**	Sum	
5	**Switchgears in existing MDB**	Sum	
B	**Luminaires as per layout**	-	
1	Type A	Sum	
2	Type B	Sum	
3	Type C	Sum	
4	Type D	Sum	
5	Type E	Sum	
6	Type F	Sum	
7	Type G	Sum	
C	**Cables**	-	
1	Cables as per schematic layout & electrical drawings	Lot	
D	**Electrical accessories**	-	
1	Switched sockets	Sum	
2	Switches	Sum	
3	Dimmer switch	Sum	
4	Extractor Fan	Sum	
E	**Fire Alarm System**		
1	Fire Detectors	Sum	
2	Callpoints	Sum	
3	Cables	Sum	
4	Sounders	Sum	
5	Strobe flasher	Sum	
6	Fire alarm panel (main)	Sum	
F	Air conditioners as per drawings and requirements.	Sum	

G	Wireways for electrical, and other cables to be used inclusive of Conceal Conduit, flexible conduit, conduits, trunking, cable tray and accessories. - Fire alarm system (PVC Conduit surface)	Sum	
H	Associated Civil works inclusive of chasing works and make good as per requirement	Sum	
I	Any other items not mentioned but needed to complete the installation (contractor to submit details)	Sum	
2	**OTHERS**	-	
A	Disconnection and removal of existing electrical system and accessories as per specifications	Sum	
B	Manuals and technical datasheet (3 copies inclusive of soft version)	Sum	
C	Testing and commissioning of the following:, Electrical system including air-conditioners, fire alarm system and all electrical items in this bid document.	Sum	
D	Builders drawings/shop drawings	Sum	
E	As-Made Drawings and Test Certificates.(3 copies inclusive of soft version)	Sum	
F	Any other items not mentioned but mention in drawings and that are needed to complete the installation (contractor to submit details)	Sum	
	TOTAL CARRIED TO COLLECTION PAGE		

ITEM NO	DESCRIPTION	Unit of Measure	Amount / MUR
E	**MECHANICAL INSTALLATIONS**		
1			
1.1	*Remove, dismantle and cart away all existing mechanical components pertaining to the cold and hot water system and associated pipework, fittings and accessories*	sum	
1.2	*Water storage tanks and accessories*		
	Supply, deliver to site, install, connect, test and commission:		
(i)	Fibreglass water storage tanks suitable for potable water each having a capacity of 6500 lts and installed on reinforced concrete base (Nos.2)	Sum	
(ii)	Heavy duty ballcock ¾ ” with brass connection (Nos.2)	Sum	
(iii)	Quarter turn valves		
	(a) ¾” at inlets (Nos. 2)	Sum	
	(b) 1 ½ ” at outlets (Nos. 2)	Sum	
1.3	*Domestic water pump set and accessories*		
	Supply, deliver to site, install, connect test and commission:		

(i)	Cold water booster pump set comprising of two centrifugal pumps each of capacity 8,0 m^3/hr at 40 metres, multistage, vertical/horizontal type factory assembled, operating sequentially and in cascade operation c/w electrical control panel, pressure vessel.Electronic panel, 3 ph, 400 V, 50 Hz c/w 4 nos. stop valves and 2 nos. non-return valves.Pump shall be set on generator's essential load	Sum	
(ii)	Low level float switches for dry running control of pump set. 230 V, 50 Hz non-mercury type c/w control and power cables	Sum	
(iii)	Anti-vibration mountings for pump set; extractor fan and extract grille in plantroom	Sum	
1.4	*Cold water pipework and accessories*		
	Supply, deliver to site, install, connect, test and commission:		
1.4.1	Pipework		
(i)	Underground cold water feed pipework from existing CWA mains to water tanks (HDPE – PN10)	Sum	
(ii)	Suction pipework from water tanks to cold water pump set (uPVC PN – 10)	Sum	
(iii)	Underground pressurized cold water distribution pipework (HDPE – PN 10)	Sum	
(iv)	Above ground pressurized cold water distribution pipework from pump set to all draw-off points (uPVC PN – 10) as well as to solar water heaters at roof level	Sum	
1.4.2	*Pipework Accessories*		
(i)	uPVC PN10 pressure tees of all required dimensions (solvent welded)	Sum	
(ii)	uPVC PN10 pressure elbows of all required dimensions (solvent welded)	Sum	
(iii)	uPVC PN10 pressure reducers. wyes of all required dimensions (solvent welded)	Sum	
(iv)	uPVC pressure fitting, unions, male & female adapters, isolating valves, threaded sockets at all valves, transition fittings, etc.. of all dimensions for a complete installation	Sum	
(v)	Pressure regulating valves	Sum	
(vi)	Chrome plated angle valves of high quality for all WC, WHB, jet washer etc...	Sum	
(vii)	Automatic air release valves (brass)	Sum	
(viii)	Water hammer arrestors (brass)	Sum	
(ix)	Quarter turn valve as per BS 1010 to install at CWA meter and at the inlet of the storage tanks (Brass)	Sum	
(x)	Valve chamber for valves on main line	Sum	
(xi)	Flexible pipes of high quality (200mm long) and 20mm or 1/2" connection	Sum	
(xii)	Pipe fixing saddles, clips, hangers, brackets, clamps c/w threaded rods for horizontal and vertical pipes and all other holding accessories to pipes	Sum	
1.5	*Washing machine*		
	Supply, deliver to site, install, connect, test and commission:		

(i)	Fully-automatic Top loading washing machine with smart inverter motor and turbo-drum having a capacity of 9 kg, stainless finish with black trim, control panel c/w electronic press button, see-through tempered glass, etc.. (Nos.4)	Sum	
1.6	*Other items*		
	Supply, deliver to site, install, connect, test and commission:		
1.6.1	Other items not included above but which are required for a complete and fully operational cold water system (Bidders to list):	Sum	
2			
2.1	*Hot water pipework*		
	Supply, deliver to site, install, connect, test and commission:		
(i)	Copper pipework c/w brazed fittings and accessories from roof mounted solar water heaters to mixing valve on roof level	Sum	
(ii)	HTA (C-PVC) PN 16 pipework and accessories from mixing valves on roof to hot water draw-off points (all wash hand basins, showers, kitchen sinks)	Sum	
(iii)	Flexible, closed cell elastomeric, nitrile rubber insulation, tube type layer thickness of 25mm to cover whole length of hot water pipework including valves and fittings and all exposed connections on solar storage tank and associated collectors	Sum	
(iv)	uPVC sleeves for hot water pipework exposed at roof level	Sum	
(v)	HTA (C-PVC) PN 16 pipe fixing saddles, clips, hangers, brackets, screws, bolts, clamps c/w threaded rods for horizontal and vertical pipes all other holding accessories to pipes for a complete installation	Sum	
(vi)	Water hammer arrestor to prevent cyclic water hammer acting on the water storage tanks	Sum	
2.2	*Pipework accessories*		
	Supply, deliver to site, install, connect test and commission:		
(i)	Brass isolating valves/ quarter turn valves, gate valves, ball valves, non-return valves, pressure regulating valves, automatic air release valves, expansion control valves, unions, tundish, transition fittings etc...	Sum	
(ii)	Thermostatic mixing valve nickel plated brass connected to hot and cold water to ensure adequate mixture of water to maintain comfort temperature at all draw-off points and reduce the risk of scalding (Nos. 4)	Sum	
2.3	*Electric storage water heaters*		
	Supply, deliver to site, install, connect test and commission:		

(i)	Solar water heaters pressure type, storage cylinders constructed from 1,6mm Marine Grade 316 stainless steel each having a capacity of at least 300 lts, 2 flat plate collectors, outer casing constructed from weatherproof Colorbond steel, incorporated electric booster heating unit of power rating of at least 3,5kW c/w electric thermostat connected to a power supply, pressure relief valve c/w insulation and associated accessories. Provision for electricity supply for booster heating unit connection. (Nos. 4)	Sum	
2.4	*Other items*		
	Supply, deliver to site, install, connect test and commission:		
2.4.1	Other items not included above but which are required for a complete and fully operational hot water system (Bidders to list):	Sum	
3			
3.1	*Remove, dismantle and cart away all existing aboveground waste and sewage pipework, fittings/accessories and associated gully traps, grease traps etc..*	Sum	
3.2	*Pipework*		
(i)	*Supply, deliver to site, install, connect, test and commission:*		
(ii)	160 mm diameter PVC sewerage pipework, buried, rubber ring joints (RRJ SN 8 type)	Sum	
(iii)	110 mm diameter uPVC-PN 10 sewerage pipework, solvent welded (SW type) from building to manholes/below slab to manholes	Sum	
(iv)	75 mm uPVC-PN 10 waste pipework, solvent welded (SW type)	Sum	
(v)	63 mm uPVC-PN10 waste pipework, solvent welded (SW type)	Sum	
(vi)	50 mm uPVC-PN10 waste pipework, solvent welded (SW type)	Sum	
(vii)	uPVC ventilation stacks including branched vent pipework, accessories, etc.	Sum	
3.3	*Pipework accessories*		
(i)	uPVC PN10 elbows of all required dimensions, solvent welded (SW)	Sum	
(ii)	uPVC PN 10 tees of all required dimensions, solvent welded (SW)	Sum	
(iii)	uPVC PN 10 reducer sections of all required dimensions, solvent welded (SW)	Sum	
3.4	*Site Works for Waste and Sewage systems*		
3.4.1	*Remove, dismantle and cart away all existing waste and sewage pipework sections buried underground from building to manholes and pipe sections running between manholes*	Sum	
	Supply, deliver to site, install, connect, test, connect and commission		
(i)	160 mm diameter PVC sewerage pipework buried underground with rubber ring joints (RRJ SN 8 type)	Sum	
(ii)	Connection of new waste and sewage pipework to existing main sewer manhole as per tender	Sum	

	documents and in compliance with WMA's requirements.		
(iii)	Rodding eyes	Sum	
(iv)	uPVC PN 10 "Y" tees of all required dimensions (solvent welded)	Sum	
(v)	Bottle traps 40/50 mm (Polypropylene) suitable for kitchen sinks and wash hand basin conform to BS EN 274-1:2002	Sum	
(vi)	Shower traps PVC with SS cover 125 mm x 125 mm x 50 mm outlet at shower (high quality to Arch approval)	Sum	
(vii)	110 mm pan adaptor for WC vases	Sum	
(viii)	PVC membrane aerator		
	∅75 mm /∅110 mm	Sum	
(ix)	PVC cowl vent	Sum	
(x)	PVC saddles, g/s clamps, brackets and clips, rod hangers, band hangers, supports, steel studs, screws, etc. to hold waste and sewage pipework in service risers, along ceilings/walls, etc. for complete installation of sewer and waste pipes	Sum	
(xi)	Gully traps, P-type traps with pre-cast cover	Sum	
(xii)	Grease traps for discharge from waste pipes serving kitchens, fibreglass type (350 Lts)	Sum	
(xii)	900x900 mm dia. ductile iron (DI) manhole cover conform with BS EN 124, double sealed, and frame D400	Sum	
(xiv)	Air admittance valves conform to BS EN 12380:2002 of appropriate dimensions for a complete installation	Sum	
3.5	*Other items*		
	Supply, deliver to site, install, connect, test and commission:		
3.5.1	Other items not included above but which are required for a complete and fully operational waste and sewage systems (Bidders to list):	Sum	
4			
4.1	*Portable fire extinguishers*		
	Supply, deliver to site, install, connect, test and commission:		
(i)	Bottle type, ABC dry powder, 4,0 kg fire extinguishers	Sum	
(ii)	Bottle type CO_2, 5,0 kg fire extinguishers (Nos. 3)	Sum	
4.2	*Other items*		
(i)	*Supply, deliver to site, install, connect, test and commission*:		
(ii)	Other items not included above but which are required for a complete and fully operational firefighting system (Bidders to list):	Sum	
5			
5.1	*Remove, dismantle and cart away all existing LP Gas pipework and associated fittings/ accessories*	Sum	
5.2	*LP Gas pipework and accessories*		

	Supply, deliver to site, install, connect, test and commission:		
(i)	Centralized LP Gas system connection to 2 nos. of 50 kg gas cylinders located in a new gas shed at ground floor level to provide LP Gas to gas stoves located at the right-hand wing of the building	Sum	
(ii)		Sum	
(iii)	LP Gas pipework (copper) and fittings from LP Gas cylinders to all LP Gas draw-off points	Sum	
(iv)	LP Gas accessories and safety devices including automatic change-over valve, first stage regulator, second stage regulators, gas valves, emergency stop valves etc...	Sum	
5.3	Free standing cooker		
	Supply, deliver to site, install, connect, test and commission:		
(i)	Free standing cooker comprising of 3 gas burners,1 electric plate and 63L grill oven having a dimension of at least 60cm(w)X 60cm (d)X87cm(H) c/w safety gas control, auto-ignition, turnspit, stainless steel finish(5 years warranty) (Nos.6)	Sum	
5.4	*Other items*		
	Supply, deliver to site, install, connect, test and commission:		
(i)	Other items not included above but which are required for a complete and fully operational LP Gas system. (Bidders to list):	Sum	
6			
6.1	Install, test and commission wash hand basins c/w tapwares and associated accessories	Sum	
6.2	Install, test and commission WCs and associated accessories	Sum	
6.3	Install, test and commission showers c/w tapwares and associated accessories	Sum	
6.4	Install, test and commission kitchen sinks c/w tapwares and accessories	Sum	
6.5	Builder's works, civil works and other additional works related to the above mechanical and public health installations	Sum	
6.6	Supply 3 sets of shop drawings for cold/hot water, waste/sewage, LP Gas and fire-fighting installations	Sum	
6.7	Supply 3 sets of as made drawings for cold/hot water, waste/sewage, LP Gas and fire-fighting installations	Sum	
6.8	Supply 3 sets of O & M manuals for cold/hot water, waste/sewage, LP Gas and fire-fighting installations	Sum	
	TOTAL CARRIED TO COLLECTION PAGE		

ITEM NO	**DESCRIPTION**	**Unit of Measure**	**Amount / MUR**
F	Any other works/items not listed in the Detailed Activity Schedule but which are deemed to be carried out as per specifications and drawings for successful completion of the project should be inserted here as sum. Bidders shall submit a breakdown of the quote giving list of items description, unit, quantity and amount in the template Detailed Activity Schedule for Works (to be listed below)		
F.1			
F.2			
F.3			
F.4			
F.5			
F.6			
F.7			
F.8			
F.9			
F.10			
F.11			
F.12			
F.13			
	TOTAL CARRIED TO COLLECTION PAGE		

COLLECTION PAGE

SN	DESCRIPTION	MUR	Cs
A	PRELIMINARIES & GENERAL COSTS		
B	MAIN BUILDING SUPERSTRUCTURE		
C	EXTERNAL & SITE WORKS		
D	ELECTRICAL INSTALLATION		
E	MECHANICAL INSTALLATIONS		
F	ANY OTHER WORKS / ITEMS		
	TOTAL CARRIED TO SUMMARY OF BID PRICE		

SUMMARY OF BID PRICE

	MUR	Cs
1. Amount of Contractor's price to carry out and complete the works as specified in the Instructions to bidders, Bidding data sheet, Preliminaries and General Costs, Drawings, Conditions of Contract and particular conditions of contract, Scope of Works, Specifications and Addenda.		
2. **CONTINGENCY SUM** Allow the contingency sum of Rupees One Million Five Hundred Thousand (Rs1,500,000) to be used at the discretion of the employer & deducted in whole or part, if not required.	**1,500,000**	**00**
3. Sub Total **(A)**		
4. Lump Discount (if any) **(B)**		
5. SUB – TOTAL after discount **(C) = (A) – (B)**		
6. VAT at 15% **(D)** = 15 % of **(C)**	n/a	
TOTAL BID PRICE (C) + (D) ***Carried Forward to Bid Submission Form***		

Name of Contractor: ……....

Signature of Contractor:…….

VAT registration No: ……

Business registration No:……

Date: ……

Section IV: General Conditions of Contract and Particular Conditions Of Contract

Any resulting contract shall be placed by means of a Letter of Acceptance and shall be subject to the General Conditions of Contract (GCC), **(Ref: W/GCC10/12-21)** for the Procurement of Works (available on website *ppo.govmu*.org) except whfere modified by the Particular Conditions of Contract below.

Procurement Reference Number: **PMO/ROT/Q 1/2022-2023/ONB**

The clause numbers given in the first column correspond to the relevant clause number of the General Conditions of Contract.

Particular Conditions of Contract

A. General	
GCC 1.1 (r)	The Employer is **Prime Minister's Office** **(Rodrigues, Outer Islands and Territorial Integrity Division)** **6th Floor, New Government Centre** **Port Louis** **Tel-(+230) 214 2750**
GCC 1.1 (v)	The Intended Completion Date for the whole of the Works shall be **Two Hundred and Seventy (270) Days** from start of works
GCC 1.1 (y)	The Project Manager(s) shall be the representative of The Ministry of National Infrastructure and Community Development as shall be designated by Public Body.
GCC 1.1 (aa)	The Site is located at Barkly, Beau-Bassin and is defined in drawings No. **G741/SW/01**
GCC 1.1 (dd)	"The Start Date shall be **14 *days after handing over of site.***
GCC 1.1 (hh)	The project consists of the following: The Works consist of the refurbishment of an existing 3 storey high building located at Barkly, Beau-Bassin as more fully described at Section III of bid document : Statement of Requirements – Scope of Works **The duration of the construction works shall be 270 Days from the date of start of works.**
GCC 2.2	Sectional Completions are: **Not Applicable**

GCC 2.3(i)	The following documents also form part of the Contract: **Performance Security, Insurance Policies and addenda (if any).** **The performance security and insurance policies shall be submitted within 21 days as from the date of receipt of Letter of Acceptance, for verification by the Quantity Surveyor before the handing over of site.**
GCC 3.1	The language of the contract is English The law that applies to the Contract is the law of Mauritius.
GCC 5.1	The Project manager ***may*** delegate any of his duties and responsibilities.
GCC 8.1	Schedule of other contractors: **Not Applicable**
GCC 13.1	Except for the cover mentioned in (d)(i) hereunder, the other insurance covers shall be in the joint names of the Contractor and the Employer and the minimum insurance amounts shall be: (a) for the Works, Plant and Materials: (for *the full amount of the works including removal of debris, professional fee etc...)* (b) for loss or damage to Equipment: (*for the replacement value of the equipment that the contractor intends to use on site until the taking over by the Employer.* (c) for loss or damage to property **Ten (10) Million** (except the Works, Plant, Materials, and Equipment) in connection with Contract *for an amount representing the value of the properties that are exposed to the action of the contractor in the execution of the works. It will extend to the property of the Procuring Entity as well).* (d) for personal injury or death: (i) of the Contractor's employees: *[The Contractor shall take an adequate insurance cover for its employees for any claim arising in the execution of the works]*. (ii) of other people: [*This cover shall be for an adequate amount for Third Party extended to the Employer and its representatives]*. **This insurance shall be for a limit per occurrence of not less than the amount stated above, with <u>no limit</u> in number of occurrences.** (e) for loss or damage to materials on-site and for which payment have been included in the Interim Payment Certificate, where applicable. The Contractor shall choose to take the insurance covers indicated above as separate covers or a combination of the Contractor's All Risks coupled with the Employer's liability and First Loss Burglary, after approval of the Employer. All insurance covers shall be of nil or the minimum possible deductibles at sole expense of the contractor.

GCC 14.1	Site Data are: **There are no Site Investigation Reports for this project. Bidders are however advised to visit the site prior to submission of bid. They should acquaint themselves with the nature of the site, extent of the work, means of access, general nature of the soil and all other matters which may influence their bid.** **No claim due to ignorance of these factors as mentioned in the preceding paragraph shall be entertained from the contractor**
GCC 20.1	The Site Possession Date(s) shall be: **within Fourteen (14) days from submission and approval of Performance Security, Preference Security where applicable and Insurance covers. The area of the site which may be occupied by the Contractor for his use as site office or for erection of workshop etc. shall be approved by the Project Manager or his representative.**
GCC 23.1 & GCC 23.2	Appointing Authority for the Adjudicator: **No Adjudicator shall be appointed for this Contract.**
GCC 24.	In case a dispute of any kind arises between the Employer and the Contractor in connection with, or arising out of, the contract or the execution of works or after completion of works and whether before or after repudiation or other termination of Contract, including any dispute as to any opinion, instruction, determination, certificate or valuation of the Employer's Representative, the matter in dispute shall, in the first place, be referred in writing to the employer's representative, with a copy to the other party. The Employer and the Contractor shall make every effort to resolve the dispute amicably by direct informal negotiation. If, after twenty-eight (28) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the Public Body or the Contractor may give notice to the other party of its intention to refer the matter to " the competent courts of Mauritius"
B. Time Control	
GCC 25.1	The Contractor shall submit for approval a Program for the Works within 28 days from the date of the Letter of Acceptance.
GCC 25.3	The period between Program updates is ***30*** days. The amount to be withheld for late submission of an updated Program is ***Rs*** **25,000 in the next payment certificate.**
C. Quality Control	
GCC 33.1	The Defects Liability Period is: **365 calendar days**
GCC 34.1	Delete sub-clause 34.1 and replace by the following:

	Should any defect arise during the contractual period and up to the end of the Defects Liability Period and the Contractor fails to correct the Defect within the time specified in the Project Manager's notice, this shall constitute a breach of the Contractor's obligations under the contract. The Project Manager shall assess the cost of having the defect corrected and recover the money from the Performance Security.
GCC 39.7	Interim Payment for Plant and Material on site **is not** applicable.
D. Cost Control	
GCC 40.1	Amend clause 40.1 by replacing 21 days by 7 and 42 days by 28 days.
GCC 41.1 (l)	*The term "exceptionally adverse weather conditions" is hereby defined as any one of the following events:* *(1) 100 mm rainfall or above recorded in one day at the nearest rain station;* *(2) An official declaration of "Torrential Rain" by the Meteorological Department of Mauritius; and* *(3)* Cyclone warning Class III or IV.
GCC 43.1	The currency of the Employer's country is: **Mauritian Rupees.**
GCC 44.1	The Contract is not subject to price adjustment.
GCC 45.1	GCC Clause 45 is not applicable.
GCC 46.1	The liquidated damages for the whole of the Works per day is 0.05% of contract value and The maximum amount of liquidated damages for the whole of the Works is 3% of the Contract price.
GCC 47.1	The Bonus for the whole of the Works is **not applicable.**
GCC 48.1	The Advance Payments shall be 10% of the contract value less Contingency Sum, and shall be paid to the Contractor within 7days after signature of the contract and submission of the Advance Payment security by the contractor. Repayment of the Advance Payment shall start after certification for payment of ten per cent (10%) of the Accepted Contract Amount. Recovery of the Advance Payment shall be 12.5% of the total amount certified in the payment certificate. The Advance Payment shall be recovered in full when eighty per cent (80%) of the Accepted Contract amount has been certified for payment.
GCC 49.1	The Performance Security amount is 10 % of the contract price in the form of a Bank Guarantee as per the format in Section VIII. and shall be valid up to a date twenty-eight after the end of the Defects Liability Period (DLP).

	Where the Performance Security expire before the date twenty-one days after the end of the DLP, the contractor shall extend the Performance Security to cover the period up to the latest date of the DLP plus twenty-one days . Failure to extend the validity of the Performance Security twenty-one days prior to its expiry may entail forfeiture of the full amount of the Performance Security. Note: The Contractor shall execute all work required to remedy defects or damage, as may be notified to him by or on behalf of the employer, on or before the expiry date of the DLP or any extended date if a defect or damage cannot be remedied by the expiry date, all at the risk and cost of the contractor
E. Finishing the Contract	
GCC 56.1	The date by which operating and maintenance manuals are required is the date of completion. The date by which "as built" drawings are required is: the date of completion.
GCC 57.2 (g)	The maximum number of days is: 60 days
GCC 59.1	The percentage to apply to the value of the work not completed, representing the Employer's additional cost for completing the Works, is ***20%***

Section V- Contract forms

Performance Security

.....*Bank/Insurance Company's Name and Address of Issuing Branch or Office*.....

Beneficiary: .....*Name and Address of Public Body*.....

Date.....

PERFORMANCE GUARANTEE No.: .....

We have been informed that .....*[name of the Contractor]* ..... (hereinafter called "the Contractor") has entered into Contract No.....*[reference number of the Contract]* ..... dated..... with you, for the execution of .....*[name of Contract and brief description of Works]* .....(hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance security is required.

At the request of the Contractor, we ..... *[name of Bank/Insurance Company]* .....hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of ..... *[amount in figures (amount in words)]* ..... such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire and returned to us not later than twenty- one days from the date of issuance of the Defects Liability Certificate, calculated based on a copy of such Certificate which shall be provided to us, or on the.....day of ....., ..., whichever occurs first. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

……..*Seal of bank/Insurance Guarantee and*

***Signature(s)*.....**

Advance Payment Security

[Bank's/ Insurance Company's Name, and Address of Issuing Branch or Office]

Beneficiary: .....*[Name and Address of Employer]* .....
Date: .....
Advance Payment Guarantee No.: .....

We have been informed that . . .. . ***[name of the Contractor]*** . . . . . (hereinafter called "the Contractor") has entered into Contract No. . . . . ***[reference number of the Contract]*** . . . . . dated . . . . with you, for the execution of . . . . . ***[name of contract and brief description of Works]*** . . . . . (hereinafter called "the Contract").

Furthermore, we understand that, according to the Conditions of the Contract, an advance payment in the sum . . . . . ***[name of the currency and amount in figures]*** [1]. . . . . (. . .. . ***[amount in words]*** . . . . .) is to be made against an advance payment guarantee.

At the request of the Contractor, we . . .. . ***[name of the Bank/Insurance Company]*** . . . . . hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of . . .. . ***[name of the currency and amount in figures] ****. . . . . (. . . . . ***[amount in words]*** . . . . .) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor used the advance payment for purposes other than the costs of mobilization in respect of the Works.

It is a condition for any claim and payment under this guarantee to be made that the advance payment referred to above must have been received by the Contractor on its account number . . .. . ***[Contractor's account number]*** . . . . . at . . .. . ***[name and address of the Bank/Insurance Company]*** . . . . . .

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as indicated in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that eighty (80) percent of the Contract Price has been certified for payment, or on the . . . day of . . . . , ... [2], whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

. . . . . ***[Seal of Bank/Insurance Company and Signature(s)]*** . . . . . .

Note –

All italicized text is for guidance on how to prepare this demand guarantee and shall be deleted from the final document.

1 The Guarantor shall insert an amount representing the amount of the advance payment denominated either in the currency(ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to the Employer.

2 Insert the expected expiration date of the Time for Completion. The Employer should note that in the event of an extension of the time for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Employer's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee.

Letter of Acceptance

[on letterhead paper of the Employer***]***

. . . . . ***[date]***. . . .. ..

To: . . . . ***[name and address of the Contractor]*** . . . .

Subject: . . . . ***[Notification of Award Contract No]***. . . . . .

This is to notify you that your Bid dated . . . . ***[insert date] . .*** . . for execution of the . . . . ***.[insert name of the contract and identification number, as given in the Appendix to Bid]*** . . . . for the Accepted Contract Amount of .Rs . . . . . ***.[insert amount in numbers and words and name of currency]***, exclusive of VAT, as corrected and modified in accordance with the Instructions to Bidders is hereby accepted by *(insert name of Public Body).*

You are requested to furnish the Performance Security in accordance with the General Conditions of Contract, using for that purpose of the Performance Security Form included in Section V (Contract Forms) of the Bidding Document.

Authorized Signature: .....

Name and Title of Signatory: .....

Name of Agency: .....

Attachment: Contract Agreement

Contract Agreement

THIS AGREEMENT made the . . . . . .day of . . . . . ., ..., between . . . . . ***[name of the*** Employer***]***. . . . . (hereinafter "the Employer"), of the one part, and . . . . . ***[name of the Contractor]***. . . . .(hereinafter "the Contractor"), of the other part:

WHEREAS the Employer desires that the Works known as . . . . . ***[name of the Contract]***. . . . .should be executed by the Contractor, and has accepted a Bid by the Contractor for the execution and completion of these Works and the remedying of any defects therein,

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.

2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents**.**

(a) the Letter of Acceptance

(b) the Bid

(c) the Addenda Nos . . . . . ***[insert addenda numbers if any]***. . . . .

(d) the Appendix to the General Conditions of Contract

(e) the General Conditions of Contract;

(f) the Specification

(g) the Drawings*;* and

(h) the completed Schedules,

3. In consideration of the payments to be made by the Employer to the Contractor as indicated in this Agreement, the Contractor hereby covenants with the Employer to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.

4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of Mauritius on the day, month and year indicated above.

Signed by: .....
for and on behalf of the Employer

Signed by: .....
for and on behalf the Contractor

in the presence of: .....
Witness, Name, Signature, Address, Date

in the presence of: .....
Witness, Name, Signature, Address, Date

Appendix I– Standard Specifications

GOVERNMENT OF MAURITIUS

STANDARD SPECIFICATIONS

MINISTRY OF WORKS
PHOENIX

STANDARD SPECIFICATIONS

INDEX

CONCRETE BLOCKLAYER

Concrete blocks

Concrete blocks for walling shall comply with B.S 2028 Type A (for load bearing walls) and of compressive strength not less than:

Cavern of 12 blocks ……..500 lbs/sq.in
Gross area
Lowest individual block ….375 lbs/sq.in
Gross area
Blocks for non load bearing walls are to be class B blocks.

Blocks shall be hollow two-hole type and shall be cured for not less than 28 days before they are used in the works. The Contractor shall supply a certificate from the supplier for each consignment of block received to the effect that the blocks meet the requirements and strength of the latest relevant B.S. Any block for which a certificate cannot be produced will be condemned and must be removed from site. All blocks supplied shall be of the same height and blocks of similar dimensions will not be accepted. Half length blocks and specials shall also be provided as specified or required to break bond.

Mortar

Mortar to be used for all Type A blockwall shall be composed of 1 part of cement to 3 parts of sand. Mortar for Type B blockwork shall be composed of one part of Portland cement, one part lime, and five parts of sand. All mortar shall be measured in specially prepared gauge boxes and thoroughly mixed dry or clean and water tight mixing platforms, with water added from a fine rose until all parts are completely incorporated and brought to a proper consistency.

All mortar must be used within thirty minutes of mixing. No partially or Wholly set mortar will be allowed to be used or re-mixed.

Setting and jointing

All blocks shall be lightly wetted immediately before being bedded and jointed to minimise absorption of water from the mortar.

Blocks are to be well buttered with mortar as previously specified. The blocks shall be laid fir-faces on the outside face, in stretcher bond with 10mm, thick, full, flused up and grouted solid joints. The joints shall not vary by more than 3mm and four consecutive joints shall not exceed 38mm and four consecutive joints shall not exceed 38mm. Joints shall be raked out where surfaces of walling are to be plastered.

Laying of blocks

All walls throughout the work shall be carried up evenly in courses, no part being allowed to be carried up more than 900 mm. higher at one time than any other part and in such cases the joining shall be made in long steps so as to prevent cracks arising and all walls shall be levelled around at each floor.
All put log holes shall be carefully, properly and completely filled up on completion of walling work.

All walling shall be properly protected while mortar is setting.

Walls shall be kept thoroughly wet for at least three days or for such longer period of time as the Architect may direct. Walls exposed to the sun shall be protected with a sacking which shall be kept wet.

Fair Face Blocks

Where walling is to be finished fairfaced, the blocks are to be selected free from defects. Joints shall be raked out as works proceed and pointed with a neat flush joint.

The work shall be carried out regularly with all horizontal joints truly horizontal and no part shall be more than 900mm above adjacent work during construction.

Sample Panel

The Contractor shall include in his tender for erecting a sample panel on site of 200mm blockwork, not less than 1 square metre in area and built off a suitable concrete foundation. The sample, when approved, to form the standard for all concrete blockwork in the contract. The sample area and concrete foundation to be removed when ordered and the surface of the ground made good. Horizontal and vertical joints shall be10mm finished thickness, and raked out 12mm deep where face of wall is to be rendered and in other cases to be left finished flush or as otherwise instructed. The joint grooves between blocks shall be completely filled with cement, lime mortar. No portion of the wall during construction to be more than 900mm above adjoining work. All work to be executed truly level, perpendicular and properly bonded together without continuous upright joints.

Cement, sand and lime

Cement and aggregates for this trade except where separately specified for precise concrete blocks shall be as specified for “concretor” and lime shall be dry hydrated lime to B.S 890 Class B.

Air bricks

Form and leave neat holes in walls and supply and build in approved loucred pattern concrete air bricks where shown. The opening shall be rendered on all sides, the bottom sloped towards external face.

Bedding and pointing

Bedding and pointing of timber door and window frames shall be in cement mortar. Where frames are in metal they shall be bedded and pointed in mastic. Lugs or ties shall be built into walls as described.

Fixing blocks and and leaving holes

Provide and build into walls all necessary flying blocks and leave out or cut away as necessary holes for pipes, conduits and the like and make good after fixing by other trades and specialists.

Build in lugs and the like

Form or leave mortices in walls for, and build in lugs and all necessary fixing for metal windows and doors, door frames and lining, sanitary fittings, rainwater pipes, clips and bearer of various types.

When building up the walls the openings shall be made about 200mm wider than the external dimensions of the doors frames, and when the latter are placed, complete with lugs, the walling completed in concrete mix type C.

Damp-proof course

Where indicated on drawings provide 2-ply felt damp-proof course. Felt to be of a manufacture approved by the Architect and to be laid on a 25mm thick bed of cement mortar (1:3 mix) on walls.

The damp-proof courses to stand the full thickness of walls, partitions and beams in one width and to be overlapped 6" at all jointings and corners.

Measurements

The Contractor must allow in his prices for block walling for plumbing angles, all straight waste, split courses necessary for bond, bonding at angles, intersections and juctions of walling at angles, intersections and juctions of walling of different thicknesses, cutting and fitting to columns, cutting and pinning to beam, cutting and fitting around end of oils and lintols, cutting and pinning ends of structural timber.

The rates of blockwork must also include for fixing all door, window and like openings, forming reveals to same and for cutting and waste to walling in short lengths to millions and jamb of openings.

The rates of blockwork must also include for hoisting and building off beams and slab at any level, all necessary scaffolding and for work built overhead.

Mason

Cement and sand

Cement and sand for this trade shall be as specified for contractor.

Mortar for masonry work

Mortar for bedding and jointing of stonework shall comprise 1 part of cement to 3 parts of sand by volume.

Stonework in walls

All stones for use in walling shall be blue basalt stone carefully selected according to the type of walling required. Walls to be built to the thickness shown on the drawings and the stones wall be well bonded and all voids filled in solid with mortar, bond stones to be used on every 120mm vertically and 2700mm horizontally.
Mortar joints shall be raked to depth of 12mm from face of stonework ready for painting. Walls exposed to sun shall be protected with sacking which shall be kept thoroughly wet for at least three days or for such longer period of time as the Architect may direct.

Stone cladding works

All stones for used in claddings shall be Blue Basalts demolition stones carefully selected and to Architect's approval. Claddings to be of the thickness shown on drawings and be well bonded with all voids sealed in solid cement mortar. All wall surface to received proper cementetious waterproofing prior to application of stone cladding and to be to Architect's approval..

Pointing — All joints whall be raked out as described in Clause 3 and pointed with cement and sand (1:3) with approved pigment added. The pointing will either be recessed, weather struck or flush.

Cleaning of stonework — The contractor shall protect the stonework from mortar droppings and wire brush and wash down all walls on completion.

Carpenter and Joinery

1. Timber generally — All timbers used in the works unless otherwise specified shall be one of the following:

(a) For constructional work keruing, gurjun, mahogany or approved local treated pine.

(b) For joinery work, mahogany, tekoma, teak

The timber shall be sound, selected, well seasoned vacuum impregnated With Tanalith Salts type C at the rate of 64 kgs per cu.m. of timber, free from all defects and shall be worked to the full sizes indicated on the drawings.

In all cases samples of the timber for use in the building shall be submitted to the Architect for approval prior to use.

2. Treatment of timber — The ends and backs of all doors, frames of all timbers built in, rosting or Indirect contact with walling or concrete where not exposed to view, shall be coated with two coats of creosote, solignum or other approved preservative.

3. Replacement of defective timber — Should any of the timber warp, shrink, wind or fly to any appreciable extent within 6 months of completion of the works, the same shall be removed and new fixed in it s place at the contractor's sole expense together with all other work that may be affected.

4. Preparation of timber — The preparation of the timber shall commence simultaneously with the beginning of the work generally and shall proceed continuously until the whole of the woodwork is prepared and stacked on the site, and properly protected from the weather.

5. Constructional timber — All constructional timber shall be properly jointed and framed together with dowels, bolts or spiked as indicated on the drawings.

6. Workmanship — All carpentry shall be executed with workmanship of the best quality. All carpenter's work shall be left with sawn surface except where specified to be wrot.

All carpenter's work shall be accurately set out and in strict accordance with the drawings and shall be framed together and securely fixed in the best possible manner with properly maderjoints. Provide all brads, nails, screws.etc as necessary and as directed and approved.

All timber shall be as long as possible and practicable, in order to eliminate joints.

Actual dimensions of scantlings for carpentry shall not vary from the specified dimensions by more than 3 mm in deficiency or excess.

7. Protect floors

All timber bearded floors to be protected with sawdust after laying. The sawdust to be cleared away on completion.

8. Joinery work generally

All joiner's work generally to be cast and framed together as soon as is practicable after the commencement of the building, but shall not be wedged or glued until the building is ready for fixing same.

All work to be properly tenoned, shouldered, wedged, pinned, bradded etc. as directed by and to the satisfaction of the Architect and all properly glued up with best quality approved glue.

Oval or round brads or nails shall be used for fixing on face work, heads properly punched in and the holes filled with putty or as otherwise described.

9. Finish to

All exposed faces of woodwork shall bet wrot, which shall mean bringing up the surface after planning with sand paper to a smooth satin-like finish.

10. Workmanship

All joinery work shall be executed with workmanship of the best quality in strict accordance with the detailed drawings.

All joiner's work shall be accurately set out on boards to full size for information and guidance of artisans before commencing the respective work. All joints, ironwork and other work connected therewith fully declinated which said setting out will be required to be submitted to the Architect and approved before such respective works are commenced.

All mouldings shall be accurately and truly run and all work planned and finished to the approval of the Architect. All arises to be slightly rounded.

Should any of the joinery work shrink, warp, wind or develop other defects within six months after the completion of the works, the same will be removed and now fixed in its place, together with all other work which may be affected thereby, at the contractor's cost and expense.

All plugs described as fixing for joinery etc. unless otherwise stated shall be formed by raw plastic Philplug screwfix or other approved patent material. No woodplugs shall be used.

Any fixed jonery which in the opinion of the Architect is liable to become bruised or damaged in any way shall be properly cased and protected by the contractor until the completion of the works.

11. Door frames

Door frames and linings shall be constructed to the sizes and details shown on the drawings. Door frames shall be fitted with three fixing irons to each side of the frame and one at the head. Frames for double

doors shall have two fixing at the head. The fixing irons shall consist of 300mm long heep iron not less than 3 mm thick bent up 75mm at one

end and twice screwed to the frame and the other end built into walls or cast into the lintols to a depth of 225mm (where lintols are less than 225mm deep the straps shall be cut off to the full depth of the lintol). 6mm diameter metal dowels shall be fixed to each end of the frame and let into the floor concrete to a depth of at least 50mm.

Door linings shall be screwed to wooden fixing slips let into the walls And lintols.

12. Doors

Doors shall be provided and fixed to the sizes and details shown on the drawings. Doors shall be free from all blemishes and shall be rubbed down to a satin-like finish. Frames, ledged and braced or ledged and braced doors shall be made to the sizes shown on the drawings and the nailing in construction shall be driven from the face and clenched at the back. The heads of nails shall be punched and the holes filled with petty.

The flush doors are to be equal in all respects to the samples of each type to be submitted to the Architect for approval. The coves of all doors shall be pressure bonded and stacked for inspection before the faces are fixed. The plywood facings shall be of the same species on both sides of each door unless otherwise stated.

Facings shall be free from lifting at edges, blisterings or sinking or raising of the surface due to defects in the base of materials.

13. Hardboard

Hardboard shown on drawings for linings, ceilings and joinery shall be of approved manufacture.

14. Veneered plywood

All veneered plywood or blockboard is to be counter-veneered on the reverse side. Plastic faced material shall also be counter-veneered if and where necessary.

15. Formica

Formica shall be as supplied by Messrs Formica Ltd. De la Rue House, 84 Regent Street, London W.I., England or similar approved, of approved colour and pattern and fixed with an approved adhesive in accordance with the manufacturer's instructions.

16. Ironmongery

Butts and hinger shall be of sizes and types specified and fixed with the full number of screws and on no account shall nails be used.

All locks and ironmongery shall be fixed before the woodwork or metal work is painted. Handles shall be removed carefully stored and re-fixed after the completion of painting. Locks shall be oiled and left in perfect working order. All locks to include two keys and all keys shall be labelled with door references marked on plastic labels before handing to the Architect on completion.

17. Plugging and screwing

Where items are described as plugged or plugged and screwed this shall mean plugging, plugging and screwing to concrete blockwalling, concrete walling, stone walling to the approval of the Architect.

18. Prices of timber work

The Contractor is to include in his prices of all members for fitted ends, nitres, housings, returned ends, etc. and for short-lengths not exceeding 300mm.

The prices for all joinery items are to include for slightly rounding all arises and extra cost of labours crossgrain.

Where hardwood is described as screwed, prices are to include for pollating with a natching hardwood.

Allowance is to be made in the prices for angles, ramps, nitres, ends, etc. on timber worked on solid and shall include for all necessary non-ferrous metal screws.

The prices for all timber described as select quality are to allow for keeping clean for light coloured finishes, polishings, etc.

Ironmonger, stitch and metalworker

1. Ironmongery

All ironmongery and furniture to be approved by the Architect as to quality and type and locks to be fixed to the correct hand.

2. Oiling of locks, etc.

All locks, ironmongery and hinges including the moving parts of metal doors and windows to be well oiled, and all necessary adjustment made before handing over the works.

3. Metal windows and doors

All metal windows and doors shall be hot dipped galvanized after manufacture and shall be from a manufacturer approved by the Architect.

They shall be of sizes and types shown on the drawings and shall be ordered by the Contractor and windows shall have bronze fittings with projecting hinges unless otherwise specified complete with building in lugs and glazing pins. Metal doors and windows bent or damaged during construction of the building shall be replaced at the contractor's expense.

4. Cyclone bolts — All openings sashes of metal windows shall be fitted with two cyclone bolts consisting of an extruded brass case with stamped brass sheet 115mm long complete with socket or wedge,

5. Louvre windows — Louvre frames to be anodized aluminium with clips of the size specified suitable for taking 6mm thick glass blades screwed to concrete jambs with 38mm screws.

Mullions to be formed by coupling 56mm x 6mm thick anodized Aluminium mullion strips bolted through to the box mullions, and fix to lintol and cill by means of retaining brackets screwed to rawplugs in concrete with No. 4 38mm screws.

Weather strips to be in anodized aluminium and to be screwed to rawlplugs in concrete at head and cill with 38mm screws.

Workmanship — Workmanship and materials shall be of the best quality.

Prices of all doors, windows and louvers shall also include for all necessary cutting and pinning, plugging and screwing to concrete or block openings and for making good of finishes.

Pavior

1. Cement, sand and aggregate — Cement, sand and aggregates for this trade shall be as specified for "concretor".

Coral sand shall have three washings.

2. Preparation of surface to receive screedings and pavings — The surface of the concrete shall be hacked to form a good key, well washed and brushed perfectly clean with a wire brush to remove all impurities, dust etc damped and grouted with a mixture of cement and water in the form of slurry, using 2.75 kgs of cement per sq.m. of surface area, before screeds are laid.

3. Plain screeded pavings — Floors to have plain screeded finish shall be laid in areas not exceeding 10 sq.m at one time using teak 6mm x 19mm stop fillets. Screeds to be minimum of 19mm and to be composed of one part of cement to 3 parts of sand. The surface to be finished to a polished surface with a steel trowel. The screeds or pavings shall be kept wet with sand, sacking or similar for at least seven days after completion.

4. Coloured screeded pavings

Coloured screedings shall be laid in a similar manner as for plain screeding with addition of approved liquid colouring mixed in with the mortar strictly in accordance with the manufacturer's directions and to approved shade, and kept wet for seven days after completion.

5. Expansion joints

At the entrance of each room directly under the door, fix a teak strip 6mm x 19mm deep for full width of opening to form an expansion joint between adjoining screeds.

6. Granolithic paving

Shall be laid in areas not greater than 10 sq.m. at one time using teak 6mm x 19 mm fillets. Granolithic paving shall be composed of two parts by volume of cement to five of blue basalt chippings to pass a 6mm square mesh free from dust and containing not more than 10% grit. Granalothic paving to be well watered and kept damp for seven days after laying.

7. Polishing of granolithic pavings

When laid the Granolithic paving shall be rubbed down with a carborundum stone to give polished surface.

8. Non-slip surfaces to pavings

Surfaces of internal pavings and steps where required to be made non-slippery shall be created with coarse carborundum average 11.4 kgs per m^2 lightly trowelled in while the paving is still green.

Surfaces of external pavings or steps where required to be made non slippery shall have parallel lines 12mm deep and 9mm wide in the surfaces of the paving or concrete.

9. Quarry tiling

Quarry tiles shall be to the quality, sizes and colour as selected by the Architect, laid to areas indicated on the drawings. The tiles shall be set square jointed bedded and pointed in cement mortar (1 part of cement to 3 parts of sand).

Tiles shall be soaked in water 24 hours before laying and shall be thoroughly scrubbed to remove all traces of cement after laying and protected with sawdust or sacking and not used for at least 10 to 14 days.

The surface shall be polished on completion of the contact.

10. Polishing paved surfaces

Types of floors described in clauses 4 and 7 shall be cleaned on completion of the works and treated with two coats of floor polish each coat rubbed well in and polished.

11. Roof screed

Roof slabs shall be finished with a cement/sand screed 1:3 mix laid to falls and crossfalls and minimum thickness 19mm. unless specified otherwise in bill of quantities to which shall be added an approved waterproofing liquid used in strict accordance with the manufacturers' written instructions. Screeds shall be carried down rainwater outlets and finished neatly against the downpipe. The screed shall be kept wet for at least seven days after completion.

12. Prices of pavings and screeds tiles etc.

Prices for pavings or screeds are to include for preparation of the concrete base, all necessary hacking, grouting with cement grout, any extra thickness consequent upon the concrete surfaces not being finished to true and level, laying in bays and all necessary formwork and dividing strips and cutting the finished screed or paving for at least seven days.

Prices for tiling shall also include for all straight and raking cutting, fair edges and fair joint, prices for tile skirtings shall further include for angles, ends, nitres and for short lengths not exceeding 300mm.

Plasterer and wall tiler

Generally

The renderings are to be carried out so that the finished surfaces appear Without visible joints or patches. The rendering of wall surfaces, reveals of openings and cills are to be carried out in one operation and each day's work stopped at a suitable point where it can be picked up again on the following day without noticeable joints. The quality and mixing of the materials are to be constant throughout so that there is no variation in colour or texture. The finished coat to be brushed down and left clean to be received decoration. In any continuous face of a wall the rendering shall be carried out continuously and day to day breaks made to coincide with architectural breaks in order to avoid unslightly junctions.

Preparation of surfaces for rendering

All faces of concrete work shall be well hacked to form a good key and in the case of block or stone walls the joints shall be raked out. All surfaces for rendering shall be well wetted with a hose before rendering is applied

Cement

Cement shall be as specified in "concretor".

Sand

Sand shall be as specified in Fine Aggregates in "Concretor" but in Addition shall be in accordance with B.S. 1199 and shall if CORAL SAND have three washings in lieu of 2 for internal work.

Lime

Lime shall be either in the form of quick lime and obtained from an approved source and properly stacked on site or in the form of dry hydrated lime and conform to the requirements of B.S 890 Class B "Quick lime or Hydrated Lime for Corse Stuff and Building Mortar".

Rendering

The mix for rendering both internally and externally shall be 1 part of Cement to 1 part of lime to 5 parts of sand plus an approved mortar plasticizer used strictly in accordance with the manufacturers' written instructions.

Application of Rendering

All external surfaces shall be rendered in two coats unless otherwise instructed.

The first coat of rendering shall be applied with wooden float to an even thickness of not less than 10mm and not more than 15mm. As soon as the first coat starts to set it shall be closely combed to a depth of 3mm to 6mm and kept damp for at least two days after which time the final coat shall be two days after which time the ifnal coat shall be applied to an even thickness of not less than 6mm and not more than 25mm.

All rendered surfaces shall be kept damp for at least two days after the final coat has been applied.

Finishes to renderings

Rendered surfaces shall be finished as directed by the Architect in the following manner:

(a) Wood floor finish: Finish surfaces with a wood float to an even and slightly/rough textured finish.

(b) Sponge finish: Finish rendered surfaces with a steel trowel and while the rendering is still green dab the surfaces with a damp sponge until they present a fairly sanded textured finish.

© Trowel finish: Finish rendered surfaces with a steel trowel to a smooth and even surface, free from trowel marks.

Tyrolean Finish

Tyrolean rendering shall consist of a 12mm backing coat of one part of cement with 10% of lime by volume added to four parts of sand, trowelled up to a true surface left as open as possible (no combing or scratching required) followed by a tyrolean finishing coat of white cement (snowcrete or other equal, and sand of a suitable mix applied with a spraying machine and built up in three coats to a total thickness of 8mm approximately to the approval of the Architect.

Sample panel

The Contractor shall prepare samples of plastering tyrolean finish, bush-hammered finish as directed until the quality texture and finish required is obtained and approved by the Architect, after which all plastering, tyrolean and bush hammered finish expected in the work shall conform to the respective approved samples.

Arrises

Vertical and horizontal arrises shall be formed to beams, columns, openings and the like and shall be pencil rounded. Particular care shall be taken to ensure that the rendering is strong and sound at the corners.

Cracks, blisters, etc

The Contractor shall make good all cracks, blisters and other defects and leave the whole of the plaster, tyrolean, bush-hammered finish perfect at completion. When making good defects the plaster shall be cut out to a rectangular shape with edges undercut to form dove-fitted key and all finish flush with face of surrounding plaster all at the contractor’s own expense.

Plinths

Form plinths is external rendering as shown on drawings.

Wall tiling

Wall tiling unless otherwise stated shall be of glazed earthenware tiles of The dimensions and colours specified and shall conform to B.S 1281 and shall be of approved manufacture true to shape and free from blemishes. The backing coat for wall tiling shall be in cement: sand mortar (1:2 dx) , not less than 9mm and not more than 15mm thick, the surface of which shall be closely combed while the mortar is still green and left for a period of 24 hours.

The tiles shall be soaked in water for 30 minutes and bedded with an Adhesive of the approved manufacture.

All tiles shall be laid perfectly level, the joints to run straight horizontally And vertically and to be pointed in neat cement to an approved colour.

Internal and external angles and rounded edges tiles are to be of the same manufacture, colour and thickness as the foregoing.

Prices of plasters,

Prices of plastering are to include for preparation of the surface, hacking of concrete, raking out joints of blockwork, grouting, forming temporary rules, fair edges and arrises, rounded external angles, vee joints, working to rebates making good to window or door frames, around pipes, holder-bats, sanitary fittings, narrow widths and small quantities.

Prices for rendering on walls shall also include for any extra labour involved in working to breaking columns, beams, cills, etc, all of which have been included in the general term of walls.

Prices for wall tiling shall include for all operations required in proper execution of the work out and waste and fixing as described.

Glazier

Quality of glass

All the glass to be of the best quality obtained free from all defects and Imperfections and shall be to the approval of the Architect.

Windows and doors

Glaze all windows and doors in minimum 6 mm thick laminated glass unless specified otherwise.

Translucent glass

Windows requiring obscure vision shall be glazed with translucent glass of an approved texture or pattern, the thickness to be not less than that mentioned above unless specified otherwise.

Putty

Putty for glazing to wood shall be made of pure whiting and raw linseed oil and to be used fresh. Putty for glazing to metal shall be steel sash putty of approved manufacture.

All putty shall be delivered on site in the original manufacturer's sealed cans or drums and used direct therefrom, with the addition only of pure linseed oil if necessary. No mineral or other cils shall be used in the putties except genuine linseed oil.

The rebates of metal window shall be painted one coat before puttying.

Glazing

All glass to be cut accurately in one piece, to fit easily into their rebates and to be well puttied, back puttied and secured with springs in the case of fixing to wood or with metal clips in the case of metal. Care must be taken to ensure that the putty does not show beyond the sight lines of panes and that the putty is neatly cut off internally and neatly splayed off externally all mitres and angles left clear and sharp.

Glass blades for window

Blades for louvre windows shall be laminated 6mm thick glass of louvre selected glazing quality Grade 'A' to B.S 952 and of approved manufacture.

Fire resistant glass

Fire resistant glass to be fire resisting glazing of 60 mins integrity meeting BS 476:part 22.Each glass sheet to be provided with a visible "acid etching" giving the trade name in the corner of the pane and mark with BS 476:part 22.Fire resistant certificate to be produce at approval stage,

The two long edges of the blades shall be flat smooth polished with no sharp arrises and the two others clean cut. The contractor shall, when requested to do so, produce certificates of proof of manufacture and quality of the glass blades he proposes to use.

Glazing work at completion

All glass broken, cracked or scratched during the progress of the works to be reinstated at the sole cost of the contractor and all glazing to be left clean and perfect at the completion of the contract.

Painter & Decorator

Generally

All work shall be carried out in strict accordance with schedule of colours to be obtained from the Architect.

Samples of colours if requested by the Architect shall be painted on the walls 1.00m x 1.00m square and approval obtained from the Architect before proceeding with the work.

Materials, paint, Varnishes, etc

All oil paints, emulsion paints, varnish and other materials shall be of an approved manufacture and shall be used strictly in accordance with the manufacturers' printed instructions, the contractor will only be allowed to use materials which are brought to the site in sealed cans not exceeding one gallon capacity, bearing the name of the manufacturer and properly labelled as to quality. Exterior quality paints only shall be used, both internally and externally. All cans of paint must be kept well stirred before and during use. The only addition to the paint which will be allowed shall be approved pure turpentine and this shall be added only in accordance with the Architect's instructions. All coats of paint applied over each other shall be from the same manufacture and the type recommended by the manufacturers.

Well before commencing the painting work the contractor shall submit to the Architect for approval a list of all the brands of paint and finishings including the necessary primers and undercoats he intends to use and immediately upon being so approved orders shall be placed and total requirements obtained for the works.

Once approved no other brand of materials shall be used without the express permission of the Architect in writing.

Preparation of Surfaces

All surfaces to be painted shall be thoroughly cleaned down and surfaces of wood to be sand-papered and to be twice knotted and stopped before applying the priming coat which shall be regarded as additional to the undercoat. All surfaces of ironwork to be thoroughly cleaned of all scale, and every particle of rust, dirt or grease removed by scrapers' and wire brushes, or other approved method. Galvanized, sheradised or zinc sprayed metal to be painted shall be treated with mordant solution. Copper pipes specified to be painted shall be rubbed down with coarse emery, cleaned with a solution of one part acetone to two parts of benzel and left to dry.

Wood Preservative

Treat all timber built in or in contact with walling and concrete with 2 coats of approved type of wood preservative.

Galvanised metal Surfaces

Clean down, treat with degreasing solution, prime with yellow chromate or other approved primer, and paint two undercoats and one gloss finishing coat oil paint.

Ironwork

Clean down, removing every trace of rust and paint 1 coat of red lead primer, 2 coats of undercoat and one gloss finishing coat.

Rendered surfaces

Brush down to remove dirt and dust, prime with alkali resistant primer as specified by the suppliers of the emulsion paint to be used and paint three coats of approved plastic emulsion paint (external quality) both internally and externally strictly in accordance with manufacturers' instructions. The walls are not to be pumiced down.

Cleaning on completion

All floors to be twice washed, all marks of paint to be sponged off, windows cleaned, the work generally to be touched up after all the other trades are finished and the whole of the building left clean and perfect on completion to the satisfaction of the Architect.

Laboratory furniture and wall cupboard, workbench

All laboratory furniture are to be finished with one coat polyurethane lacquer of approved manufacturer. The first coat is to be gloss lacquer thinned with 10% white spirit and applied to all surfaces including the back of fittings, inside of drawers, and doors, etc. All exposed surfaces are to be finished with a further cost of semi-gloss lacquer. Hardwood bench tops are to be finished with two coats or linseed oil.

Plumber

General

All materials and workmanship shall comply with the latest editions of The British Standards's Specification, Codes of Practice, By Laws and Regulations of all Statutory Authorities concerned.

The Contractor shall include for producing all working drawings, details, builder's work and holes drawings necessary to carry out the work and as required by the Architect. The drawings shall be based upon the Architects diagrammatic drawings and shall be submitted, in duplicate progressively at least two months prior to the programmed commencement of work coordination and approval of the Architect. All alterations to drawings, whether due to co-ordinations or otherwise, shall be carried out by the contractor. The contractor shall provide the Architect with four copies of each approved drawings in addition to those required for his own use.

At completions of the contract, the Contractor shall provide the Architect With one complete set of negatives indicating the "As installed" installation and three prints of the said drawings complete with all operational and maintenance instructions, value charts, and test certificates. These drawings shall be provided to the Architect at practical completion of the works, failing which the Architect reserves the right to withhold an appropriate portion of the first retention money.

All work shall be tested in sections as required and before being covered up, for the Architect and statutory authorities. Before any test is carried out, a minimum of seven days notice shall be given to the Architect.

Where access is indicated to soil, waste and rainwater pipe fittings, the Contractor shall ensure that all access doors and rodding eyes are so positioned as to be accessible. Before testing, all access doors shall be removed, inspected, the washer greased and then reassembled by the Contractor.

Lead in flats flashings, aprons etc.

The lead used shall be best milled sheet lead of approved manufacture. No solder to be used in laying of lead except where quite unavoidable and no continuous strip of lead to be more than 2.00m long. Overlaps to be not less than 75mm. Lead flashings, aprons, soakers and other lead work where required to be fixed shall be secured with copper nails. Leadwork shall comply with the following weights.

	Per sq.ft
Lead gutters & flats	29.3 kgs
Flashings and aprons	24.4 kgs
Soakers	19.5 kgs

Soil ventilating pipes

Soil ventilating pipes shall be not less than 63mm interval diameter cast iron pipes conforming to B.S.S and fitted with the necessary junctions and bends. All joints shall be made with a gasket of tarred hemp and caulked with a mixture of neat cement just moist. The pipes shall be secured to the wall with approved holderbats which shall be securely fixed to the wall with rawlbolts.

Ventilating pipes shall be carried at least 900mm above eaves level and shall be fitted with approved coated wire balloon.

Rising Main

The Contractor shall include for all charges for tapping and connection to public water main, including all necessary excavations and reinstatement of public roads.

Galvanised pipes and fittings for water services

All internal and external water services, fittings, wastes, overflows and the like shall be in screwed and socketted galvanized wrought iron or steel tubes and tubulars, the former complying with BS 788 for water (medium) and the latter with BS 1387 for B class. Pipes above ground level shall be fixed to walls with approved type galvanised malleable iron built in clips, brackets, holderbats or pipe clips, the spacing of which shall not exceed 900mm.

The jointing of galvanized piping and fittings shall be made with proprietary brands of jointing paste or compound complying with BS 1260 and if these are not obtainable by a method to be approved by the Architect.

Unless otherwise specified or detailed on drawings the internal diameter of service pipes shall comply with the following:

Diameter of supply or feed pipe	No. of tappings shall not exceed
13mm	2-13mm
19mm	4-13mm
25mm	-13mm or 2 – 19mm
31mm	10-13 mm or 2 – 25mm
38mm	16-13mm or 6 – 19mm
	3 – 25mm or 2 – 31mm

Water taps

All bib, pillar, globe and stop taps shall be of the screw down pattern and comply in every respect with BS 1010. The size specified or shown on the drawing shall mean the maximum bore of the seating.

Stopcocks and boxes

Brass stopcocks shall be provided at the immediate entry of the water services into the building and at the other points as indicated on the drawings and shall be of a pattern approved by the Architect.

Stopcock boxes where required externally shall be constructed of 150mm earthernware pipe out to the required length and fixed vertically over the stopcock on two concrete blocks and the earth well consolidated round the sides. Top of pipe to be fitted with 225mm x 25mm, thick precast concrete cover reinforced with 13mm chicken wirenetting and fitted with a lifting ring.

Testing of water services

The whole of the water services laid or fixed by the contractor shall be tested at the contractor's expense in the presence of the Architect and shall comply with his requirements and any defects made good to his satisfaction. In the absence of instructions regarding the test it shall be an air pump and pressure gauge test the pressure applied at 35 to 53 grms per cm^2 for one hour at the end of which period the loss in pressure shall not be greater than $1/50^{th}$ of lb. per 225 $mm^{2.}$

Waste pipes

Waste from sinks and shower to be in 38mm bore pipe and from lavatory basins to be 31mm. All wastes to be carried through external walls to discharge over gulley gratings. All wastes pipes shall be at each change of direction of pipe be fitted with a tee, one end with screwed plug for cleaning purposes. The external gulley to be connected to the nearest manhole. Wastes from urinals to be taken in 50mm diameter cast iron pipe with trap at urinal end and connected by 50mm pipe externally to the nearest manhole. All laid to fall.

Overflow pipes

Overflow pipes are to be fitted to all w.c distant tanks and baths and in each case the overflow pipe shall be 6mm longer in diameter than the water supply to the unit. Overflow pipes to w.c cisterns shall be taken through an external wall to finish 150mm beyond the face of the wall.

Supply of sanitary ware

Baths, w.cs, basins, sinks and other sanitary units shall be of approved manufacture and shall comply with the relevant B.S.S. They shall be of the type and designs shown on the drawings or to the Architect's instructions. The whole of the units shall be properly fixed and connected to the water service complete with wastes and overflows as described.

Rainwater pipes

Rainwater pipes shall be approved rigid P.V.C rainwater unless otherwise described. Pipes shall be properly fixed to walls with approved clips at distance to be directed by the Architect.

Drain pipes for soil drainage

All pipes for soil drainage which include the conveyance of discharges from wcs, basins, sinks, drains, baths and showers shall salt-glazed earthernware pipes, bends, junctions and tapers complying in all respects with B.S no. 63 for "British Standard

Pipes" and must be stencilled with the registered mark of the B.S.I. Other fittings shall comply with the dimensions laid down in B.S 539. If the above type of pipe is unobtainable then best Commercial Quality may be used on conditions prior approval of the Architect is obtained.

Drain pipes for water drainage

Pipes conveying storm or surface water shall be second quality distinguished by a black band.

Laying of drain pipes

The pipes to be laid in straight runs to even and regular falls, and put together with great care, the spigot of one pipe shall have one lap of tarred gaskin wrapped round it and then placed into the socket of the pipe previously laid. After the adjustment the gaskin shall be caulked lightly home but not so as to occupy more than one quarter of the socket depth. The socket shall then be completely filled with cement mortar (1:1) and a fillet shall be formed round the joint, with a trowel forming an angle of 45 degrees with the barrel of the pipe. The joint inside to be struck with a scraper, so as to give a perfectly clear and unobstructed water way.

Fall in drains

All pipes except where otherwise shown shall be 125mm internal diameter laid to a fall of 1:50.

Concrete bed to drains

Concrete (1:3:6) shall be laid 150mm thick to form bed for drains where the soil is found to be soft. After the pipes have been tested, it shall be haunched up on both sides to a height of $3/4^{th}$ of the internal diameter of the pipe.

Concrete cover to drains

All pipes passing under buildings or under roadways shall, in addition to a 150mm concrete bed under, be completely surrounded in concrete of the same thickness of (1:3:6 mix).

Gully traps

Provide trapped gullies, complete with gratings in positions shown on drawings, set on concrete and surrounded in concrete, and jointed to drain as described.

Manholes

Manholes are to be constructed in the positions shown on the drawings. The internal dimensions of the manholes shall vary according to their depth and shall be as follows:

Depth of manhole from top of invert to finished ground level	Internal dimensions of manhole shall not be less then
Up to 600mm	600 x 450mm
Up to 900 mm	750 x 600mm
Up to 1200 mm	825 x 675mm
Up to 1500mm	900 x 750mm

Exceeding 150mm in depth the Contractor shall apply to the Architect for details.

Manholes shall be constructed in concrete (1:3:6) cast in situ hacked for key and finished above the benching with 6mm thick rendering of cement and sand mixed in the proportions of 1 to 2. The thickness of the concrete walls shall vary according to the depth and shall be as follows:

Depth of manhole from top of invert to finished	thickness of concrete to manhole walls shall not be less than
Up to 600mm deep	100mm thick
Exceeding 600mm but not Exceeding 1500mm	150mm thick

Exceeding 1500mm in depth the Contractor shall apply to the Architect for details.

The floor of manholes shall be 150mm thick and the channels and benching shall be formed above the level of the floor in fine concrete (1:2:4) average 225mm thick with a polished fall and carried up 450mm above invert level and channels. The cement for benching to be sulphate resisting cement. Step irons shall comply with B.S 1247 and shall be placed at intervals of 450mm vertically with 300mm offset between alternate steps.

Manhole covers other than those in roadways shall be 600 x 450mm cast iron medium weight with frame set flush in 125mm concrete cover slab Mix C,, the building shall be bedded in grease and shall be of an approved heavy iron pattern and the contractor shall apply to the Architect for details including the construction of the manhole.

Soakaways

Construct soakaways not less than 6m away from the building in position approved by the Architect. Water from rainwater pipes to be first taken into a trapped gulley below rainwater pipes to be first taken into a trapped gulley below rainwater pipes and thence by 100mm diameter pipe to soakaway. The soakaway to be 900mm x 900mm x 1500mm deep filled with stones and finished with a 300mm layer of 38mm macadam.

Cast concrete kerb around gulley and soakaway in mix B concrete 100mm thick and 225mm deep to project 125mm above ground level. Render kerbs with a 1:3 cement and sand and finish with slightly rounded edges.

Septic tank

Septic tanks shall be constructed in position shown on the site plan not less than 15m. away from the building, in accordance with detail drawing.

Intercepting chamber

Intercepting chamber shall be constructed as described for man-holes with an approved saltglazed eathernware intercepting trap with rodding arm fitted with standard jointed stopper set and surrounded in concrete mix C and jointed to drain.

Fresh air inlet

Build into the side of the intercepting chamber a 100mm diameter cast iron pipe with bend to terminate not less than 750mm above ground level jointed to an approved 100mm galvanized fresh air inlet valve with cast brass flap and hinged mica flap.

Drain testing

All drainage runs shall be tested before tracks are filled up and afterwards when the drainage system is complete in the presence of the Architect. The contractor shall supply all necessary equipment and labour for carrying out the tests. The air test shall be carried out by plugging all openings with standard air test apparatus to one end. The air pressure in pipes to be built up by means of a suitable pump until a head of 100mm is reached and the test continued until approved by the Architect. The maximum loss allowed shall be a fall of 25mm over a period of 5 minutes after pumping has ceased. If the fall exceeds 25mm a smoke test shall be immediately carried out to locate defects and all such defects shall be made good and further tests carried out at no extra cost to the Employer.

ROADS AND FOOTPATHS

Site clearance

All roots, tree stumps, rocks and similar obstructions in the line of The excavation of the road or footpath shall be removed from the site having due regard to Clause No. 1 of the Excavator section of this specification.

Macadam finished roads

Excavate to a depth of 225mm below the required finished level of the road, and to the full width directed. All excavated materials shall be spread and levelled on the site or removed from the site as directed by the Architect.

Tarmacadam roads, Drives playground, etc.

Remove top soil to a minimum depth of 225mm and compact formation level by a 8-10 ton roller. Where formation is composed of clayed soil (to be decided by the Architect) apply a

Operation 1

layer of coral sand 38mm thick and compact again.

Operation 2

Hardcore filling consisting of angular shapes blue basalt spalls 150mm x 100mm x 75mm type B to be placed on the compacted surface after operation 1, blinded with 63mm aggregate and compacted with the 8-10 ton roller by successive passes until a well interlocked mass is obtained.

Operation 3

Spread 25mm aggregate on the compacted hardcore filling after operation 2 at the rate of 16-18 sq. metre of surface per cu.metre, blinded with 19mm aggregate at the rate of 40-50 sq.metre of surface per cu.metre and compacted with the 8-10 ton roller until no movement of the 19mm aggregate is possible.

Operation 4	Spray bitumen of 6/70 penetration at a temperature of 300ºF (using a bitumen sprayer) at the rate of 2 sq.metre per gallon, followed immediately by 9mm aggregate at the rate of 150 sq. metre of surface per cu.metre and rock sand at the rate of 300 sq. metre of surface per cu. metre compact with a 8-10 ton roller after the surface has been smoothed up by hand and brass brooms. NOTE: The surface to be finished to the level decided by the Architect on site.
Kerbing in stone	Edges of all roads requiring stone edging; the level kerbing shall be made of selected rocks with level and square exposed edges of full thickness of the hardcore and finished flush with the road surface.
Kerbing in concrete	To edges of all playground and paved areas except where otherwise indicated provide 300mm wide and 225mm deep concrete curbs, cast in situ to full widths and depths of 1:2:4 concrete, with smooth trowel finish to exposed edges and finished flush with and to follow falls of paved areas. At inter-sections of curbs and at intervals of 30 metres in straight run provide 13mm wide butt jointed expansion rail to back of kerbs to within 50mm of top of curb and where filled filling to be banked at a slope not exceeding 1 in 3.

EXCAVATION

2.1 Inspection of Site

The Contractor is deemed to have visited the Site and to have ascertained the nature of the material to be excavated.

2.2 Dealing with water

The contractor's attention is drawn to the depths below ground level of the foundations and the consequent possibility of having to deal with water. Unless otherwise specified the contractor will be required by pumping or other means to keep the exactions dry during construction.

Shoring of existing structure

The contractor's attention is drawn to the requirements for shoring parts of the structure of the existing building during construction and the consequent need to carry out the excavation in stages. He is not allowed to excavate within the proximity of the existing structure without the drawings and/or instructions by the Engineer to do so.

2.3 Excavation Dimensions:

The excavation are to be executed to the widths and depths shown on the Drawings or to greater depths if instructed by the Engineer to obtain satisfactory foundations.

If the contractor excavates to any widths or depths greater than those shown on the Drawings, or as instructed by the Engineer he shall at his own expense fill in such widths or depths beyond that instructed or shown with concrete Grade "D" to the satisfaction of the Engineer.

2.4 Rock

"Rock" means any hard material, which in the opinion of the Engineer can be removed only by use of compressors or by wedging and the Engineer's opinion shall be final. Decomposed rock, tuff or other material which can be removed by pick, traxcavator or other mechanical plant will not be classed as rock. All material classified as rock may, if approved by the Engineer, be used as hardcore filling and the measured quantities of imported filling will be adjusted accordingly. All rock so used must be broken to the required size as hereafter described before being used.

2.5 Blasting:

No blasting will be permitted.

2.6 Bottom of excavations to receive foundations:

The Contractor shall report to the engineer when secure bottoms to the excavations have been obtained. Any concrete or other work executed before the excavations have been inspected and approved, shall if so directed, be removed and now work substituted after the excavations have been approved, all at the Contractor's expense. The surface of the bottoms to excavations shall be levelled or graded to falls as required, with 50mm layer of concrete Grade "D" blinding (maximum 20mm gauge aggregate) and finished to a smooth surface with a wood float.

2.7 Hardcore filling:

Hardcore for filling under float, etc, shall be good hard stone ballast to the approval of the Engineer, broken to pass not greater than a 150mm ring or to be 75% of the finished thickness of the layers being completed whichever is the lesser and graded so that it can be easily and thoroughly compacted by rolling.

The filling is to be laid in layers each of a consolidated thickness not exceeding 225mm and well watered and rolled with a vibrating roller (minimum 14 tons) or a ten ton roller. Where rollings impossible, compaction shall be by hard or mechanical tampers. The top surface of the hardcore shall be levelled or graded to falls as required and blinded with similar material broken to 25mm gauge and surfaced with a 25mm layer of stone dust, well watered and rolled to receive concrete as described.

2.8 Materials found in excavations

No material found in the excavation is to be used in the works without the written permission of the Engineer.

CONCRETE WORK

3.1 Architect/Engineer

For the purpose of the concrete structure the Structural Engineer shall be deemed invested with the duties and be the representative of the Architect.

3.2 Code of Practice

All workmanship, materials, tests and performance in connection with the reinforced concrete work shall be in conformity with the latest edition of the British Standard Code of Practice (C.P. 110 "The Structural use of Concrete") where not inconsistent with these Preambles.

3.3 Supervision

A competent person approved by the Engineer shall be employed by the Contractor whose duty will be to supervise all excavation operations, making and erection of formwork, sending and fixing of reinforcement and all stages in the preparation and placing of the concrete. All cubes shall be made and side test carried out under his direct supervision, in consultation with the Engineer.

3.4 Contractor's plant equipment and construction procedures:

Not less than 30 days prior to the installation of the contractor's plant and equipment for processing, handling, transporting, storing and proportioning ingredients and for mixing, transporting and placing of concrete, the contractor shall submit drawings for approval by the Engineer, showing the proposed general plant arrangement, together with a general description of the equipment he proposes to use.

After completion of the installations, the operation of the plant and equipment shall be subject to the approval of the Engineer.

Where these Preambles, the Bills of Quantities or the Drawings require specific procedures to the followed, such requirements are not to be construed as prohibiting the use by the Contractor of alternative procedures if it can be demonstrated to the satisfaction of Engineer, that equal results will be obtained by the use of such alternatives.

Approval of plant and equipment or their operation, or of any construction procedure, shall not operate to waive or modify any provisions or requirements contained in these preambles governing the quality of the materials or of the finished work.

3.5 Levels and Foundations:

The foundations of the works shall be carried down to depths as may be directed by the Engineer and they must be cut as nearly to the size of the concrete as possible and the vacant spaces between the concrete and the solid ground, excepting where otherwise shown, must be carefully filled in as instructed by the Engineer.

All temporary timbering shall be removed but should any timber be left in or should any other work be done beyond that specified, it will be at the Contractor's own cost.

3.6 **Tolerances:**

On all setting out dimensions of 7.5m and over a maximum non-cumulative tolerance of plus or 6mm will be allowed, and for those under 6m the allowable maximum non-cumulative tolerance will be plus or minus 3mm. On the cross sectional dimensions of structural members, unless otherwise required by the Drawings, a maximum tolerance of plus or minus 3mm will be permitted.

The top surface of concrete floor slabs and beams shall be within 6mm of the normal level and line shown on the Drawings. Walls and columns shall be truly plumb and non-cumulative tolerance of 3mmin each storey and not more than 12mm out of plumb in their full height will be permitted. The contractor shall be responsible for the cost of all corrective measures required by the Engineer to rectify work which is not constructed within the tolerances set out above.

3.7 **Materials generally:**

All materials which have been damaged, contaminated or have deteriorated or do not comply in any way with the requirements of these Preambles shall be rejected and shall be removed immediately from the site at the Contractor's own expense.

No materials shall be stored or stacked on suspended floors without the Engineer's prior approval.

3.8 **Samples and Testing:**

Every facility shall be provided to enable the Engineer to obtain samples and carry out tests on the materials and construction. If these tests show that any of the materials or construction do not comply with the requirements of these Preambles, the Contractor will be responsible for the costs of the tests and the replacement of defective materials and/or construction.

3.9 **Cement:**

Cement unless otherwise specified shall be Portland Cement of a Brand approved by the Engineer and shall comply with the requirements of B.S. 12, and a manufacturer's certificate of Test in accordance with B.S. 12 shall besupplied for each consignment delivered to the site.

Cement may be delivered to the site either in bags or in bulk.

If delivered in bags each bag shall be properly sealed and marked with the manufacturer's name and shall be stored in a weatherproof shed of adequate dimensions with a raised floor. Each consignment shall be kept separate and marked so that it may be used in the sequence in which it is received. Any bag found to contain cement which has set or partly set. shall be completely discarded and not used in the works. Bags shall not be stacked more than 1.5m in height.

If delivered in bulk the cement shall be stored in a waterproof site either provided by the cement supplier or by the contractor but in either case the site shall be to the approval of the Engineer.

3.10 **Aggregates:**

Aggregates shall conform with the requirements of B.S. 882 and the sources and types of all aggregates are to be approved in al respects by the Engineer before work commences.

The grading of aggregates shall be one within the limits set out in B.S. 882 and as later specified and the grading, once approved, shall be adhered to throughout the works and not varied without the approval of the Engineer. Fine aggregate shall be clean, crushed rock sand and coral sand, of hard quality and shall be free from lumps of stone, earth, loam, dust, salt, organic matter and any other deleterious substances. Coral sand shall be washed in running water to the satisfaction of the Engineer. It shall be graded within the limits of zone 1 or 2 of table 2 of B.S 882.

Coarse aggregate for concrete Grade 'A', 'B' and 'C' shall be crushed blue basalt stones to the approval of the Engineer. It shall be hard, clean and roughly cubical in shape, non porous, free from dust, decomposed stone, clay, earthy matter, foreign substances or friable, thin, elongated or laminated pieces. It shall be graded within the limits of Table 1 of B.S. 882 for its respective nominal size. If in the opinion of the Engineer the aggregate meets with the above requirements but is dirty or adulterated in any manner it shall be screened and/or washed with clean water, if he so instructs at the Contractor's expense.

Aggregates shall be delivered to the site in their prescribed sizes or gradings and shall be stock-piled separately on paved areas or boarded platforms in separate units to avoid intermixing, excessive segregation and contamination with other materials. On no account shall aggregates be stock-piled on the ground. Fine aggregates shall be allowed to drain until it has reached a uniform moisture content before it is used.

3.11 **Water**

The water used for mixing concrete shall be from an approved source, clean, fresh and free from harmful matter.

3.12 **Admixtures;**

No admixtures except the ones specified for waterproof concrete shall be allowed. The Contractor may use an approved "plasticizer" which will be added to the mixing water in the proportion recommended by the manufacturer and strictly in accordance with their written instructions, to achieve better workability. No additional cost will be paid for the use of the plasticiser.

CONCRETE STRENGTHS

1.1 **Grades of Concrete:**

Grades 'A', 'B' and 'C' concrete shall have the following minimum strengths as given by Works Cube Test:

	Grade A	Grade B	Grade C
Min. crushing) at 7 days	21	17	14
strength in) at 28 days	30	25	20
N/mm)			

Grade 'D' and 'E' concrete shall be of the following nominal mixes and may be moistured either by volume or by weight. No cube tests will be required for Grades 'D' and 'E' concrete. These grades will be used for un reinforced concrete, with a minimum slump of 50mm.

Grade	**D**	**E**
Nominal mix by	1.10	1.10 (with plums not exceeding 20% by total volume of concrete)
Max. gauge of coarse aggregate	40mm*	40mm*

(* or 20mm for blinding concrete where described).

1.2 **Maturing of Concrete Materials**
Cement

The quantity of cement shall be measured by weight. Where delivered in bags, each batch of concrete is to use one or more whole bags of cement.

Aggregate

- For Grades 'A', 'B' and 'C' concrete, aggregates may be measured by weight in weigh batching machine as described hereafter.

- For Grades 'D' and 'E' concrete, aggregates shall be measured by weight or by volume. Where measured by volume, approved gauge boxes of such a size as will give the correct proportions shall be used.

1.3 **Weigh batching machine**

Weigh batching machine shall be of an approved type and shall be properly maintained and checked for accuracy at weekly intervals.

1.4 **Concrete Mixes 'A', 'B' and 'C'**

As specified above.

The Contractor shall have two alternatives to achieve the specified concrete strengths.

1.5 **Alternative 1 Design Mix**

Contractor can use minimum amount of cement by weight per cubic metre of finished concrete as set out below, if he provides strict with CP 110 Clause 6.5. Requirements for design mixer.

Target mean strength. Evidence of suitability of proper mix proportions.

Trial mixes.

4.5.4 Additional Trial Mixes

The copies of this circular is available from the Engineer ‘s office on request by the contractor.

The minimum cement content by weight shall be

Minimum cement content per cubic metre of finished concrete	450 kg	360 kg	250 kg

4.6 Alternative 2

If the contractor fails to receive the requirements of alternative 1 and/or prefers nominal volumetric mix, he shall use the following:

	Mix A 1:13/16:2	**Mix B** 1:1 ¾:3	**Mix C** 1:2 ½:4
Cement	1 bag of 50 kg	1 bag of 50 kg	1 bag of 50 kg
Crushed rock sand	1 cu. ft	1¼ cu.ft	1 7//5 cu.ft
Coral sand 10mm to 5mm	½ cu. ft	7/8 cu.ft	14 cu.ft
Graded aggregates 20mm to 10mm	5/8 cu.ft	7/8 cu.ft	1¼ cu. ft
Graded aggregates	1 7/8 cu.ft	3 cu. ft	3 ¾ cu ft
Maximum water			
Cement ratio	5	.56	.60
Maximum slump	50mm	50mm	50mm

Average works strength obtained from work care of nominal volumating mixes shall be 10% higher than the minimum concrete strengths specified.

4.7 Ready Mix Concrete

Ready mixed concrete may be used subjects to the approval of the Engineer.

When it is used the contractor shall ensure that all the requirements of these specifications are complied with. The Engineer may at his discretion waive temporarily the requirements of preliminary trial mixes as required under the heading of trial mixes laid down for alternatives design mix.

Further to requirements the contractor shall ensure that supply and delivery of ready mixes concrete comply with the recommendations of M.S. 1926.

The concrete shall be transported to the site in approved containers and shall be continuously agitated until it is delivered on site. The Contractor shall ensure that no water is added after it is delivered.

For plant mixed concrete the contractor shall check that the delivery note for each batch shows the time when water it first added to the concrete materials, and the time interval between the delivery and the mixing of water is 20 minutes less than the final setting time of cement.

Samples of workscube shall be taken at the place where concrete is finally placed in the structural members.

4.8 **Waterproof Concrete**

Where "waterproof concrete" is specified, sealocrate or other approved waterproofing material and plasticizing agent shall be added to the mixing water in the proportion recommended by the manufacturers and strictly in accordance their written instructions. Waterproof concrete shall be grade B mix and shall meet all the strength requirements of the specified grade, except that the fine aggregate shall consist solely of rock sand.

4.9 **Changing proportion of Aggregates**

The Engineer may any time during the contract, require the proportions of fine to coarse aggregates to be altered in order to produce a mix of greater strength or improved workability and provided that the total proportions of aggregate to cement remains unchanged, no claim for additional cost will be considered.

4.10 Testing Equipment

The Contractor shall provide the following equipment for carrying out control tests on the site:

a) Straight edges 3m and 1.2m long for testing the accuracy of the finished concrete;

b) A graduated glass cylinder for use in the silt test for organic impurities in the sand;

c) Slump test apparatus;

d) Six inch steel cube moulds with base plates and tamping rods to B.S. 1881.

4.10 **Work Cube Tests**

Work cubes are to be made at intervals as required by the Engineer and the Contractor shall provide a continuous record of the concrete work. The cubes shall be made in approved 150mm moulds in strict accordance with the Code of Practice.

Six cubes shall be made on each occasion, three from different batches, of the concrete at the place where it is deposited.

Each cubes shall be made on each occasion, three from different batches, of the concrete at the place where it is deposited.

Each cube shall be marked with a distinguishing number (numbers to run consecutively) and the code on which it is made. A record shall be kept on site giving the following partitioning.

6. Cube No.
7. Date Mode
8. Location in

(d) 7-day Test

Date
Strength

(e) 28-day Test

Date
Strength

Cubes shall be forwarded by the Contractor to an approved Testing Authority, in time to be tested two at 7 days and two at 28 days. The remaining two cubes shall be tested when necessary.

Copies of all work cube Test results shall be forwarded to the Engineer and one shall be retained on the site.

If the prescribed concrete strengths are not attained and maintained throughout the carrying out of the contract, the Contractor will be required to increase the proportion of cement and/or substitute better aggregates so as to give concrete which does comply with the requirements of the contract. The Contractor may be required to remove and replace at his own cost any concrete which fails to attain the required strength as ascertained by Work Cube Tests.

The Contractor must allow in his rates for all expenses in connection with the preparation, conveyance to the Testing Laboratory, and testing of cubes.

CONSTRUCTION JOINTS

1.1 Position of Construction Joints:

Construction joints shall be permitted only at the locations shown on the Drawings or as instructed on the site by the Engineer. In general they shall be perpendicular to the lines of Principal and shall be located at points of minimum shear, viz vertically at, or near, mid-spare or slabs and beams.

1.2 Maximum distance between Construction Joints

Suspended slabs are generally to be east using alternative bays not exceeding 12m in length. At least 40 hours shall elapsed between the adjacent bays/shall be in positions to be agreed with the Engineer.

Beams shall be cast with the slab. Mass concrete shall be cast in alternate bays in lengths not exceeding 7.5m and in depths not exceeding 1.5m. Adjacent sections shall not be cast within 48 hours of each other.

Under no circumstances shall concrete be allowed to fail off but shall be deposited against stopping-boards.

5.3 Preparation of Construction Joints

Before placing new concrete against concrete already set, the face of the old concrete shall be thoroughly backed, roughened and cleaned, and baitance and loose material removed therefrom. Immediately before placing the new concrete the surface shall be saturated with water. A layer of mortar not less than 25mm in thickness and consisting of 1 part of cement to 1½ parts of fine aggregate shall be applied to the face of the old concrete. All exposed construction joints shall be treated with epory resin in accordance with the manufacturer's instructions.

EXPANSION/CONTRACTION JOINT

Joints fillers and sealants shall be of an approved type unless shown on the drawings. Reinforcement or other embedded items bonded to the concrete shall not extend continuously through any expansion/construction joint.

WATERBARS

1.1 Type

Waterbars shall be P.V.C waterbars of an approved type and shall be provided in the positions indicated on the drawings.

1.2 Joints

Joints shall be heat welded in accordance with the manufacturer's instructions and where the waterbar is to be fixed vertically, metal clips as manufactured by the supplier of the waterbar or of other approved design shall be provided to suspend the waterbar from the reinforcement.

1.3 Additional Water Bar

Where waterproof concrete is used the Contractor shall adhere strictly to the position and type of construction joints as detailed on the Drawings. Any deviation from this procedure or the provision of additional construction joints will require the prior approval of the Engineer and any additional waterbars which may be required will be at the Contractor's expense.

1.4 Formwork to Water Bars

Formwork shall be designed with sufficient timber formers and blocking pieces to support the waterbar and to ensure that it is not displaced during concreting. In the case of horizontal joints in vertical walling and similar members of the formwork shall be so constructed as to permit the starter or upstand of concrete surrounding the lower half of the waterbar to be poured in the same operation as the slab

or other member from which it springs. Formwork to walls or similar members where a water bar is positioned at the bags of the lift shall have sufficient openings not less than 300mm square at approximately 225mm above the level of the waterbar to permit checking that the waterbar is correctly positioned and not displaced during concreting.

No concreting will be permitted to portions where upstand startup from an integral part until the formwork to the starter has been fixed and approved.

8. EMBEDDED CONCRETE

All sleeves , inputs, anchors and embedded items required for adjoining work or for its support shall be approved by the Engineer and shall be placed prior to concreting and shall be used after an interval of time approved by the Engineer.

All contractors whose work is related to the concrete or must be supported by it shall be given ample time and opportunity to furnish embedded items before concrete is placed.

Expansion joint material, waterstops, and other embedded items shall be positioned accurately and rigidly. Voids in sleeves etc. shall be filled temporarily with readily removable material to prevent concrete entering into them.

9. MIXING & PLACING OF CONCRETE

9.1 Concrete Mixer:

The concrete shall be mixed only in approved power driven mixers of a type and capacity suitable for the work. Mixers shall be of a capacity sufficient to take one whole bag of cement per batch. Smaller size mixers shall not be used. The mixer shall be equipped with an accurate water measuring device which shall be checked weekly for accuracy. All materials shall be thoroughly mixed dry before the water is added and the mixing of each batch shall continue for a period of not less than two minutes after the water has been added and until there is a uniform distribution of the materials and the mass is uniform in colour.

The entire contents of the mixed drum shall be discharged before recharging. The volume of mixed materials shall not exceed the rated capacity of the mixer. Whenever the mixer is started,10% extra cement shall be added to the first batch and no extra payment will be made on this account.

9.2 Concrete Consistency:

As a check on concrete consistency slump tests may be carried out and shall be in accordance with B.S 1881. The Contractor shall provide the necessary apparatus and allow for the costs of such tests. The slump of the concrete made with the specified water content, using dry materials, shall be determined and the water to be added under wet conditions shall be so reduced as to give approximately the same slump.

9.3 Conveying of concrete:

The concrete shall be mixed as near to the place where it is required as is practicable to avoid rehandling and flowing, and only as much as be required for a specified section of the work shall be much as is required for a specified section of the work shall be mixed at one time, such section being concerned and finished is one operation without delay. All concrete must be efficiently skilled and used in the works within twenty (20) minutes of mixing. It shall be discharged from the mixer direct either into receptacles or barrows and shall be distributed by approved means which do not cause segregation or loss of ingredients or otherwise repair the quality of the concrete. Approved mechanical means of handling will be provided they are not longer than 6m and their slope do not exceed 1 vertical to 2 horizontal is not less than 1 vertical to 3 horizontal.

9.4 Depositing of concrete

Placing of concrete in supported elements e.g slab, bed shall not be started until the concrete previously placed in top parts of columns is no longer plastic and has been in place at least for two hours.

Concrete shall be placed from a height not exceeding 1.3m directly into its permanent position and shall not be worked along the shutters to that position. Unless otherwise approved, concrete shall be placed in a single operation to the full thickness of slabs with beams and similar members. The Engineer shall allow concrete to be placed for walls exceeding 150mm thickness from a height approved system of formwork is used.

In addition contractor will ensure that the concrete shall be deposited continuously such that no concrete shall be deposited on concrete which had hardened sufficiently to cause the formation of seams or places of weakness within the section. Placing shall be carried out at such a rate that the concrete which is being integrated with fresh concrete is still plastic.

Concrete in columns may be placed in a height of 3m with careful placing and vibration to achieve satisfactory results. Where the height of the column exceeds 3m suitable openings must be left in the shutters on that this maximum lift is not exceeded.

Concrete shall be placed continuously until completion of the part of the work between construction joints as specified hereinafter or of a part of approved extent. At the completion of a specified or approved part a construction joint of the form and in the positions hereinafter specified shall be made. A record of all such joints must be made by the contractor and a copy supplied to the Engineer.

9.5 Placing concrete under water

When required concrete shall be deposited under water by an approved method in such a way that the fresh concrete enters the mass of previously placed concrete from within, causing water to be displaced with minimum disturbance at the surface of the concrete.

9.6 Precautions of mixing and placing:

Any accumulation of set concrete on the reinforcement shall be removed by wire brushing before further concrete is placed. The contractor shall provide runways for concreting to the satisfaction of the Engineer. Under no circumstances will the runways be allowed to rest on the reinforcement.

Care shall be taken that the concrete is not disturbed or subjected to vibrations and shocks during the setting period.

Mixing machines, platforms and barrows shall be cleaned before commencing mixing and be cleaned on every cessation of work.

Where concrete is laid on hardcore, concrete blocks or other absorbent materials, the base shall be suitably and sufficiently wetted before the concrete is deposited.

10. Compaction

Compaction:

At all times during which concrete is being placed, the contractor shall provide adequate trained and experienced labour to ensure that the concrete is compacted in the forms to the satisfaction of the Engineer.

10.1 Depth of Compaction:

Concrete shall be placed neither at a rate greater that will permit satisfactory compaction nor to a depth greater than 750m before it is completed.

10.2 Vibration of Concrete:

During and immediately after placing, the concrete shall be thoroughly compacted by means of continuous tamping, spading, slicing rodding, forking and vibration. Vibration is required for all concrete of grades 'A', 'B' and 'C'.

Care shall be taken to fill every part of the forms, to work the concrete under and ground the reinforcement without displacing it and to avoid disturbing recently placed concrete which has begun to set.

Any water accumulating on the surface of newly placed concrete shall be removed and no further concrete shall be placed thereon until such water be removed.

10.3 Internal Vibrators:

Internal vibrators shall have a frequency of not less than 7,000 cycles per minute and shall have a rotating eccentric weight of at least 2 kg. With an eccentricity of not more than 12mm. Such vibrators shall visibly affect the concrete within a radius of 22mm from the vibrator.

Vibrators shall not be used to move concrete from place to place in the formwork.

At least one internal vibrator shall be operated for every two cubic metres of concrete placed per hour and at least the spare vibrator shall be maintained on site in case of break-down during concreting operations.

10.4 External Vibrators

External formwork vibrators shall be of the high frequency less amplitude type applied with the principal direction of vibration in the horizontal plane. They shall be attached directly in the forms at not more than 1.2m centers.

In addition to internal and external vibration the upper surface of suspended floor slabs shall be levelled with a tamping vibrating speed prior to finishing. Vibrating elements shall be of the low frequency high amplitude type operation at speed of not less than 3,000 r.p.m.

11.Curing and Protection

11.1 Periods and means of curing and protection:

Care must be taken that no concrete is allowed to become prematurely dry and the fresh concrete must be carefully protected within two hours of placing from rain, sun and wind by means of massive sacking, polythone sheeting, or other approved means. The protective layer and the concrete itself must be kept continuously wet for at least seven days after the concrete has been placed. The Contractor must allow for the complete covering of all fresh concrete for a period of 7 days. Heasian or polythene sheeting shall be in the maximum widths obtainable and shall be secured against wind. The Contractor will not be permitted to use old cement bags, hessian or other material in small piece.

11.2 Protection of foundation concrete

Concrete in foundations and other underground work shall be protected from admixture with falling earth curing and after placing.

11.3 Executive loads before curing

Traffic or loading shall not be allowed on the concrete except with the written permission of the engineer.

12. Faulty Concrete

Any concrete which fails to comply with these preambles or which shows signs of setting before it is placed shall be taken out and removed from the site. Where concrete is found to be defective after it was set, the concrete shall be out and replaced in accordance with the Engineer's instructions. On no account shall any faulty, honeycombed, or otherwise defective concrete be repaired or matched until the Engineer has made an inspection and issued instructions for the repair. The whole of the cost whatsoever, which may be occasioned by the need to remove faulty concrete shall be borne by the contractor.

13. Reinforcements

13.1 Type of Reinforcement:

The steel reinforcement shall comply with the latest requirement of the following British Standards:

Round mild, medium tonsile and to B.S 765 (Imperial units) high tonsile and steel bars.

Hot rolled bars for the reinforcement of concrete	to B.S 1449 (metric units)
Cold twisted steel bars	to B.S 1144 (imported units)
Cold worked steel for the reinforcement of concrete	to B.S 4461 (metric units)
Fabric reinforcement	to B.S 1221

It shall be in Imperial or Metric sizes as detailed on the drawings.

13.2 Testing of Reinforcement

If required by the Engineer the contractor shall submit a test certificate of the rollings, and/or shall arrange for testing by MOW or other approved authority. Reinforcement shall be free from loose mill scale or rust, grease, paint or other substance likely to reduce the bond between the steel and concrete.

13.3 Fabric Reinforcement

It shall be of size and/or weight specified and shall be tied with other reinforcements with minimum 225mm laps, using no. 19 S.W.C annealed binding wire.

13.4 Fixing and Reinforcement:

Reinforcement shall be accurately bent to the shapes and dimensions shown on the Drawings and/or schedule and in accordance with B.S. 1478. Reinforcement must be cut and bent sold and no welded joints will be permitted unless so detailed. Reinforcement shall be accurately placed in position as shown on the drawings and shall be secured against displacement by using No. 18 S.W.C annealed binding wire or suitable clips at inter-sections and laps, and shall be supported by concrete or metal supports, steel chairs, spacers or metal hangers to ensure the correct position and cover before concreting and shall be kept in the same position during concreting. However such supports, chairs etc. shall have minimum 12mm cover made of concrete blocks where the concrete surface is exposed to weather and/or without finishes.

No laps shall be permitted except the acres shown on the drawings without the prior approval of the engineer.

13.5 Spacing Blocks:

Spacing blocks of approved size and shape made of concrete similar to that used in the surrounding construction and fixed to the reinforcement or formwork by No. 18 S.W.C wires set into the spacer blocks or other approved means shall be provided where necessary to ensure that the requisite cover is obtained. The contractor is to include for providing sufficient such spacer blocks in his prices for steel reinforcement when such supplier has been nominated.

Where composite blocks or minor forms from construction are just spare block are to be provided. These will generally consist of concrete blocks as described above made to fit the width of the rib less 3 mm of reinforcement bars used per on the top surface with wire ties at each

13.6 Concrete cover to reinforcement:

Unless otherwise instructed the concrete cover to rod reinforcement over main bars in any face shall be:

Foundations against each face	3 (75mm)
Foundations against blinding	2 (50mm)
Columns	1½ (38mm)
Beams	1 (25mm)
Slabs	½ (13mm)

13.7 Positions and correctness of reinforcement:

No concreting shall be commenced until the engineer has inspected the reinforcement in position and until he has approved the same. The contractor shall give two celar days notice of his intention to concrete.

Irrespective of whether any inspection and/or approval of the fixing of the reinforcement has been carried out as above, it shall be the contractor's sole responsibility to ensure that the reinforcement complies with the details on the drawings or schedule and is fixed exactly in the positions shown therein and in the positions to give the prescribed cover.

The contractor will be held entirely responsible for any failing or defect in any portion of the reinforced concrete structure and including any consequent claims, third party claims, etc, where it is shown that the reinforcement has been incorrectly positioned or is incorrect in size or quantity with respect to the detailed Drawings or schedules. Unless permitted by the Engineer, reinforcement shall not be after being embedded in hardened concrete.

13.8 Protection of exposed reinforcement

Where reinforcement projects frame concrete setting of the structure and this reinforcement is executed to remain exposed to more than a month it is to be with a cement to prevent rust staining on the finished concrete. This is to be brushed off the reinforcement prior to the continuation to converting.

The Contractor shall be responsible for the co-ordination with the Electrical and other sub-contractors for incorporating electrical conduit, pipes, fixing locks, chases, holes and the like in concrete members as required and must ensure that adequate notice is given to sub-contractors informing them when concrete members incorporating the above are to be poured. The contractor shall submit full details including position of these items to the Engineer for approval before the work is put in hand. All fixing blocks, chases, holes, etc, to be left in the concrete shall be accurately set out and cast with the concrete.

15. Position of electrical conduit

Unless otherwise instructed by the Engineer an electrical conduit to be positioned within the reinforced concrete shall be fixed inside the steel cages of beams and columns and between the top and bottom steel layers in slabs and similar members. No conduits are to be placed into concrete members having a dimension less than 100mm.

The proposed position of all electrical conduits 25mm and over in diameter which are to be enclosed in the concrete shall be shown accurately on a plan to be submitted to the Engineer, whose approval shall be obtained before any such conduit is placed.

16. Formwork

16.1 Materials and Design

Formwork shall be constructed of timber or steel or precast concrete or other approved material with sufficient strength to withstand pressure resulting from placing and vibration of the concrete and with rigidity to achieve the specified tolerances.

The design and Engineering of the formwork as well as its construction shall be the responsibility of the contractor. The Formwork shall be designed for the loads, laterial pressure, pressure due to cyclonic winds and other loads likely to be encountered on site.

Shops drawings for formwork including the location and reshoring shall be submitted for approval by the Engineer before erection.

16.2 Construction

All formwork shall have joints close enough to prevent leakage of liquid from the concrete and formwork shall be jacked or dedged and clamped or bolted to permit adjustments before concreting and to permit easing and removal of formwork without jarring the concrete. Formwork shall be securely braced and strutted against lateral deflections and vertical movements. Where formwork is supported on previously constructed portions of the reinforced concrete structural frame, the Contractor shall by consultation with the Engineer ensure that the supporting concrete structure is capable of carrying the load and/or is sufficiently propped from lower floors or portions of the frame to permit the load to be temporarily carried during construction.

Formwork shall be cambered to compensate for anticipated deflections prior to hardening of the concrete.

16.3 Preparation for Concreting

The Contractor's attention is drawn to the various surfaces textures and applied finishes required and the faces of the formwork next to the concrete must be of such material and construction and be sufficiently true to provide a concrete surface which will in each particular case permit the specified surface treatment or applied finish.

At construction points contact surface of the form squeating for flush surfaces shall overlap 300mm and shall hold right against the hardened concrete to prevent effects or loss of mortar.

Methods of fixing and positioning of the formwork which results in holes through the concrete and/or left in metal ties or similar in the concrete shall require Engineer's approval.

All surfaces which will be in contact with concrete shall be piled or greased to prevent adhesion of mortar. Oil or grease shall be of a non-staining mineral type applied as a thin film before the reinforcement is placed. Surplus moisture shall be removed from the forms prior to placing of the concrete.

Temporary openings shall be provided at the base of columns, wall and seam forms and at any other points where necessary to facilitate cleaning, and inspection immediately before the pouring of concrete. Before the concrete is placed the shuttering shall be trued-up, and the interior of the form shall be completely cleared of all extraneous materials including accumulated water.

The reinforcement shall then be inspected for accuracy of fixing, immediately before placing the concrete the formwork shall be well wetted and inspection openings shall be closed.

16.4 Defective Formwork:

Defective formwork shall be removed or strengthened and improved by the contractor according to the instructions by the Engineer.

16.5 Formwork to Construction Joints etc.

Formwork forming the construction joints and expansion joint shall be rigid, tight to avoid loss of mortar and true in square.

Formwork shall be inspected and passed by the Engineer before placing reinforcement and concreting.

16.6 Stripping Formwork:

Formwork shall be removed without undue vibration or shock and without damage to the concrete. No formwork shall be removed without the prior consent of the Engineer and the minimum periods that shall elapse between the placing of the concrete and the striking of the formwork will be as follows:

Beam side walls and columns (unloaded)	2 days
Slab soffits (with props designed to left under)	7 days
Beam soffits (with props designed to left under)	10 days

Subject to work cubes achieving the specified strengths and the loads due to construction on them being lighter than the designed loads. The props can be removed for:

Slab ……..	……	……..	10 days
Beams	……	……..	21 days

If the Contractor wishes to take advantage of the shorter stripping times as permitted above for beam and slab soffits when propos are left in place, he must so design his formwork that sufficient props as agreed with the Engineer can remain in their original position without being moved in any way until expiry of the minimum time for removal of props. Stripping and re-propping will not be permitted**.**

Contractor shall be responsible for consequent damage arising from early stripping of form work.

16.7 Making good:

After removal of formwork all projections, etc, on the concrete surface shall be chipped off, and made good to the requirements of the Engineer. Any voids or honeycombing shall be treated as described in "faulty concrete".

16.8 Fair-face etc.

Where fair-face is specified the contractor shall make a sample of area formed by sides not less than 1.2m for approval by the Engineer and the Architect. Same will apply to Board Marked. Tamped and finishes.

16.9 Related Uniformed Surfaces

Top of walls or buttresses, horizontal offsets and similar unformed surfaces occurring immediately adjacent to formed surfaced shall be struck smooth after the concrete is placed and shall be floated to a texture reasonably insistent with that of the formed surfaces.

17. PRECAST CONCRETE

17.1 General Requirements

Unless otherwise approved by the Engineer, all precast concrete construction shall be carried out on the site and shall conform to requirements given elsewhere in these preambles.

The maximum size of coarse aggregate in precast concrete shall not exceed 20mm except for thickness less than 75mm where it shall not exceed 12mm.

The compacting of precast concrete shall conform with requirements given elsewhere in these preambles except for thin slabs where use of immersion type vibration is not practicable. The concrete in those slabs may be consolidated on a vibrating table or by any other methods approved by the Engineer.

17.2 Steam Curing

Steam curing of precast concrete will be permitted. The procedure for steam curing shall be subject to the approval of the Engineer.

The precast work shall be made under cover and shall remain under the same cover and shall remain under the same for seven days. During this period and for a further seven days the concrete shall be shielded by sacking or other approved material kept constantly wet. It shall then be stacked in the

open for at least a further seven days to season before being set in position. Where steam curing is used these times may be reduced subject to the approval of the Engineer.

17.3 Method of Handling:

Precast concrete units shall be constructed in individual forms. The method of handling the precast concrete units after casting, during curing and during transport and erection shall be subject to the approval of the Engineer, providing that such approval shall not relieve the Contractor of responsibility for damage to precast concrete units resulting from careless handling.

17.4 Repairs:

Repair of damage to the precast concrete units, except for minor abrasions of the edges which will not impair the installation and/or appearance of the units will not be permitted and the damaged units shall be replaced by the Contractor at his own expense.

17.5 Moulds

Except where precast work is described as "fair-face" the moulds are to be made of metal or are to have metal or plywood linings or are to be other approved moulds which will produce a smooth dense fair face to the finished concrete suitable to receive a painted finish direct and free from all shutted marks, holes, pittances, etc. In his prices for such precast work the Contractor shall include for all rubbing down to produce the finish required to the satisfaction and approval of the Engineer and the Architect.

Where precast work is to have an exposed aggregate as finish the moulds shall be constructed to the requirements given for moulds for "fair face" work. The method of achieving the exposed aggregate finish shall be the aggregate transfer or other approved methods. A sample showing the required finish and shape shall be approved by the Architect/Engineer.

The precast units shall be installed to the lines, grades and dimensions shown on the Drawings or as directed by the Engineer.

18. COMPOSITE FLOOR SLABS

18.1 Size, type and concrete mix for floor block:

Concrete hollow blocks for use in the composite floor slabs are to be size and shape as shown on the Drawings with 25mm wall thickness and are to be of adequate strength to support the concrete during placing and consolidation by vibration. Blocks are to be manufactured in accordance with the procedure specified in B.S 2028 and to be of a mix not weaker than 1:10 cement: combined aggregates using maximum 10mm size aggregate. No coral sand shall be used in making of concrete blocks.

Concrete blocks are to be cured for at least 28 days before use of the site. During the first seven days of curing, blocks are to be kept permanently damp and protected from exposure to sun and wind.

Concrete blocks are to be well wetted before the pouring of concrete.

18.2 Composite Floor Construction

The hollow block floor construction is generally to be as shown on the Engineer's Drawings.

Care shall be taken in placing blocks to ensure that they are set out in accordance with the details shown on the Drawings and that they run truly in line without encroaching on the width of the in-situ ribs.

The open ends of hollow blocks adjacent to the concrete to be placed in-situ are to be plugged or stopped previously with mortar or concrete to prevent the concrete from flowing into the void and the contractor is to include for this in his prices.

The Contractor should note that slip tiles are not to be used to the soffit of ribs and he is to take this into consideration in pricing the items of formwork to the soffit of hollow block floor construction.

Before concreting is carried out the blocks are to be thoroughly wetted.

Care should be taken during concreting that the width of ribs between the rows of blocks and of the solid in-situ concrete shown on the Drawings adjacent to supporting beams is not encroached upon by the blocks. It is essential that the concrete topping be poured at the same time as the ribs between hollow blocks.

18.3 Fixing of rib reinforcement

Reinforcement shall be positioned accurately with required cover in accordance with the Drawings and using the particular spacing blocks with wire ties as previously described. Spacer blocks shall be provided in ribs at not more than 1.2m centres. Care must be taken during concreting that the reinforcement is not displaced.

Where holes for services, etc. occur, the necessary holes or pockets shall be accommodated by the replacing of a hollow block by in-situ concrete or the widening of a rib all in accordance with the Engineer's instructions. Prices for holes, etc. through hollow block construction are to include the re-arrangement or substitution of the hollow block with solid concrete in addition to the actual formation of the hole.

19. NOTES CONCERNING MEASUREMENT AND PRICING

The Contractor must allow for all costs incurred during the progress of the Contract for complying with the provisions concerning the preparation and use graded mixes.

Prices for concrete shall include for mixing and depositing as described or indicated and for hoisting and depositing at the various levels required throughout the building, and shall also include for forming or hacking a satisfactory key for all faces receiving asphalt and plaster work. Prices for slabs shall also include for levelling off the surface as described under "compaction", and all temporary formwork to form construction joints at bay edges.

Prices for reinforced concrete shall, in addition, include for filling into, between or on formwork and thoroughly compacting between and around rods or fabric reinforcement and for forming all additional

construction joints between varying mixes. Where described as vibrated, prices must include for fully vibrating as described.

Formwork (use and waste only is measured net to the actual surface of the concrete to be supported and the prices for formwork shall include for extra material at joints, extra labour and waste for narrow widths, small quantities, overlaps, passings at angles, straight cutting and waste, splayed edges, notchings, etc and for fixing at the various levels including battons, struts and supports and for bolting, jacking, wedging, easing striking and removal. Prices for linear items such as boxings shall include for angles and ends. Strutting has been measured at varying levels to slab soffits only and prices for other items must include for strutting at any level.

Prices for steel rod reinforcement shall include for cutting to lengths and all labour in bending and cranking, forming hooked ends, handling, hoisting and fixing in position and for providing all necessary tying wire and supports. Prices for fabric reinforcement shall include for all straight cutting and waste, handling, hoisting and fixing in position, providing all necessary tying wire, and supports and all extra material in laps.

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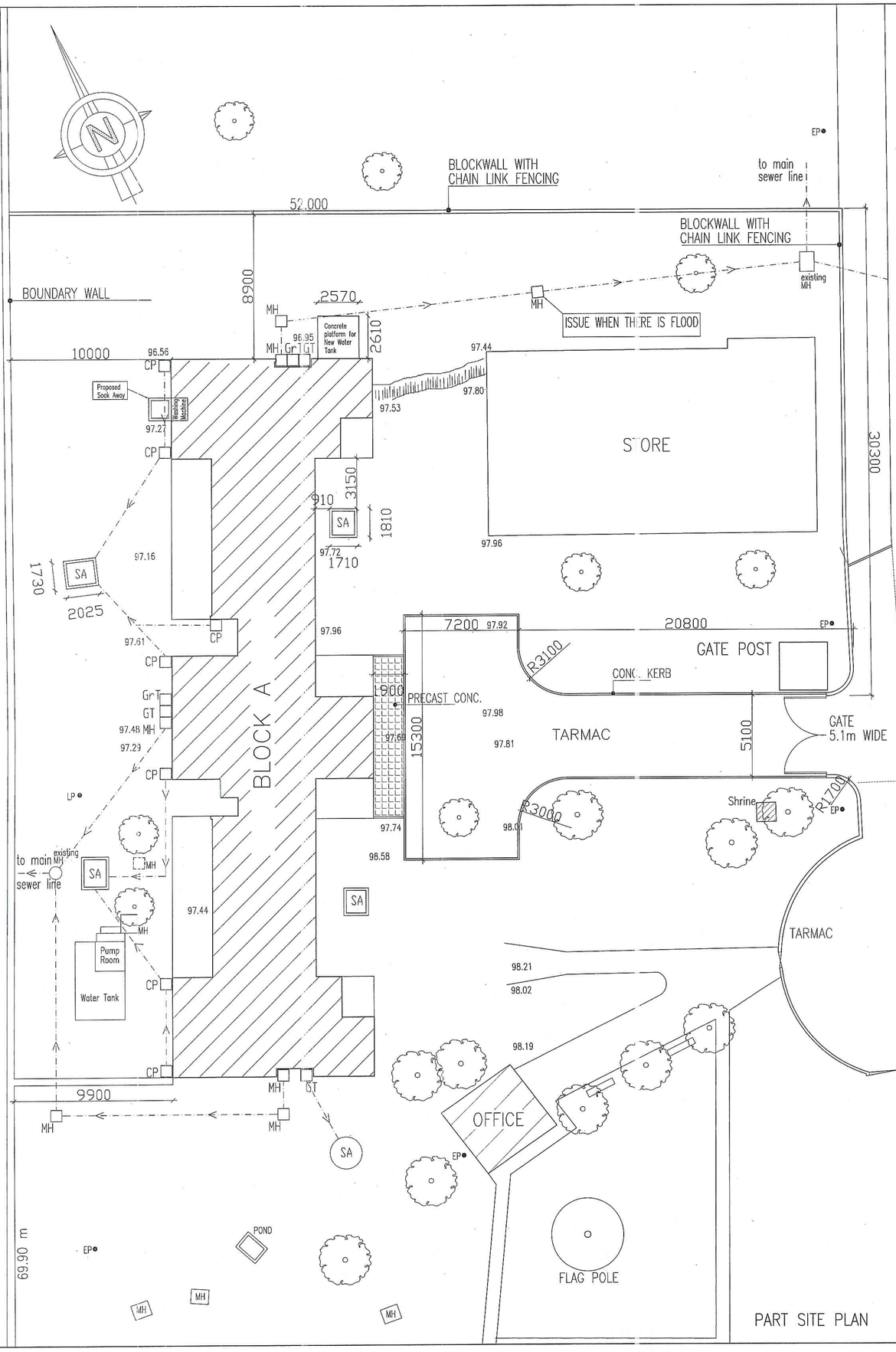

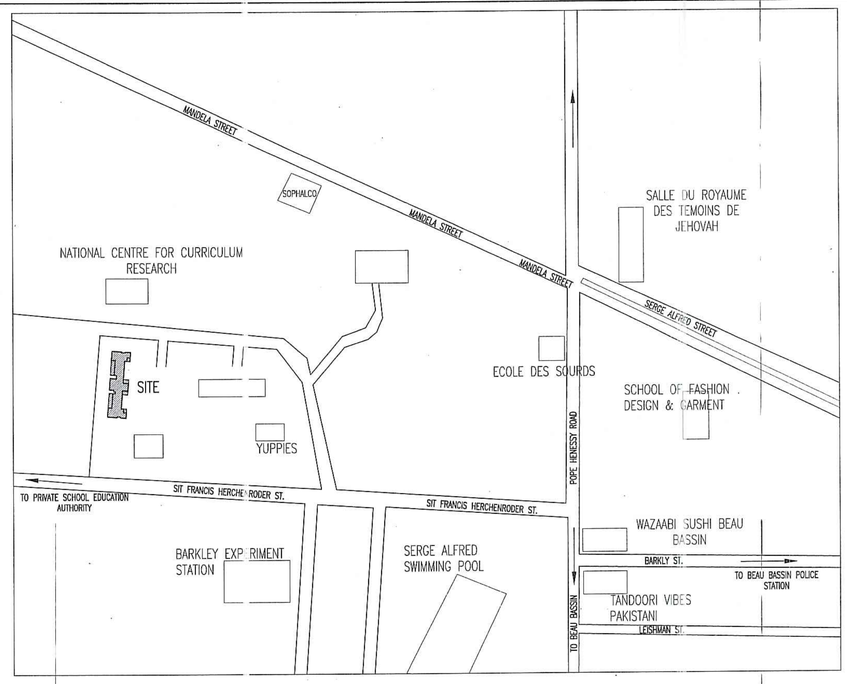

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TENDER DOCUMENT

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4. Contractor is to verify all site dimensions.
5. Do not scale – Use figured dimensions.

No.	Revision	Date

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU–BASSIN BLOCK A

Title

PART SITE AND LOCATION PLAN

Director (Architecture)	Mrs S. Jaypal
Deputy Director (Architecture)	Mrs B. K. Appadoo
Lead Architect	Mrs A. Callychurn
Architect	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson 26/10/
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Technical Design Officer	Mr H. Ramkorun

Scale : 1:150 | Print date : 26.10.21 | Date : Aug.2020

MINISTRY OF NATIONAL INFRASTRUCTURE AND COMMUNITY DEVELOPMENT PHOENIX

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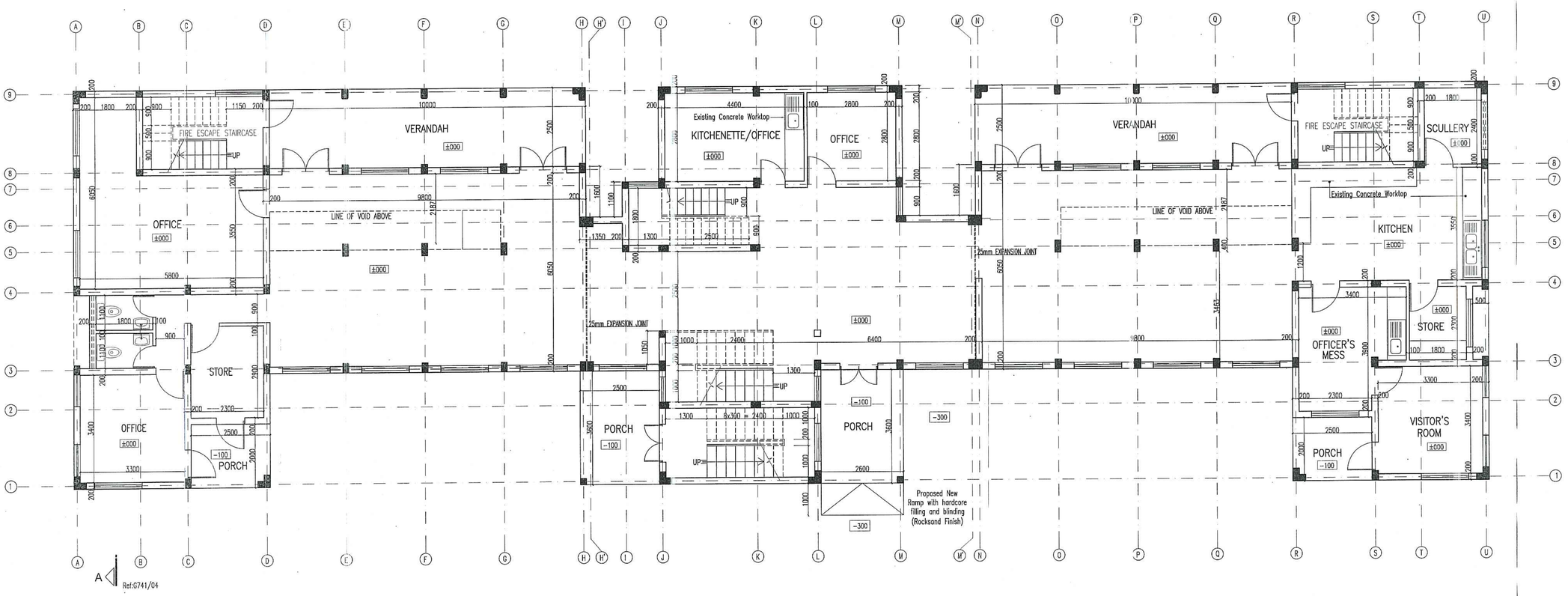

GROUND FLOOR PLAN(SURVEY)

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No.	Revision	Date

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU-BASSIN BLOCK A

Title

GROUND FLOOR PLAN (SURVEY)

Director(Architecture)	Mrs S. Jaypal
Deputy Director(Architecture)	Mrs B.K. Appadoo
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Architect	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
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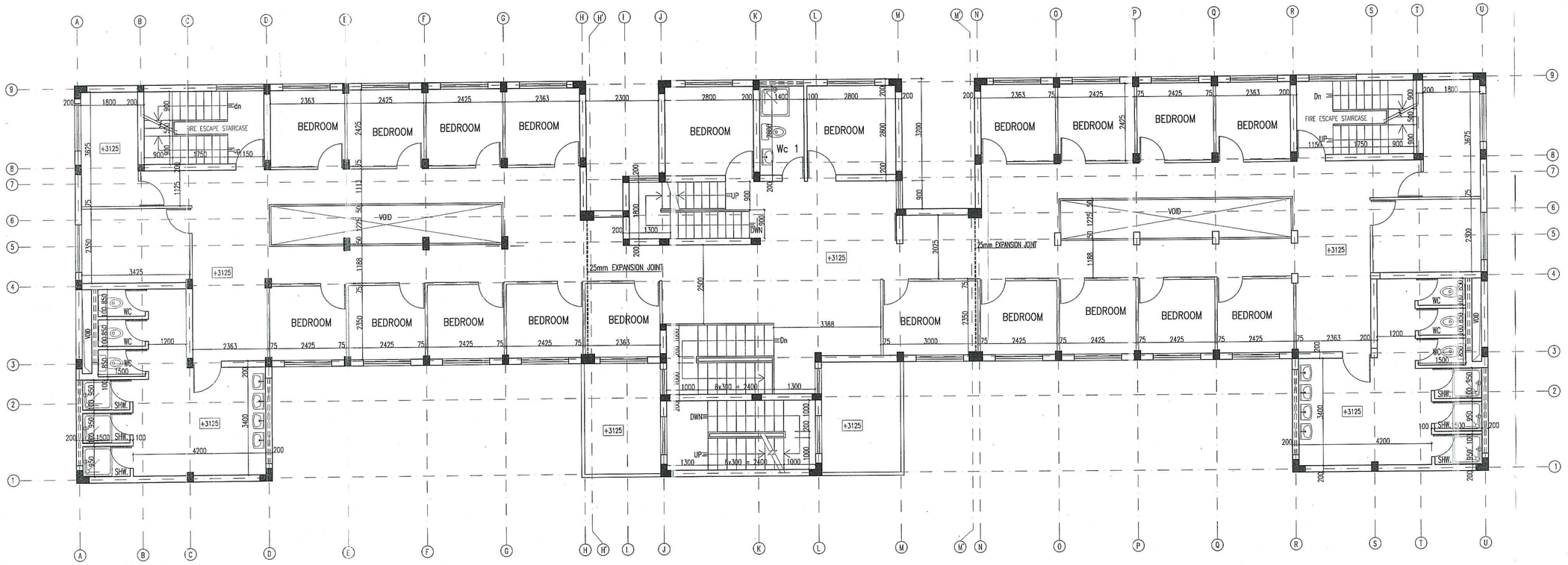

FIRST FLOOR PLAN(SURVEY)

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Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU–BASSIN BLOCK A

Title

FIRST FLOOR PLAN (SURVEY)

Director(Architecture)	Mrs S. Jaypal
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Technical Design Officer	Mr H. Ramkorun

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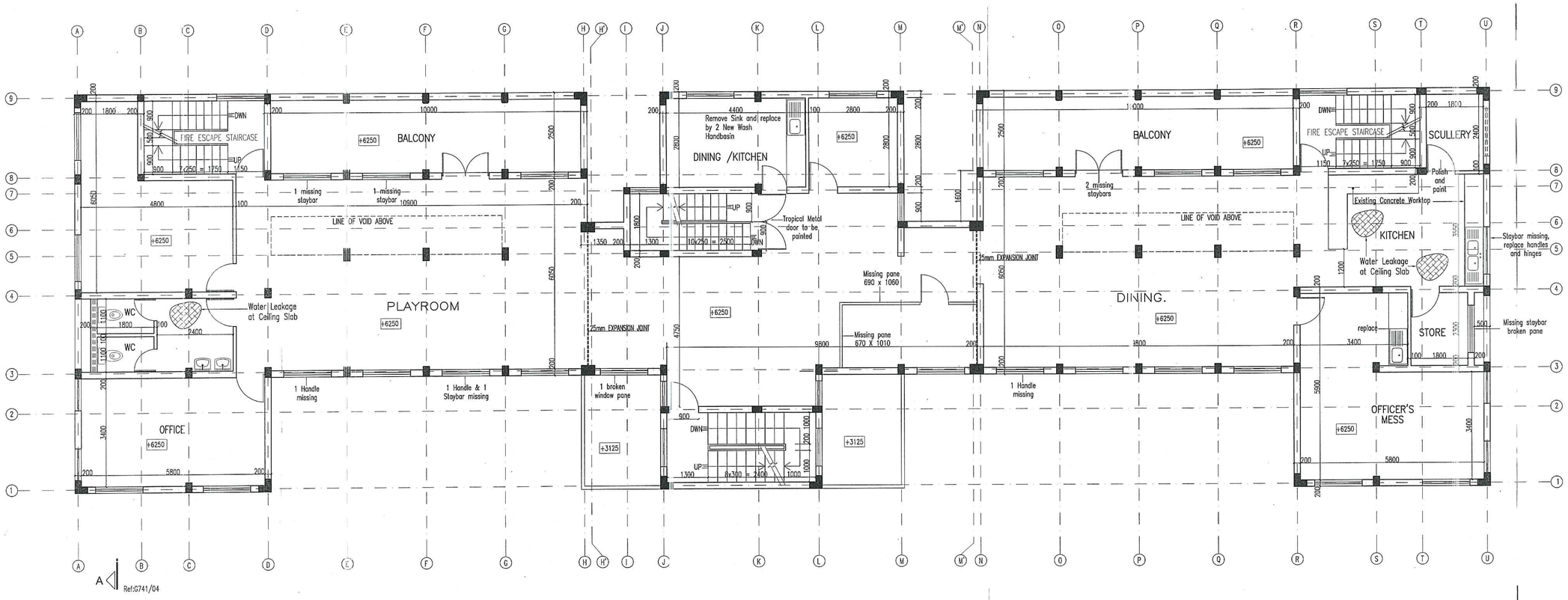

SECOND FLOOR PLAN(SURVEY)

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Revision	Date

LEVEL ± 0.00 = 98.26

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU–BASSIN BLOCK A

Title

SECOND FLOOR PLAN SURVEY

Director(Architecture)	Mrs S. Jaypal
Deputy Director (Architecture)	Mrs B.K. Appadoo
Lead Architect	Mrs A. Callychurn
Architect 26-10-21	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Technical Design Officer	Mr H. Ramkorun

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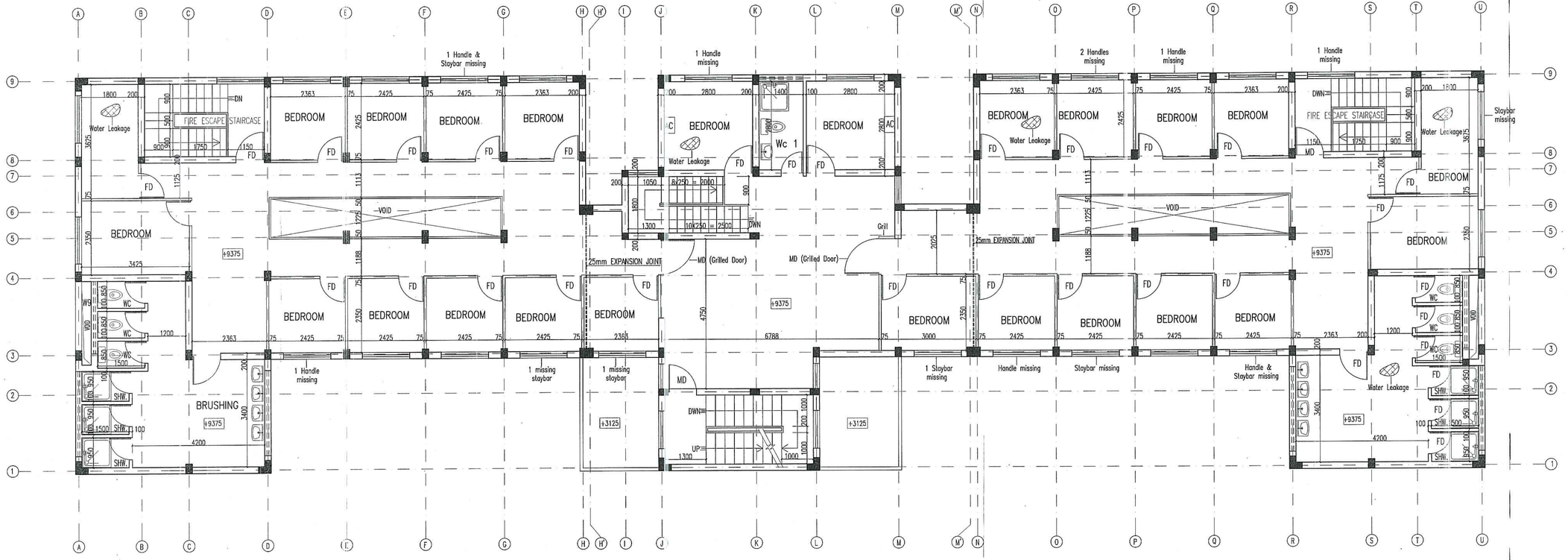

THIRD FLOOR PLAN(SURVEY)

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SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU-BASSIN BLOCK A

Title

THIRD FLOOR PLAN SURVEY

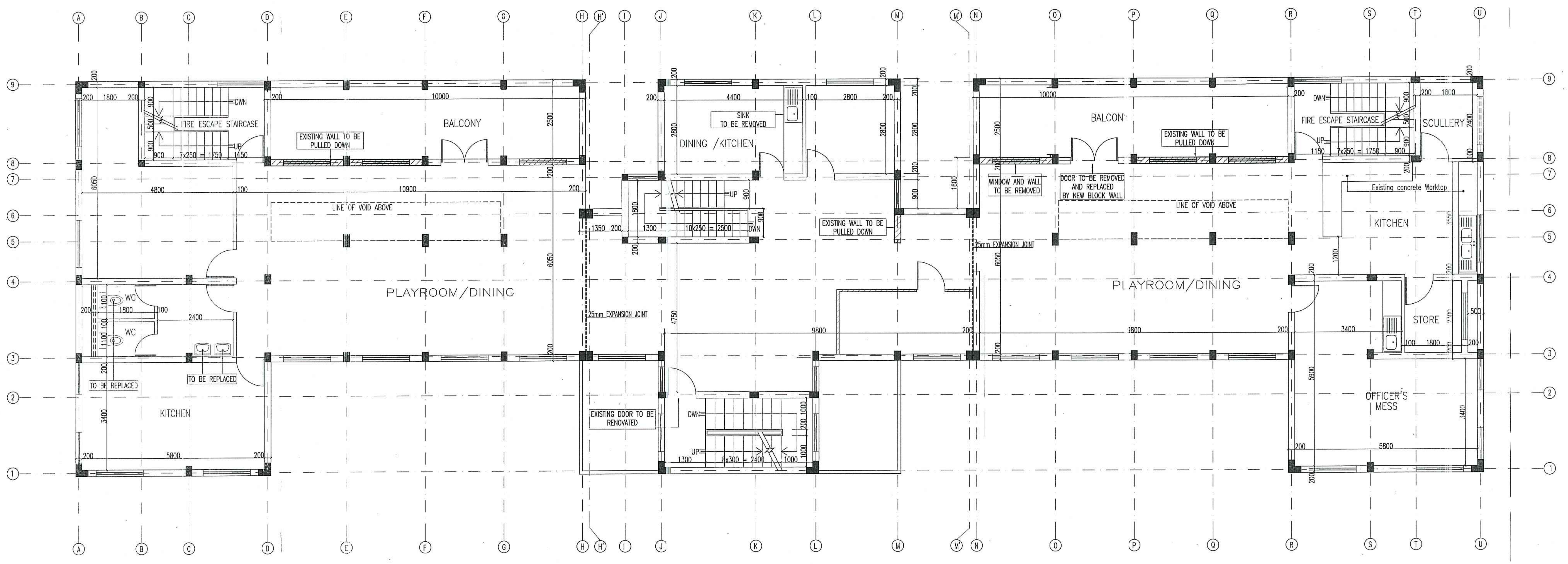
Director(Architecture)	Mrs S. Jaypal
Deputy Director (Architecture)	Mrs B.K. Appadoo
Lead Architect	Mrs A. Callychurn
Architect	26/1/21 Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Technical Design Officer	Mr H. Ramkorun

Scale: 1:75 | Date : AUG 20 | Date Printed: 26.10.2021

MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

TENDER DOCUMENT

DRG. No. G741/04 | Revision | Comp. No.



SECOND FLOOR DEMOLITION PLAN

NOTES :

ALL EXISTING FLOORING TO BE REMOVED AND CARTED AWAY

ALL DEMOLISHED MATERIALS TO BE CONFIRMED WITH CLIENT WHETHER FOR REUSE OR FOR CART AWAY

TO REMOVE AND CART AWAY ALL EXISTING SANITARY FITTINGS WASTE AND WASH HAND BASINS

LEGEND

EXISTING WALL TO BE PULLED DOWN

NOTES

1. Read this drawing with all Architect's and Engineer's relevant details.
2. No deviation from the details shown on this drawing is allowed without prior permission in writing.
3. If any discrepancy between this drawing and any contract document is discovered – Please ask.
4. Contractor is to verify all site dimensions.
5. Do not scale – Use figured dimensions.

LEVEL ± 0.00 = 98.26

Revision	Date

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU-BASSIN BLOCK A

Title

SECOND FLOOR DEMOLITION PLAN

Director(Architecture)	Mrs S. Jaypal
DepdtyArDhitector (Architecture)	Mrs B.KCoNypbdoo
AedditeArchitect	Mrs RAA. Cbdydhum
Architect 26-10-21	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
TechnicalTeDhsigal Officer	Mr H. Ramkorun

Scale: 1:75 | Date : AUG 20 | Date Printed: 26.10.2021

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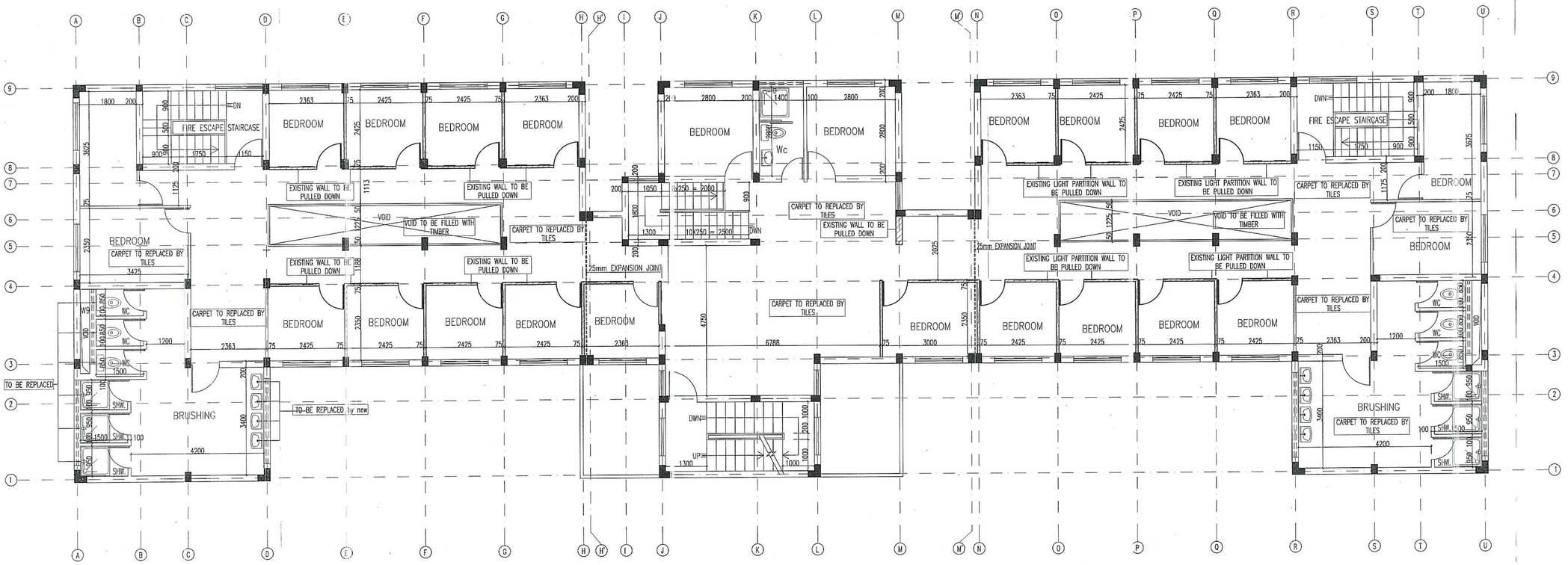
TENDER DOCUMENT

DRG. No. G741/05 | Revision | Comp. No.



THIRD FLOOR DEMOLITION PLAN

NOTES :

ALL EXISTING FLOORING TO BE REMOVED AND CARTED AWAY

ALL DEMOLISHED MATERIALS TO BE CONFIRMED WITH CLIENT WHETHER FOR REUSE OR FOR CART AWAY

TO REMOVE AND CARTED AWAY ALL EXISTING SANITARY WASTE AND WASH HAND BASINS

LEGEND

EXISTING LIGHT PARTION WALL TO BE PULLED DOWN

TENDER DOCUMENT

NOTES

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4. Contractor is to verify all site dimensions.
5. Do not scale – Use figured dimensions.

LEVEL ± 0.00 = 98.26

Revision	Date

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU-BASSIN BLOCK A

Title

THIRD FLOOR DEMOLITION PLAN

Director(Architecture)	Mrs S. Jaypal
Deputy Director (Architecture)	Mrs B.K. Appadoo
Lead Architect	Mrs A. Callychurn
Architect 21/10/21	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Technical Design Officer	Mr H. Ramkorun

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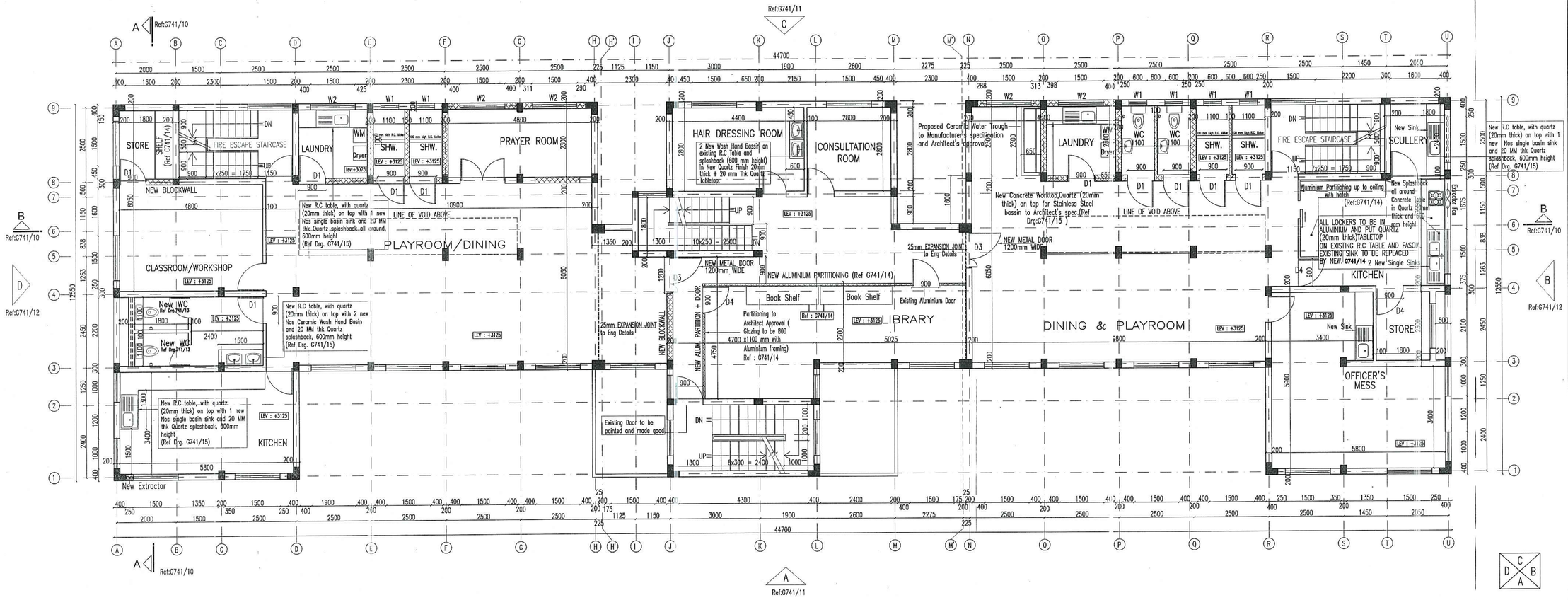
DRG. No. G741/06 | Revision | Comp. No.



PROPOSED SECOND FLOOR PLAN

NOTES :

1. DEFECTIVE METAL WINDOWS, DOORS, HANDRAIL, BURGLAR PROOFING AND HANDLES TO BE MADE GOOD OR REPLACED WHERE NECESSARY AND ALL METAL OPENINGS TO BE PAINTED WITH ETCHING PRIMER,UNDERCOAT AND 2 COATS HARD GLOSS ENAMEL PAINT FINISH. (COLOUR TO ARCH.'S APPROVAL)
2. ALL SANITARY WARES, ASSOCIATED PLUMBING AND SANITARY ACCESSORIES TO BE REPLACED ,REFER TO DRG. NO G741/13
3. EXISTING CARPET FLOORING FINISH TO BE REPLACED ON WHOLE FLOORPLATE BY CERAMIC TILES FINISH (Ref : G741/13)

LEGEND

PROPOSED NEW BLOCK WALL

NOTES

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4. Contractor is to verify all site dimensions.
5. Do not scale – Use figured dimensions.

LEVEL ± 0.00 = 98.26

Revision	Date

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU-BASSIN BLOCK A

Title

PROPOSED SECOND FLOOR PLAN

Director(Architecture)	Mrs S. Jaypal
Deputy Director (Architecture)	Mrs B.K. Appadoo
Lead Architect	Mrs A. Callychurn
Architect 26-10-21	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Technical Design Officer	Mr H. Ramkorun

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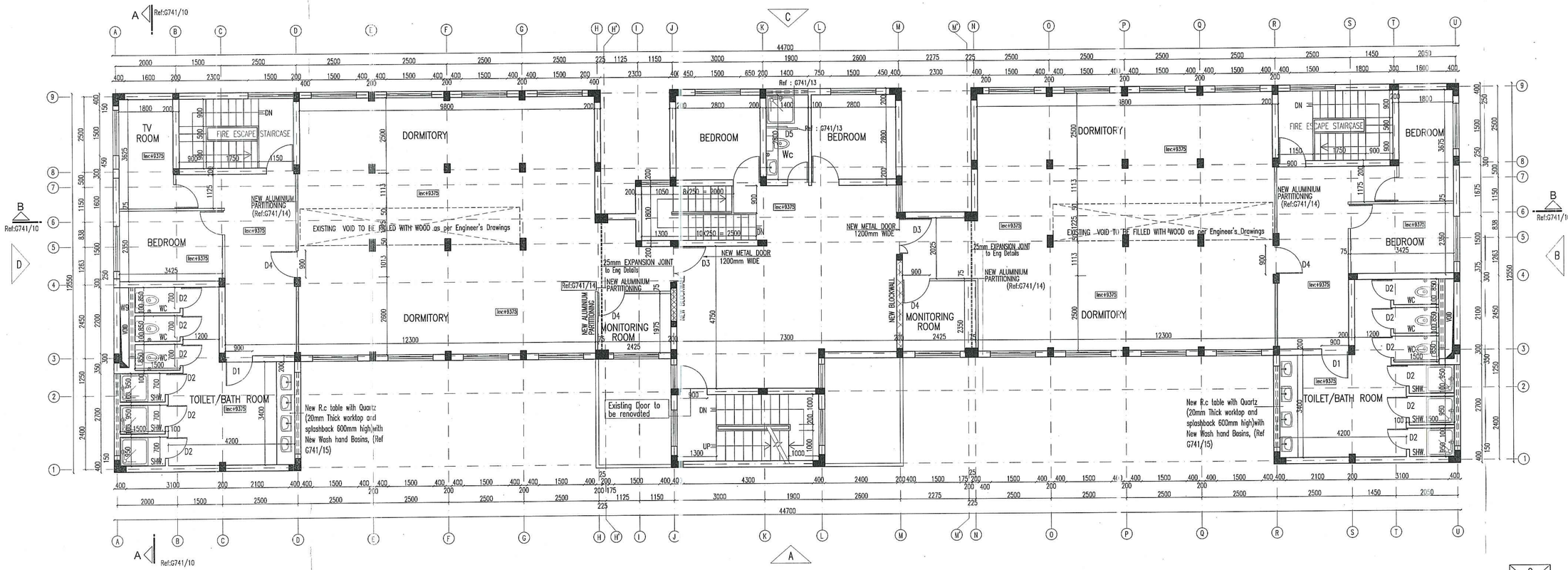
TENDER DOCUMENT

DRG. No. G741/07 | Revision | Comp. No.



PROPOSED THIRD FLOOR PLAN

NOTES :

1. DEFECTIVE METAL WINDOWS, DOORS, HANDRAIL, BURGLAR PROOFING AND HANDLES TO BE MADE GOOD OR REPLACED WHERE NECESSARY AND ALL METAL OPENINGS TO BE PAINTED WITH ETCHING PRIMER,UNDERCOAT AND 2 COATS HARD GLOSS ENAMEL PAINT FINISH. (COLOUR TO ARCH.'S APPROVAL)
2. ALL SANITARY WARES, ASSOCIATED PLUMBING AND SANITARY ACCESSORIES TO BE REPLACED ,REFER TO DRG. NO G741/13
3. FIX BIRD NETTING WITH GMS FRAME (40 mm X 40 mm) TO CONTRACTOR'S DESIGN & ARCHITECT'S APPROVAL TO ALL WINDOWS.
4. EXISTING CARPET FLOORING FINISH TO BE REPLACED ON WHOLE FLOORPLATE BY CERAMIC TILES FINISH (Ref : G741/13)

LEGEND

PROPOSED NEW BLOCK WALL

NOTES

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4. Contractor is to verify all site dimensions.
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LEVEL ± 0.00 = 98.26

Revision	Date

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU-BASSIN BLOCK A

Title

PROPOSED THIRD FLOOR PLAN

Director(Architecture)	Mrs S. Joypal
Deputy Director (Architecture)	Mrs B.K. Appadoo
Lead Architect	Mrs A. Callychurn
Architect 26-10-21	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Technical Design Officer	Mr H. Ramkorun

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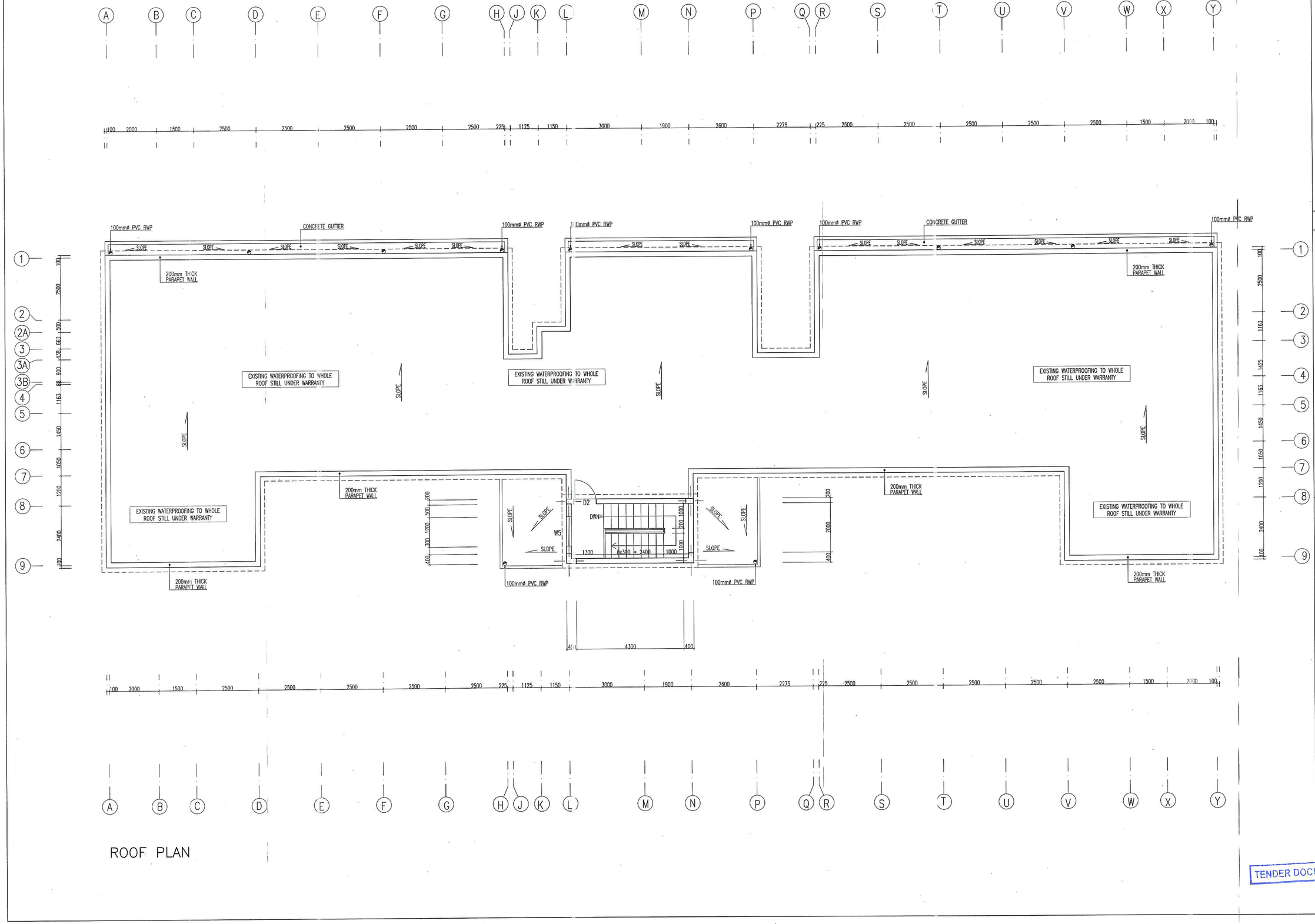
TENDER DOCUMENT

DRG. No. G741/08 | Revision | Comp. No.



ROOF PLAN

No.	NOTES
1	Read this drawing with all Architect's and Engineer's relevant details.
2	No deviation from the details shown on this drawing is allowed without prior permission in writing.
3	If any discrepancy between this drawing and any contract document is discovered – Please ask.
4	Contractor is to verify all site dimensions.
5	Do not scale – Use figured dimensions.

LEVEL ± 0.00 = 98.26

No.	Revision	Date

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU-BASSIN BLOCK A

Title

ROOF PLAN

Director(Architecture)	Mrs S. Jaypal
Deputy Director (Architecture)	Mrs B.K. Appadoo
Lead Architect	Mrs A. Callychurn
Architect	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Technical Design Officer	Mr H. Ramkorun

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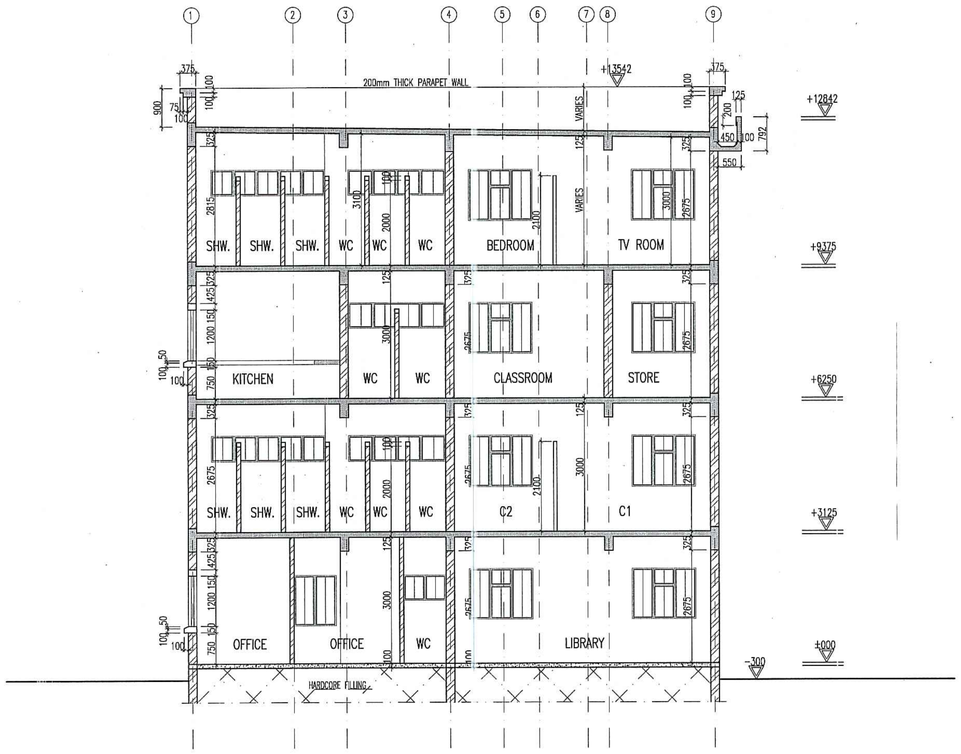
MINISTRY OF NATIONAL INFRASTRUCTURE AND COMMUNITY DEVELOPMENT PHOENIX

TENDER DOCUMENT

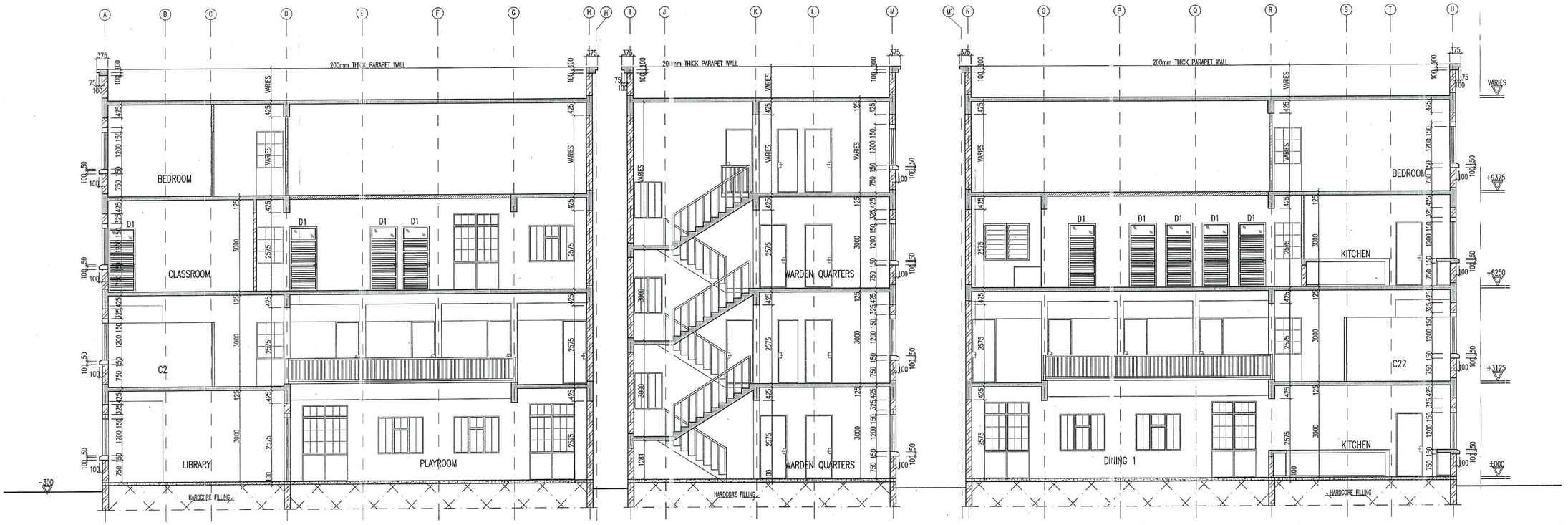
DRG. No. G741/09 | Revision | Comp. No. 10



SECTION A – A

EXISTING OPENINGS

W1		Metallic Window	1450 X 1150
W2		Metallic Window	1450 X 1150
D1		Metallic Door	1450 X 2440
D2		Metallic Door	850 X 2440
D3		Metallic Door	850 X 2100
W3		Metallic top light	2300 X 600
		Metallic Top Light	1400 X 600



SECTION B – B with proposed Aluminium doors

NOTES

1. Read this drawing with all Architect's and Engineer's relevant details.
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LEVEL ± 0.00 = 98.26

Revision	Date

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU-BASSIN BLOCK A

Title

SECTION A–A
SECTION B–B
(SURVEY)

Director(Architecture)	Mrs S. Jaypal
Deputy Director (Architecture)	Mrs B.K. Appadoo
Lead Architect	Mrs A. Callychurn
Architect 26-10-21	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Technical Design Officer	Mr H. Ramkorun

Scale	Date : AUG 20	Date Printed: 26.10.2021
1:75		

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TENDER DOCUMENT

DRG. No.	Revision	Comp. No.
G741/10		S

ELEVATION C

ELEVATION A

NOTES

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LEVEL ± 0.00 = 98.26

Revision	Date

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU–BASSIN BLOCK A

Title

ELEVATION A
&
ELEVATION C

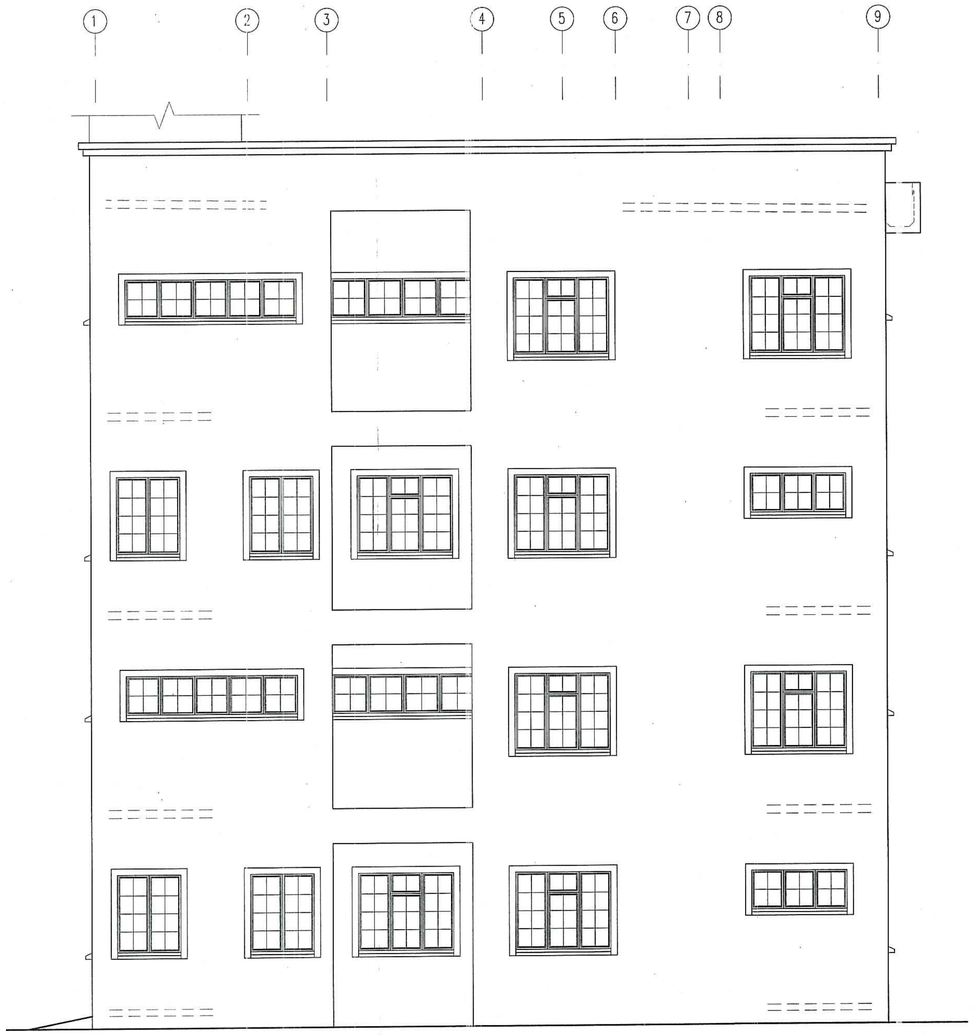
Director(Architecture)	Mrs S. Jaypal
Deputy Director (Architecture)	Mrs B.K. Appadoo
Lead Architect	Mrs A. Callychurn
Architect 26-10-21	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Technical Design Officer	Mr H. Ramkorun

Scale	Date :	Date Printed:
1:75	AUG 20	2610.2021

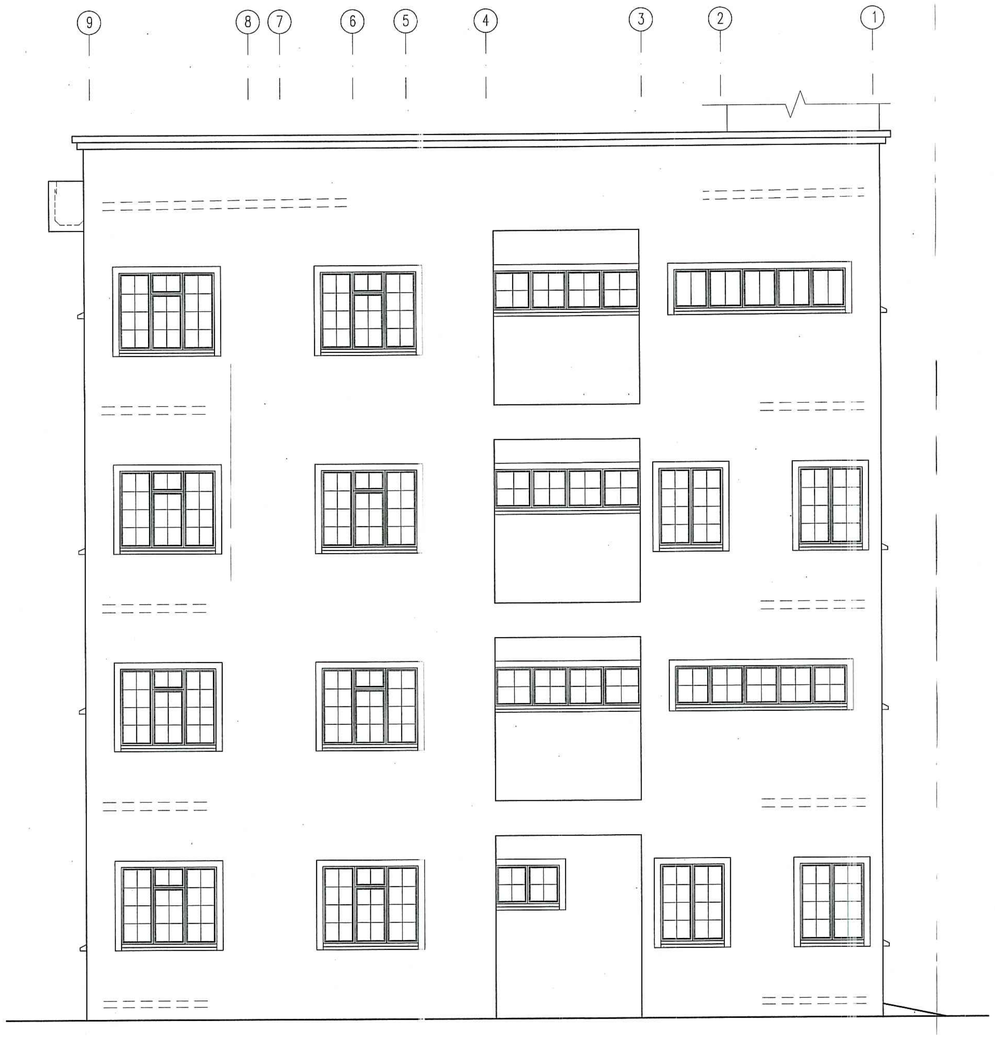
MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

TENDER DOCUMENT

DRG. No.	Revision	Comp. No.
G741/11		



ELEVATION B



ELEVATION D

NOTES

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LEVEL ± 0.00 = 98.26

Revision	Date

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU–BASSIN BLOCK A

Title

ELEVATION B
&
ELEVATION D

Director(Architecture)	Mrs S. Jaypal
Deputy Director (Architecture)	Mrs B.K. Appadoo
Lead Architect	Mrs A. Callychurn
Architect	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Technical Design Officer	Mr H. Ramkorun

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MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

TENDER DOCUMENT

DRG. No. G741/12 | Revision | Comp. No.

SCHEDULE OF FINISHES

		FLOOR FINISHES				SKIRTING	WALL, COLUMN, BEAM, CEILING (internal)			WALL, COLUMN, BEAM, CEILING, LINTELS (external)
		F1	F2	F3	F4	S1	IW1	IW2	IW3	EW1
	Second Floor									
1	Schullery	●				●	●	●	●	●
2	Store	●				●	●	●		●
3	Kitchen	●				●	●		●	●
4	Officer's Mess	●				●	●	●		●
5	Showers	●				●	●		●	●
6	Toilets	●				●	●		●	●
7	Laundry	●				●	●		●	●
8	Consultation Room	●				●	●	●		●
9	Hair Dressing Room	●				●	●	●		●
10	Monitoring Room	●				●	●	●		●
11	Prayer Room	●				●	●	●		●
12	Dining & Playroom	●				●	●	●		●
	Third Floor									
1	Bedrooms	●				●	●	●		●
2	Dormitory	●				●	●	●		●
3	Toilets	●				●	●		●	●
4	Showers	●				●	●		●	●
5	Monitoring Room	●				●	●	●		●
6	TV Room	●				●	●	●		●

LEGEND

FLOOR FINISHES

F1 – Heavy duty homogeneous non-skid ceramic tiles 300 x 300 x 10mm thick to BS EN 14411 B1a (REF R10). (Colour to Architect's approval)
spacing between tiles to be 3mm + 12mm thick expansion joint all around and crosswise in both directions to Architect's approval

SKIRTING

S1 – 150 x 600 x 8mm Thick Ceramic Tiles to BS EN14411 ceramic tiles + aluminium edging to Arch's approval.

INTERNAL WALLS, COLUMNS, BEAMS, CEILINGS, etc.

IW1 – All internal ceilings to be finished with 1 coat undercoat (clear emulsion binder)
+ 2 coats emulsion based paint. Colour to Arch's approval.

IW2 – All internal wall surfaces to be finished with 1 coat undercoat (clear emulsion binder)
then + 2 coats emulsion paints up to ceiling. (Colour to Architect's approval)

IW3 – 15 mm thick smooth finish 1:1:3 cement plaster + glazed ceramic tiles 600 x 300 x 8mm thick to BS EN 14411 B1a + aluminium edge (both horizontally & vertically) to Arch's approval up to 2400mm from FFL or as shown and on ALL SIDES of ALL internal walls and the rest painted with 1 coat undercoat followed by 2 coats of chlorinated rubber paint, then 1 coat undercoat + 2 coats emulsion paints with high resistance to mold and mildew formation up to ceiling. Colour to Arch's approval.

EXTERNAL WALLS, COLUMNS, BEAMS, LINTELS, CEILINGS etc.

EW1 – Finished with 1 coat undercoat/sealer (clear emulsion binder) to supplier's specifications + 2 coats high quality acrylic-based emulsion paint with high water-repelling (Hydrophobic) properties, self cleaning characteristics and high resistance against algae and fungal growth. Each coat of acrylic based emulsion paint to be of minimum 35 microns thickness. Surface preparation and application of sealer/acrylic based emulsion paint to be strictly to supplier's specification and to Architect's approval.

NOTES

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3. If any discrepancy between this drawing and any contract document is discovered – Please ask.
4. Contractor is to verify all site dimensions.
5. Do not scale – Use figured dimensions.

Datum Level:
Lev. + 100.10 = Lev. ± 0,000

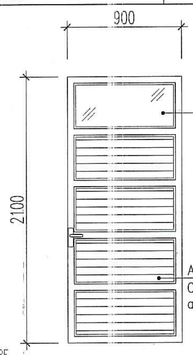
SCHEDULE OF ALUMINIUM DOORS

DOOR	SIZE	FRAME	LEAF	BOLTS	HINGES	LOCKS and LATCHES HANDLE	DOOR FRAME FINISH	DESCRIPTION & REMARKS
D1	900 x 2100	Aluminium	1	See notes on Aluminium				Magnetic door stopper ref. or equivalent, one per leaf. Master Key to be provided
D2	700 x 2100	Aluminium	1	See notes on Aluminium				Magnetic door stopper ref. or equivalent one per leaf. Master Key to be provided
D4	1400 x 2100	Aluminium	2	See notes on Aluminium				Master Key to be provided

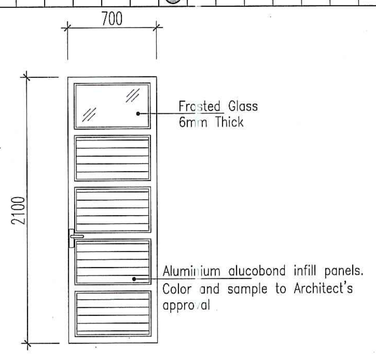
NOTES ON FLOOR FINISHES

1. Tiles should be conform to the requirements of BS EN 14411 B1a Standards, consisting of a single mass, homogeneous and compact, obtained by a dry pressing of atomised body composed of kaolinite, feldspathic and inert materials of very low iron content.
2. The tiles should be anti-slip with matt surface.
3. When installing tiled floors, the tile should first be wetted by immersion of at least 2 hrs in clean water.
4. INTERNAL ENVIRONMENT:
   –closed joints:expansion joints at 3–4m intervals;
   –open joints:expansion joints at 4–6m intervals inclusive of an approved sealant.
5. EXTERNAL ENVIRONMENT:
   –closed joints:expansion joints at 2–3m intervals;
   –open joints:expansion joints at 3–5m intervals.

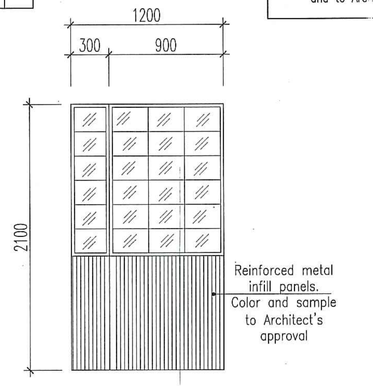
1. BURGLAR BARS TO BE HOT DIP GALVANISED AFTER MANUFACTURE.
2. DIMENSIONS & QUANTITY TO DE CHECKED ON SITE.
3. LAYOUT OF BURGLAR BARS ON THIS DRAWING ARE DIAGRAMATIC ONLY.
4. BURGLAR BARS TO BE PAINTED WITH 1 COAT PRIMER & 2 COATS HARD GLOSS ENAMEL.(COLOUR TO ARCHITECT'S APPROVAL)
5. CONTRACTOR IS TO MAKE GOOD ALL DAMAGE DONE TO BUILDING.
6. ADEQUATE SPACE TO BE PROVIDED AT HANDLE POSITIONS FOR EASY OPERATION OF DOORS & WINDOWS.
7. TYPE OF FIXATION OF BURGLAR PROOF TO ARCHITECT'S APPROVAL
8. APPROPRIATE SIZE OPENINGS TO BE CREATED IN BURGLAR PROOFING TO ACCESS HANDLES FOR NACO



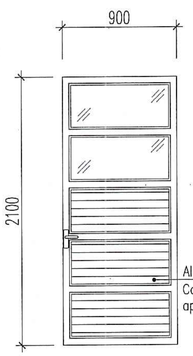
D1. ALUMINIUM DOOR



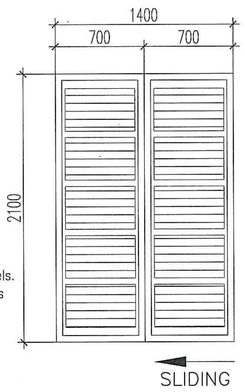
D2. ALUMINIUM DOOR



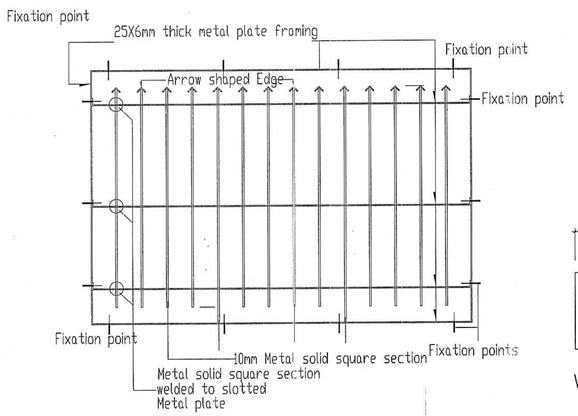
D3. METAL DOOR



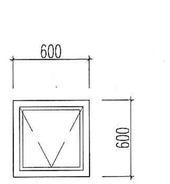
D4. ALUMINIUM DOOR



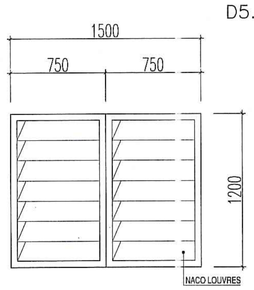
D5. ALUMINIUM DOOR



Burglar Proofing to all Windows
(dimensions To Be Read In Conjunction With Schedule Of Openings)



W1. ALUMINIUM WINDOW
(Toplight)



W2. ALUMINIUM WINDOW–Width Varies

NOTES ON ALUMINIUM OPENINGS

1. Aluminium openings shall be of aluminium alloy 6063 A.G.S and shall be to BS EN 1192 and BS EN 1529 regarding height, width, thickness & squareness or as per manufacturer's specifications. For water tightness and air tightness openings shall comply to BS EN 12207 or BS EN 12208. Resistance to wind load shall be to BS EN 12210 and to withstand cyclonic winds as per current wind gusts pressure over 280km/hr substantiated with calculations and certificates as required and to the approval of the Architect. Aluminium sections to be powder coated, colour to be as per Engineer's approval. and shall be supplied with all hinges,knobs,handles etc as required.
2. Opening to be water tight, air tight BS 16375 Part 1 Class A
3. Handle & lock to be BS 6093 part 1
4. Gasket (E.P.D.M) to BS4255 part 1
5. Opening to assembly to BS6093 & Glazing to BS 6262
6. Corned cleat any other reinforcement to be used must be of same aluminium mat.
7. All aluminium openings to be powder coated as per sepcifications and colour to Architect's approval.
8. Resistance to wind load shall be to BS EN 12210 and to withstand cyclonic winds as per current wind gusts pressure over 280km/hr substantiated with calculations and certificates as required and to the approval of the Engineer.

SCHEDULE OF SANITARY FITTINGS

FITTING	LOCATION	SPECIFICATIONS
European Wc	TOILETS	White vitreous china wash down W.C. with horizontal outlet to B.S. 5303 1990, approx. 525 x 400 x 400 mm complete with all fittings and accessories. Armitage shanks or equivalent. Cistern to B.S. 7357 1990 in vitreous china. Cistern 7.5 litres approx. dimensions 510 x 220 x 350 mm complete + Low level all chrome pillar tap to each unit. To Architect's approval
Toilet Roll Holder	TOILETS	Stainless steel grade 316 holder. Approximate dimension 150x80mm.
Mirror	TOILETS	Good quality bevelled edge mirror fixed with acorn chrome plated screws on 12mm thick moisture resistant plywood backing 900x600mm to each unit. To architect's approval.
Soap Holder	TOILETS	Stainless steel grade 316 soap holder.
Towel Holder	TOILETS	Stainless steel grade 316 towel ring ø150mm on vitreous china base.
Tap	TOILETS	Chrome plated all brass wall mounted single lever action bib tap.
Wash Hand Bassin	TOILETS	Vanity wash bassin in high impact acetal self rimming vanity bassin use with wall mounted single lever action bib tap and with overflow fitment approx. size 500 x 400mm + complete with all fittings and accessories. Armitage shanks or equivalent. Finish level of wash hand bassin to be at 600mm from finish floor level.
Stainless Steel Sink	KITCHEN, LAUNDRY	Citimetal series 300 or equivalent one piece pressed single bowl end sink manufactured in grade 304 stainless steel complete with all fittings including 32mm plastic bottle trap with 75mm seal + chrome plated all brass.
Floor Trap	TOILETS, KITCHEN,SHOWER	Plastic floor traps (dimension 100x100mm) with stainless steel cover.
Handspray	TOILETS	Chrome plated toilet handspray.
Shower Tray	TOILETS	Chrome plated all brass wall mounted short projection shower head with additional chrome plated lever controlled handspray and recessed chrome plated all brass shower mixer

No.	Revision	Date

Project

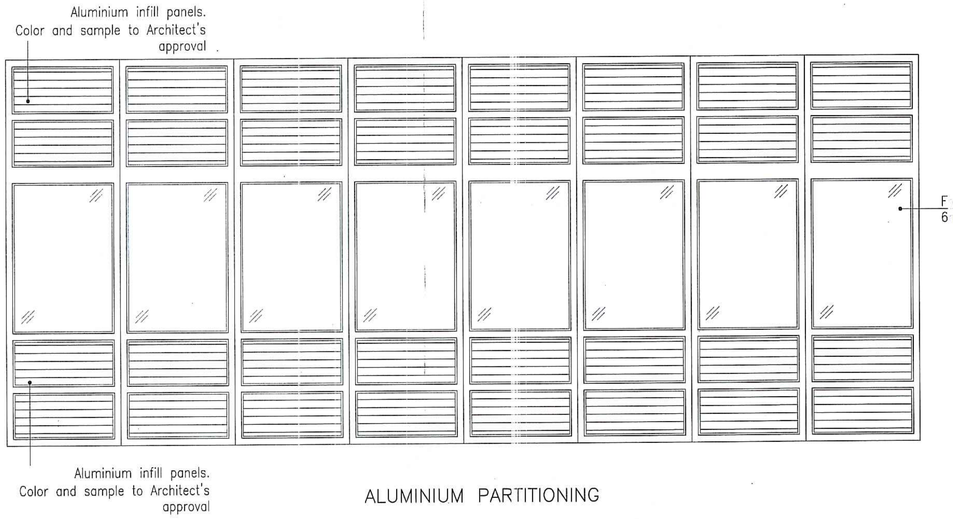
SMALL HOME PROJECT
AT REHABILITATION
YOUTH CENTRE
(GIRLS) AT
BEAU-BASSIN BLOCK A

Title

SCHEDULE OF
FINISHES & OPENINGS
SANITARY FITTINGS &
IRONMONGERY

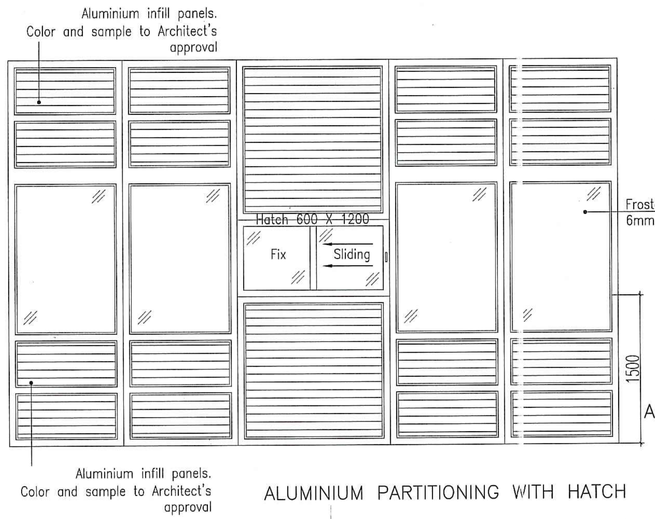
Director(Architecture)	Mrs S. Jaypal
Deputy Director (Architecture)	Mrs B.K. Appadoo
Lead Architect	Mrs A. Callychurn
Architect 26-10-21	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Technical Design Officer	Mr H. Ramkarun
Scale 1:25 Date: AUG 20	Date Printed:26.10.21
MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX	Comp. No.
DRG. No. G741/13	Revision

TENDER DOCUMENT



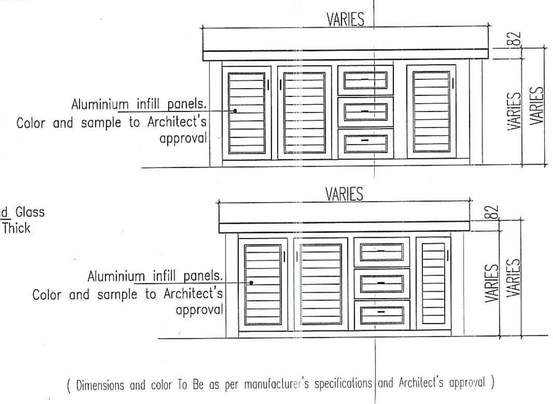
ALUMINIUM PARTITIONING

(Dimensions and color To Be as per manufacturer's specifications and Architect's approval)



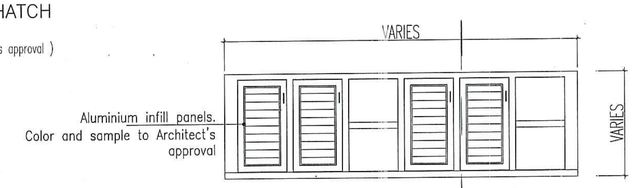
ALUMINIUM PARTITIONING WITH HATCH

(Dimensions and color To Be as per manufacturer's specifications and Architect's approval)

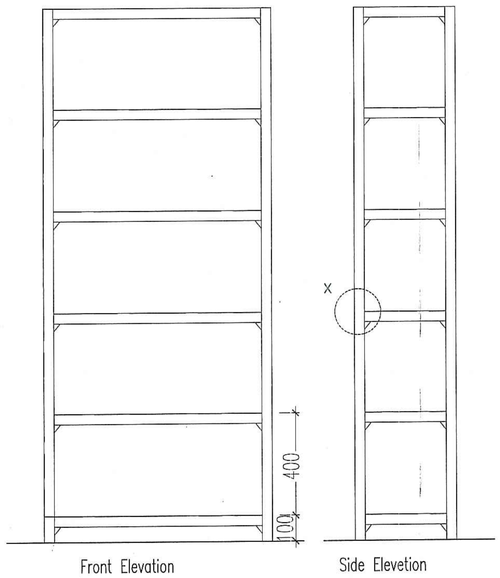


(Dimensions and color To Be as per manufacturer's specifications and Architect's approval)

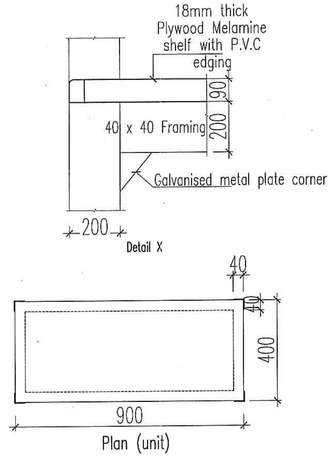
Aluminium Cupboard under concrete Table and Quartz worktop



High Level Aluminium Cupboard

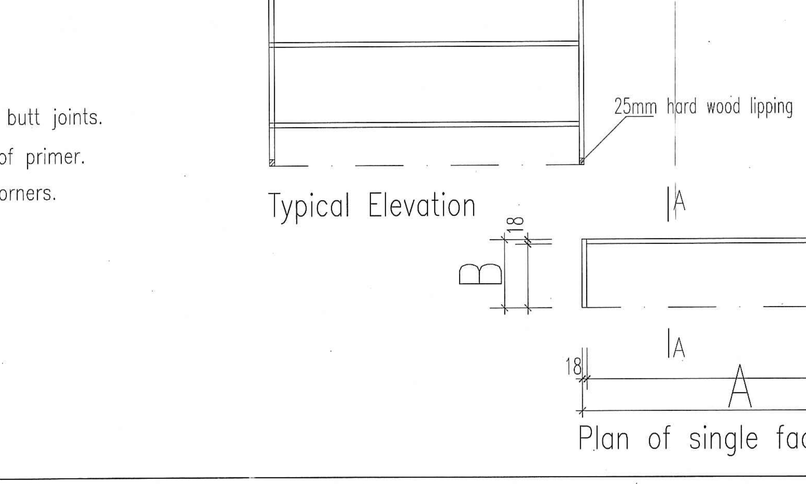


Metal Shelving Details

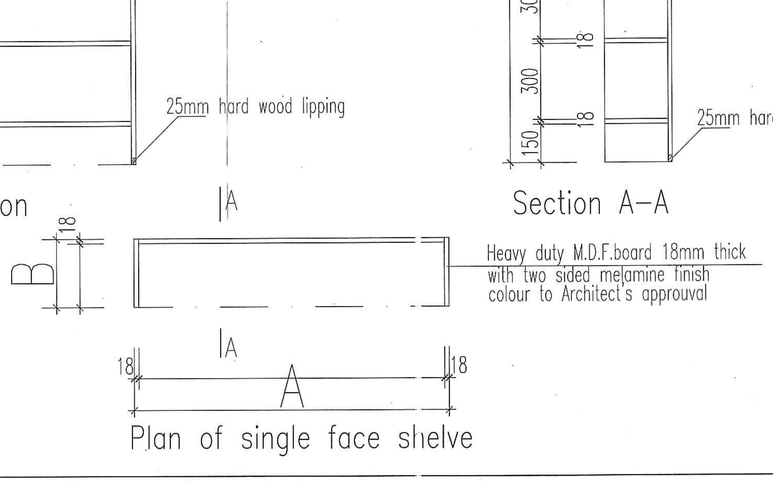


Notes:

(1) Angle iron bars to be 40x40x2 mm and to be one piece with no butt joints.
(2) To be sprayed with top quality paint hammer finish on one coat of primer.
(3) To be supported by 8 corner metal plates to provide rigidity of corners.
(4) Each unit to be of size 900 x 400 mm.
(5) To be assembled with galvanised bolts & nuts.



Typical Elevation



Section A–A

Plan of single face shelve

Book Shelf Detail

NOTES

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Datum Level:
Lev. + 100.10 = Lev. ± 0,000

No.	Revision	Date

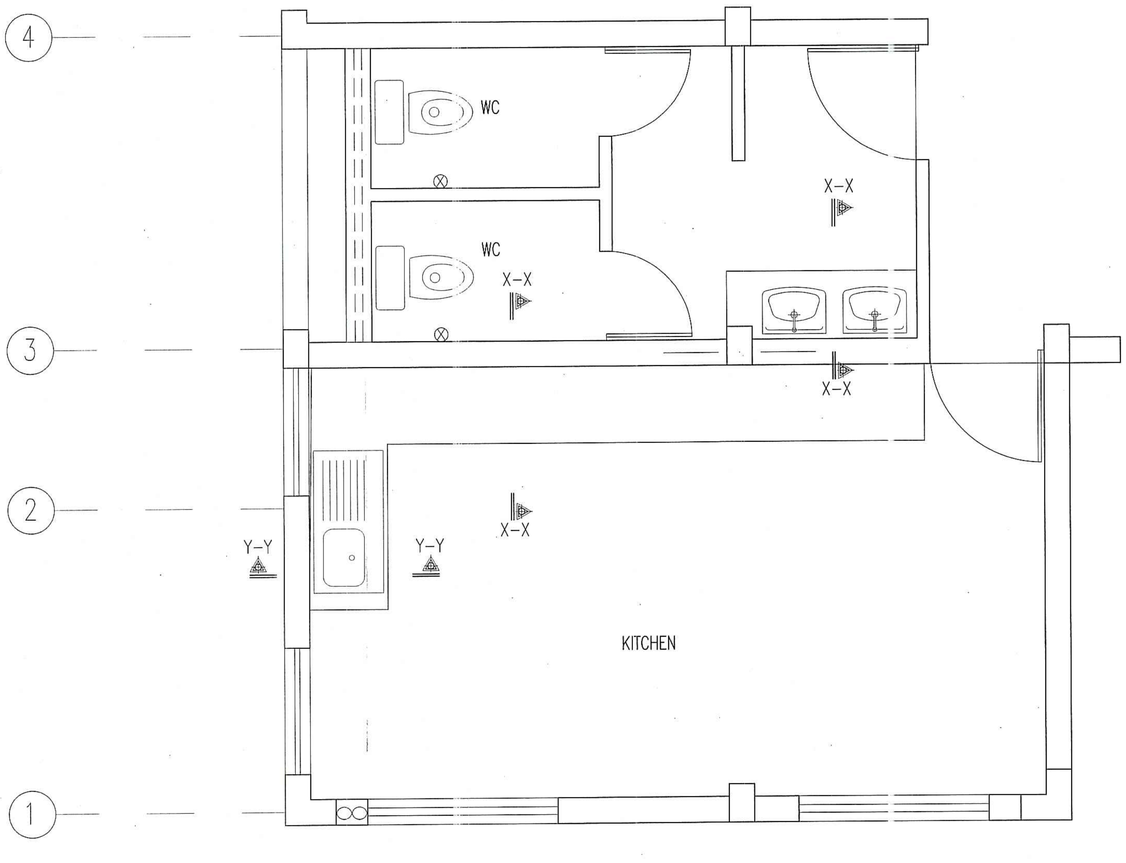
Project

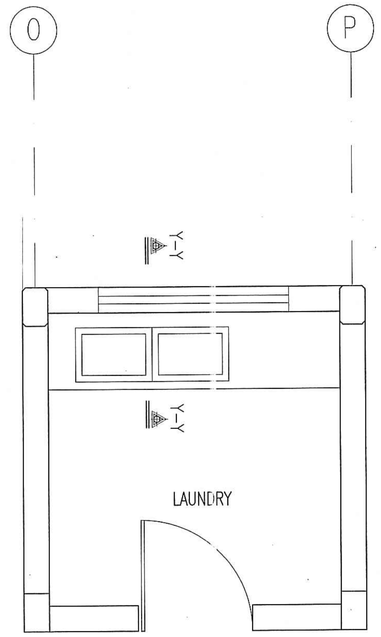
SMALL HOME PROJECT
AT REHABILITATION
YOUTH CENTRE
(GIRLS) AT
BEAU-BASSIN BLOCK A

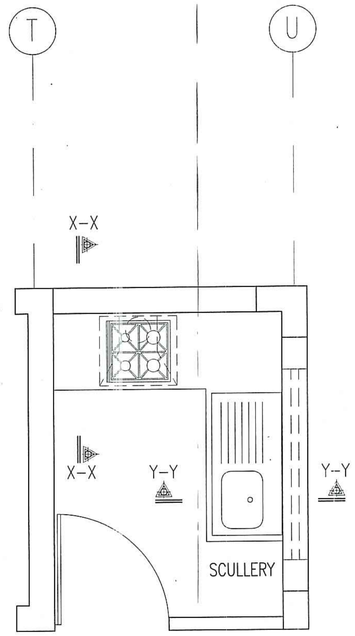
Title

ALUMINIUM PARTITIONING, KITCHEN ALUMINIUM CUPBOARD, BOOK SHELF, METAL SHELVING DETAIL

Director(Architecture)	Mrs S. Joypal
Deputy Director (Architecture)	Mrs B.K. Appadoo
Lead Architect	Mrs A. Collychurn
Architect 26-10-21	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Technical Design Officer	Mr H. Ramkarun
Scale 1:25 Date: AUG 20	Date Printed:26.10.21
MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX	Comp. No.
DRG. No. G741/14	Revision







NOTES:

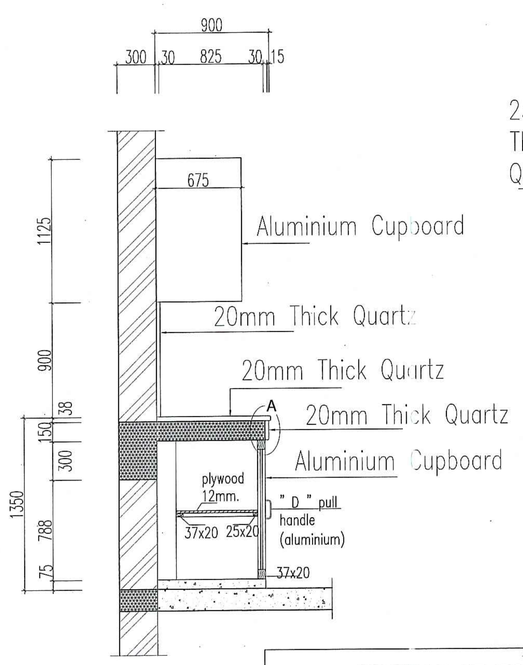
1. All HMR MDF board to be fixed with appropriate screws (as per manufacturer's specifications)

2. Stainless steel sink shall be to British Standard and to Architect's approval. Same applies for swan neck chrome plated tap.

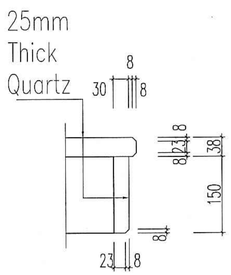
3. Quartz leaf used shall be polished and of min thk. 20 mm thickness, 600 mm wide and of minimum 2200 mm length with rounded edge and of European origin.

4. Quartz top to be fixed on R.C. slab with approved bonding agent (to manufacturer's detail and recommendation).

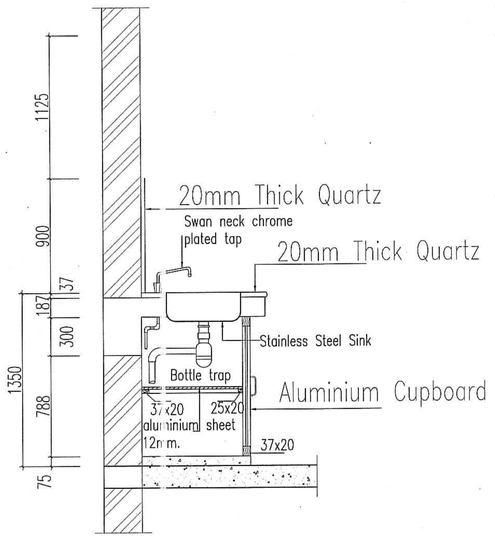
5. Drawers to be provided with heavy duty extensible rails.



Section X–X



DETAIL AT "A"



Section Y–Y

SCHEDULE OF IRONMONGERY FOR DOORS & DRAWERS				
HANDLES	HINGES	LOCKS	BOLTS	REMARKS
ALUMINIUM D–HANDLE 102mm.	INVISIBLE HINGES (2 per door).	STRAIGHT CPBD LOCK 50X25mm (4 lever)	EXTRUDED BRASS BARREL BOLT 6.6mm (2 PER DOOR)	ALL EXPOSED WOODEN SURFACES TO BE POLISHED AND WAXED.

CONCRETE WORKTOP FOR KITCHEN, SCHULLERY AND LAUNDRY

NOTES

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5. Do not scale – Use figured dimensions.

Datum Level:
Lev. + 100.10 = Lev. ± 0,000

No.	Revision	Date

Project

SMALL HOME PROJECT
AT REHABILITATION
YOUTH CENTRE
(GIRLS) AT
BEAU-BASSIN BLOCK A

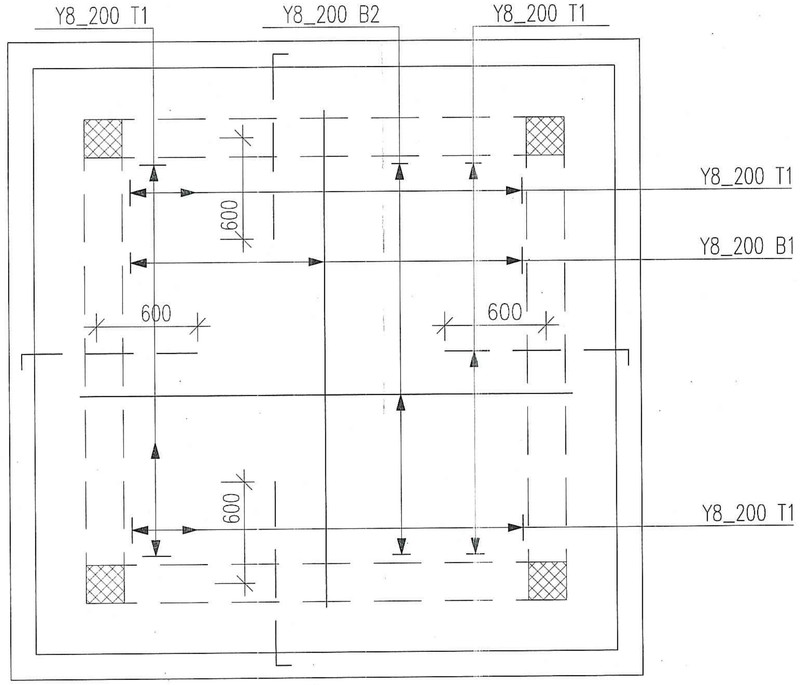
Title

CONCRETE WORKTOP
DETAIL

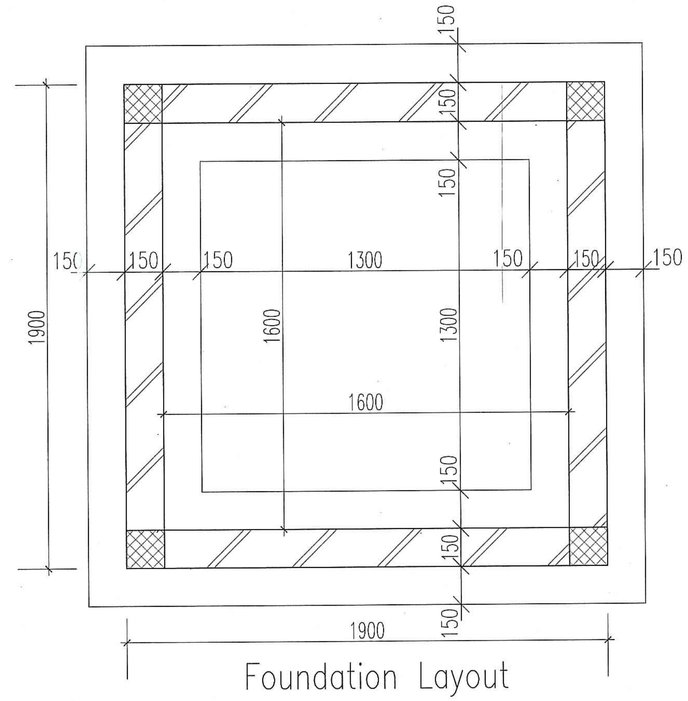
Director(Architecture)	Mrs S. Jaypal
Deputy Director (Architecture)	Mrs B.K. Appadoo
Lead Architect	Mrs A. Callychurn
Architect 2.6-10-21	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Technical Design Officer	Mr H. Ramkorun
Scale 1:50 Date: AUG 20	Date Printed:26.10.21

MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX — Comp. No.

DRG. No. G741/15 — Revision

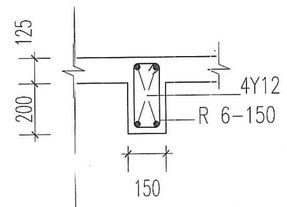


R.C Details of Roof slab. 125mm thick

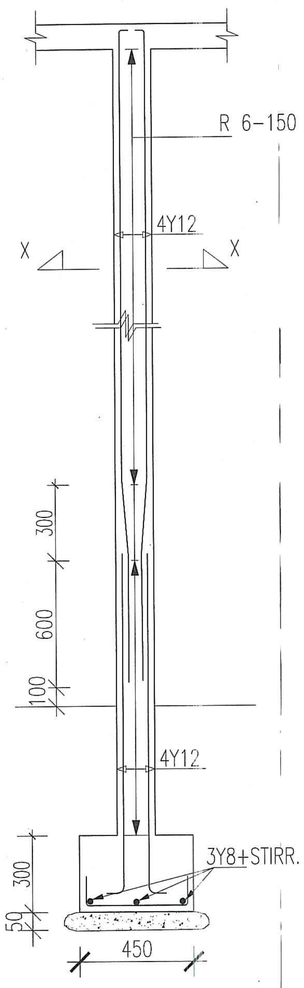


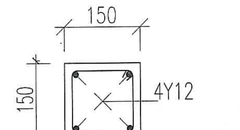
Foundation Layout

Notes
1. All ceilings, internal walls to be rendered 15mm thick cement plaster painted one coat under coat and two coats emulsion based paint
2. All external surfaces to be rendered 20mm thick cement plaster + one coat undercoat and two coats antifungus paint colour to Architect's approval

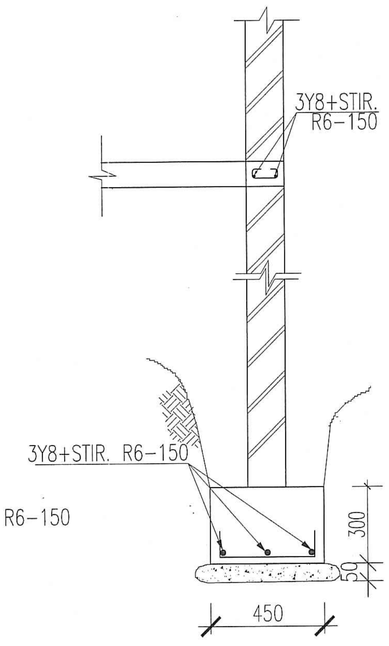


Typical Beam Details





Sect.X-X



R.C. Detail of column

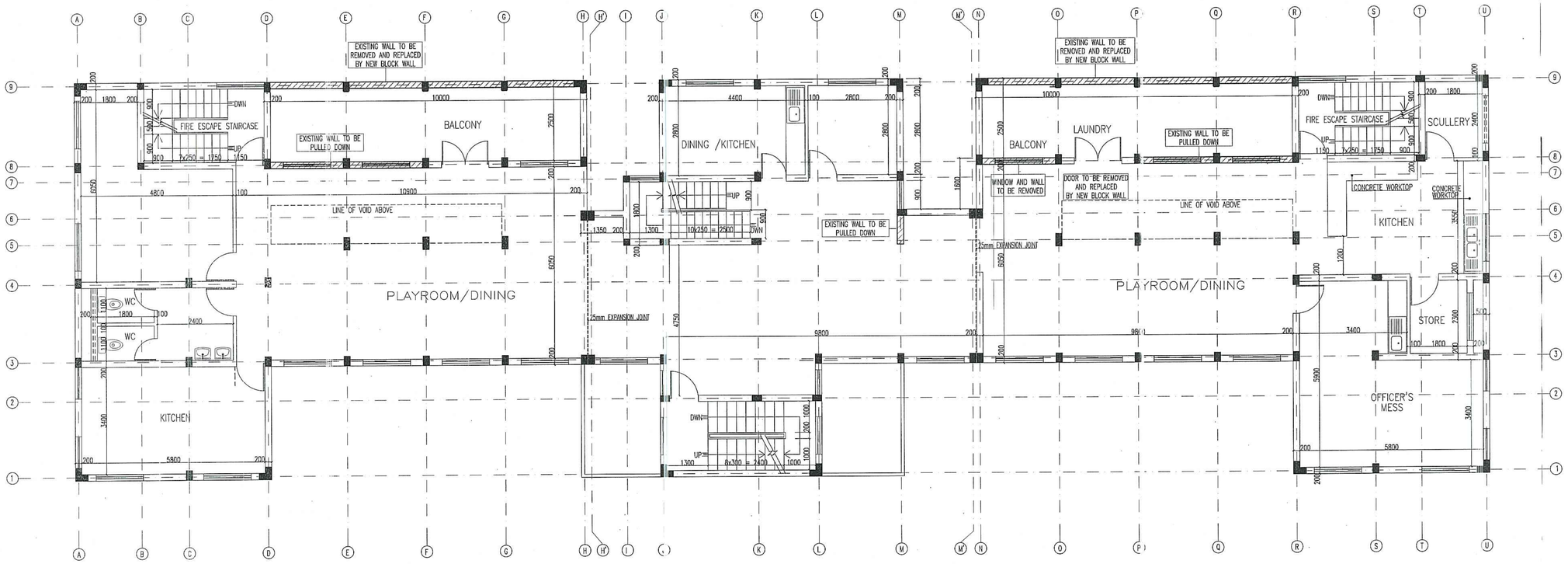
Strip footing detail

PLAN

Section A-A

TENDER DOCUMENT

Project: Water Pump Room 1900 X 1900 mm	Title: Details	Director (Architecture)	Mrs S. Jaypal	T.D.O H.Ramkorun	Scale 1 : 25	Date 26/10/21	Print 26/10/21	Comp. No. 9
		Deputy Director	Mrs B.K. Appadoo					
		Lead Architect	Mrs A. Callychurn					
	MINISTRY OF PUBLIC INFRASTRUCTURE & CD. - PHOENIX	Architect/S.Arch	Mr R.A. Boodhoo 26-10-21	DRG. No G741/16				Rev.



SECOND FLOOR DEMOLITION PLAN

LIST OF DRAWINGS:

G741/ST01 – SECOND FLOOR DEMOLITION PLAN.
G741/ST02 – PROPOSED SECOND FLOOR PLAN.
G741/ST03 – THIRD FLOOR DEMOLITION PLAN.
G741/ST04 – PROPOSED THIRD FLOOR PLAN.
G741/ST05 – DETAILS TO BLOCKWALL AND WORKTOP.
G741/ST06 – DETAILS FOR CREATION OF NEW OPENINGS IN BLOCKWALL.
G741/ST07 – SECTIONS THROUGH WALL TYPES & TIE COLUMNS DETAILS.
G741/ST08 – WOODEN FLOORING AND EXPANSION JOINT DETAILS
G741/ST09 – NOTES AND DETAILS FOR NEW BLOCKWALL.

NOTES

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Revision	Date

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU-BASSIN BLOCK A

Title

SECOND FLOOR DEMOLITION PLAN

DIRECTOR (C.E)	T. PARBHUNATH
LEAD ENGINEER	M.A.B. FURZUN
ENGINEER/SENIOR ENGINEER	S. GAYA – SEEVATHEAN (Mrs.)
Chief T.D.O	Mr V. Thomson
Principal T.D.O	Mr N. Tousaint
Senior T.D.O	Mr Y.P. Vythelingum
Technical Design Officer	Mr S. Gunputh

Scale: 1:75 | Date : DEC 2020 | Date Printed: 28/12/20

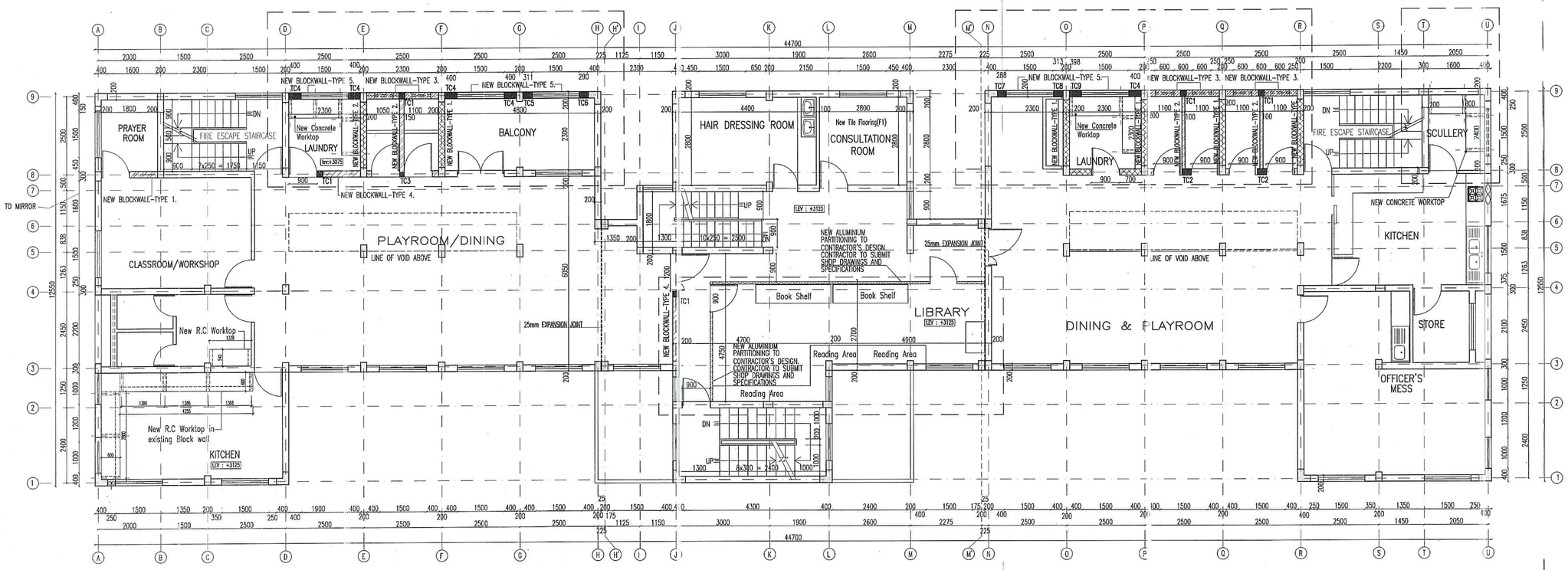
MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

TENDER DOCUMENT

DRG. No. G741/ST01 | Revision | Comp. No. S

Legend :

- New Blockwall Between Existing Columns — NEW BLOCKWALL–TYPE 1.
- New Blockwall Between New Columns — NEW BLOCKWALL–TYPE 2.
- New Blockwall Between Existing Columns with Toplight — NEW BLOCKWALL–TYPE 3.
- New Blockwall Between Existing & New Columns — NEW BLOCKWALL–TYPE 4.
- New Blockwall Between New Columns with window — NEW BLOCKWALL–TYPE 5.
- New Columns
- Existing Columns



PROPOSED SECOND FLOOR PLAN

NOTES

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Revision	Date

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU–BASSIN BLOCK A

Title

PROPOSED SECOND FLOOR PLAN

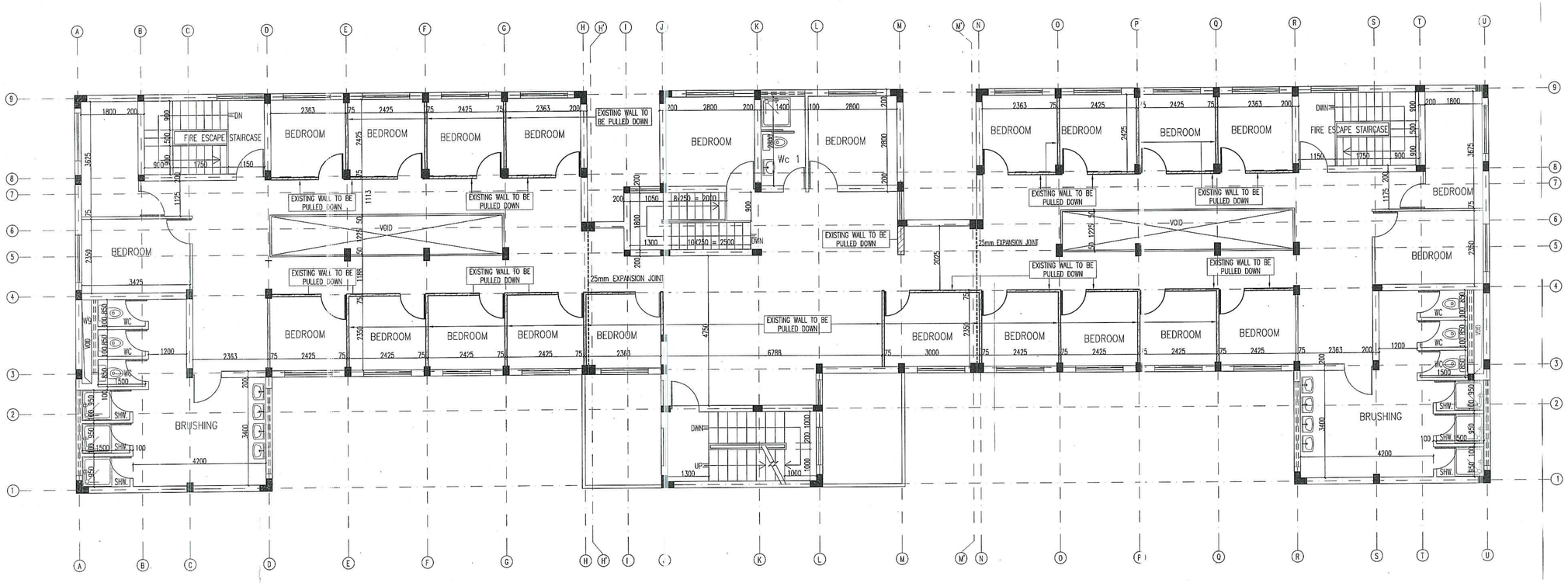
DIRECTOR (C.E)	T. PARBHUNATH
LEAD ENGINEER	M.A.B. FURZUN
ENGINEER/SENIOR ENGINEER	S. GAYA – SEEVATHEAN (Mrs.)
Chief T.D.O	Mr V. Thomson
Principal T.D.O	Mr N. Tousaint
Senior T.D.O	Mr Y.P. Vythelingum
Technicol Design Officer	Mr S. Gunputh

Scale 1:75 | Date : DEC 2020 | Date Printed: 28/12/20

MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

TENDER DOCUMENT

DRG. No. G741/ST02 | Revision | Comp. No. S



THIRD FLOOR DEMOLITION PLAN

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Revision	Date

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU-BASSIN BLOCK A

Title

THIRD FLOOR DEMOLITION PLAN

DIRECTOR (C.E)	T. PARBHUNATH
LEAD ENGINEER	M.A.B. FURZUN
ENGINEER/SENIOR ENGINEER	S. GAYA – SEEVATHEAN (Mrs.)
Chief T.D.O	Mr V. Thomson
Principal T.D.O	Mr N. Tousaint
Senior T.D.O	Mr Y.P. Vythelingum
Technical Design Officer	Mr S. Gunputh

Scale: 1:75 | Date : DEC 2020 | Date Printed: 28/12/20

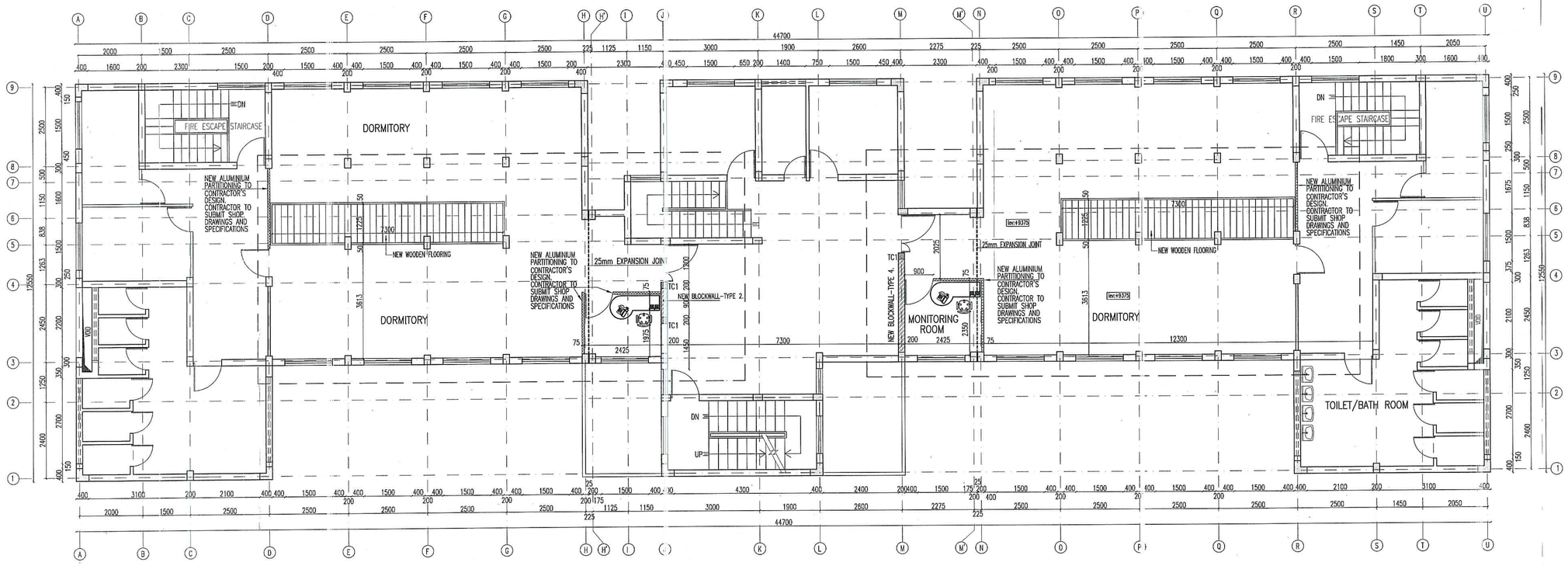
MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

TENDER DOCUMENT

DRG. No. G741/ST03 | Revision | Comp. No. S

Legend :

- New Blockwall Between Existing Columns — NEW BLOCKWALL–TYPE 1.
- New Blockwall Between New Columns — NEW BLOCKWALL–TYPE 2.
- New Blockwall Between Existing Columns with Toplight — NEW BLOCKWALL–TYPE 3.
- New Blockwall Between Existing & New Columns — NEW BLOCKWALL–TYPE 4.
- New Blockwall Between New Columns with window — NEW BLOCKWALL–TYPE 5.
- New Columns
- Existing Columns



PROPOSED THIRD FLOOR PLAN

NOTES

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Revision	Date

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU–BASSIN BLOCK A

Title

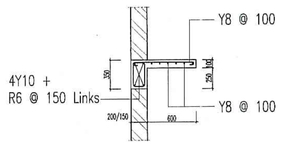
PROPOSED THIRD FLOOR PLAN

DIRECTOR (C.E)	T. PARBHUNATH
LEAD ENGINEER	M.A.B. FURZUN
ENGINEER/SENIOR ENGINEER	S. GAYA – SEEVATHEAN (Mrs.)
Chief T.D.O	Mr V. Thomson
Principal T.D.O	Mr N. Tousaint
Senior T.D.O	Mr Y.P. Vythelingum
Technical Design Officer	Mr S. Gunputh

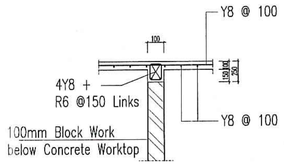
Scale: 1:75 | Date : DEC 2020 | Date Printed: 28/12/20

MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

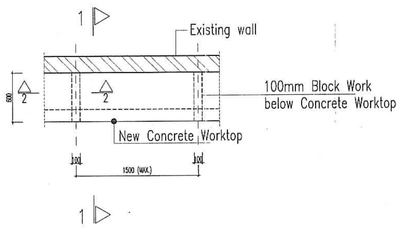
DRG. No. G741/ST04 | Revision | Comp. No. S



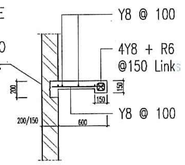
Section 1–1,
worktop To New wall



Section 2–2,
worktop To New wall

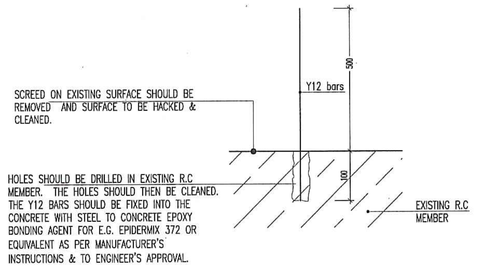


SCREED TO SIDE OF EXISTING BLOCKWALL IS TO BE REMOVED AND PART OF BLOCKWALL TO BE CUT TO ACCOMMODATE NEW CONCRETE WORKTOP.
CAVITY OF EXISTING BLOCKWORK TO BE FILLED WITH CONCRETE GRADE 30.

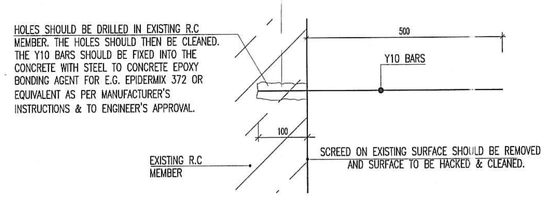


Section 1–1,
worktop To Existing wall

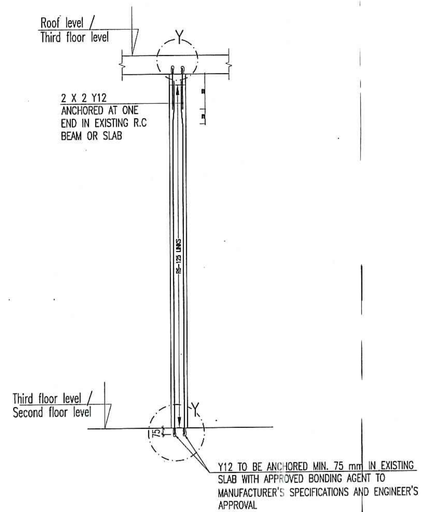
DETAILS FOR CONCRETE WORKTOP



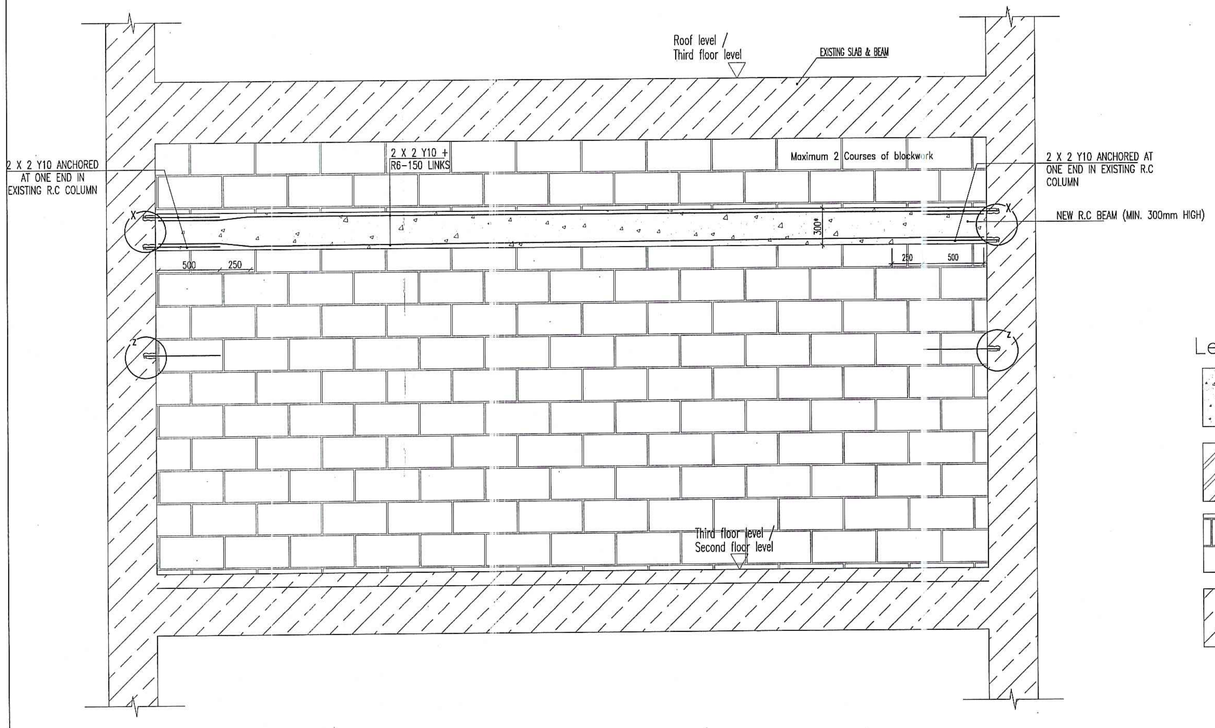
DETAIL Y
(SHOWING ANCHORAGE OF STEEL BARS INTO EXISTING RC FLOOR SLAB/BEAMS)



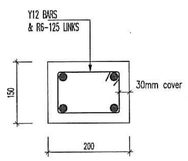
DETAIL X
(SHOWING ANCHORAGE OF STEEL BARS IN EXISTING RC COLUMNS)



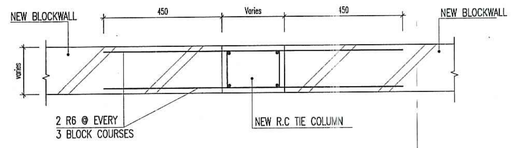
DETAILS OF TIE COLUMNS (TC1 to TC9)



TYPE 1 – TYPICAL ELEVATION SHOWING NEW BLOCKWALL



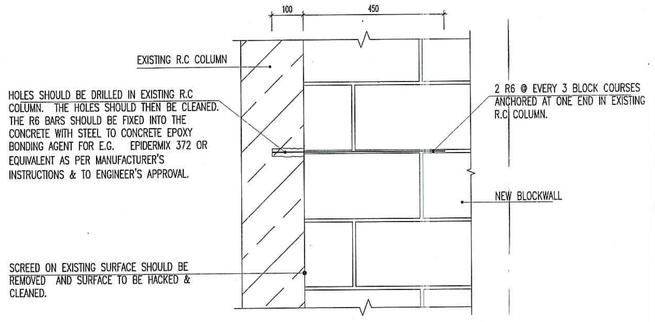
TIE COLUMN DETAILS



(SHOWING ANCHORAGE OF WALL TIES INTO NEW R.C TIE COLUMN)

Legend

- New R.C beam & column
- New blockwall 150 mm wide on Second floor level & Third floor level
- Existing R.C Beam, Slab & Column



DETAIL Z
(SHOWING ANCHORAGE OF WALL TIES INTO EXISTING R.C COLUMNS)

NOTES

1. Read this drawing with all Architect's and Engineer's relevant details.
2. No deviation from the details shown on this drawing is allowed without prior permission in writing.
3. If any discrepancy between this drawing and any contract document is discovered – Please ask.
4. Contractor is to verify all site dimensions.
5. Do not scale – Use figured dimensions.

No.	Revision	Date

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU-BASSIN BLOCK A

Title

DETAILS TO BLOCKWALL AND WORKTOP

DIRECTOR (C.E)	T. PARBHUNATH
LEAD ENGINEER	M.A.B. FURZUN
ENGINEER/SENOR ENGINEER	S. GAYA – SEEVATHEAN (Mrs.)
Chief T.D.O	V. THOMSON
Principal T.D.O	N. Tousaint
T.D.O	S. Gumputh

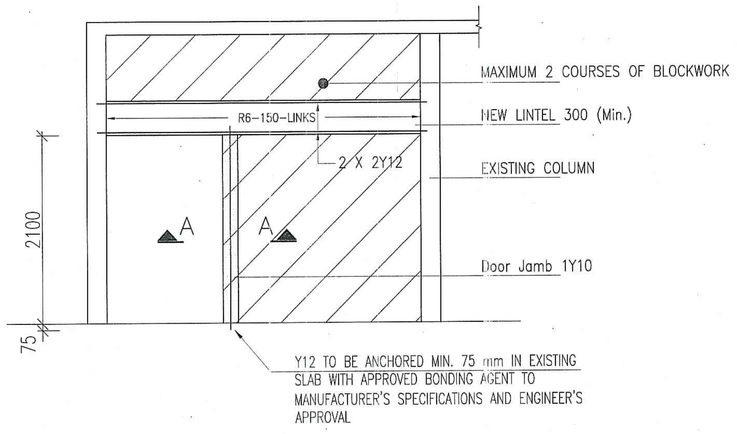
Scale: 1:75 | Date: DEC. 2020 | Print: 28.12.2020

MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

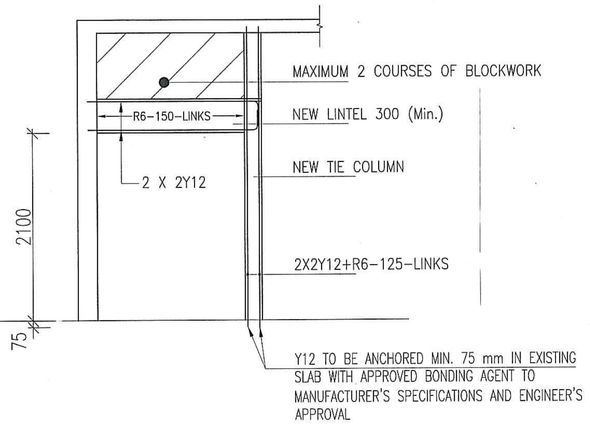
Comp. No. S

DRG. No. G741/ST05

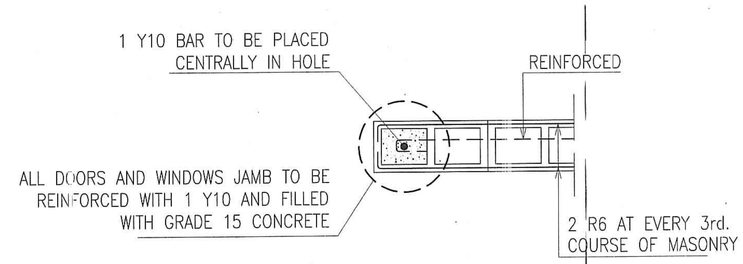
Revision



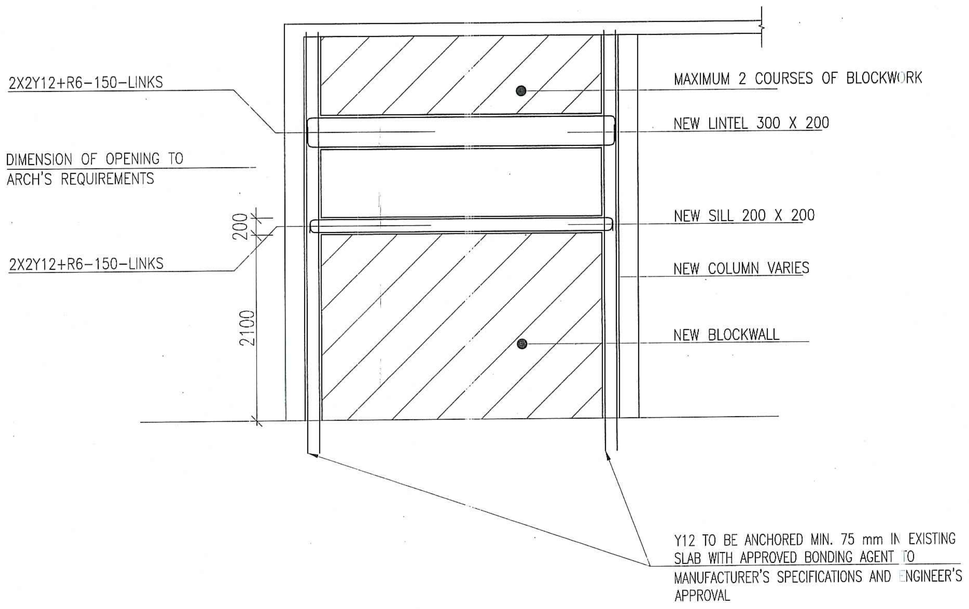
NEW DOOR OPENING IN BLOCKWALL



NEW DOOR OPENING IN BLOCKWALL



SECTION A-A



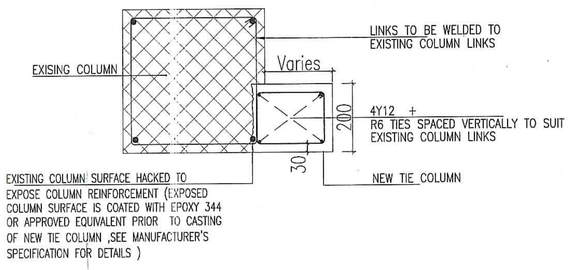
NOTE:

1. DUE CARE SHOULD BE TAKEN SO AS NOT TO DAMAGE ANY EXISTING TIE COLUMNS/TIE BEAMS IF ANY.

2. NO LINTEL WILL BE REQUIRED IF BLOCKWALL IS TO BE REMOVED COMPLETELY UP TO THE SOFFIT OF A STRUCTURAL BEAM. IN THIS CASE, ONLY THE SILL BEAM WILL BE REQUIRED IF THE BLOCKWALL IS REMOVED BETWEEN TIE COLUMNS. THE SILL BEAM REINFORCEMENT(4Y12 + R6 @ 150 Links) TO BE ANCHORED MIN. 75 mm INTO EXISTING COLUMNS WITH APPROVED BONDING AGENT TO MANUFACTURER'S SPECS AND ENGINEER'S APPROVAL.

3. NO LINTEL WILL BE REQUIRED IF BLOCKWALL IS TO BE REMOVED COMPLETELY UP TO THE SOFFIT OF A STRUCTURAL BEAM. IN THIS CASE, ONLY THE SILL BEAM WILL BE REQUIRED IF THE BLOCKWALL IS REMOVED BETWEEN TIE COLUMNS. THE SILL BEAM REINFORCEMENT (4Y12 + R6 @ 150 Links) TO BE ANCHORED MIN. 75 mm INTO EXISTING COLUMNS WITH APPROVED BONDING AGENT TO MANUFACTURER'S SPECS AND ENGINEER'S APPROVAL.
IF THE WALL IS NOT REMOVED BETWEEN TIE COLUMNS, THEN NEW TIE COLUMNS WILL BE REQUIRED AT BOTH SIDES OF THE PROPOSED OPENING ALONG WITH NEW SILL BEAM

TYPE 5. -- NEW WINDOW IN BLOCKWALL



TYPICAL SECTION FOR NEW TIE COLUMN ADJACENT TO EXISTING COLUMNS

GENERAL NOTES

1 All workmanship and materials shall be in accordance with BS 8110 – The Structural Use of concrete.
2 Minimum cover (mm) to all reinforcement unless otherwise shown shall be 25mm.
3 Workmanship and materials are to be in accordance with the relevant Mauritian Standards or British Standards and local statutory authorities regulations.
4 The contractor shall be responsible for maintaining the structure in a stable condition and ensuring that no part shall be overstressed under construction activities.
5 All dimensions are in millimetres unless stated otherwise and all levels are expressed in millimetres.
6 Concrete grades shall be GRADE 30
7 All reinforcement to comply with MS 10 Mauritian standard for steel bars for the reinforcement of concrete.
8 Reinforcement symbols
All reinforcement to comply with MS 10 Mauritian standard for steel bars for the reinforcement of concrete.
Y – Hot rolled deformed bar – grade 425 (i.e minimun yield strength 425 N/mm2)
R – Structural grade mild steel plain round bar – grade 250 N/mm2
The number following the bar symbol is the nominal bar diameter in millimetres.
9 Reinforcement shall be checked by the Engineer and a written approval of the Engineer should be obtained before concreting.

TENDER DOCUMENT

NOTES

1. Read this drawing with all Architect's and Engineer's relevant details.
2. No deviation from the details shown on this drawing is allowed without prior permission in writing.
3. If any discrepancy between this drawing and any contract document is discovered – Please ask.
4. Contractor is to verify all site dimensions.
5. Do not scale – Use figured dimensions.

No.	Revision	Date

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU-BASSIN BLOCK A

Title

DETAILS FOR CREATION OF NEW OPENINGS IN BLOCKWALL

DIRECTOR (ENGINEER)	T. PARBHUNATH
LEAD ENGINEER	M.A.B FURZUN
ENGINEER/SENIOR ENGINEER	S. GAYA – SEEVATHEAN (Mrs.)
Chief T.D.O	V. THOMSON
Principal T.D.O	N. TOUSAINT
Senior T.D.O	
TECHNICAL DESIGN OFFICER	M. ALCINDOR, S.G

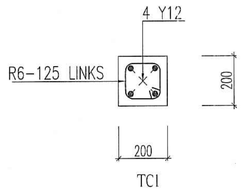
Scale- 1:35	Date: APR 2019	Print: 28.12.20

MINISTRY OF NATIONAL INFRASTRUCTURE C.D PHOENIX

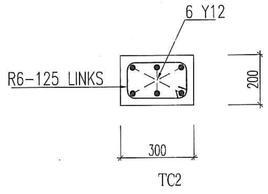
Comp. No. S

DRG. No. G741/ST06

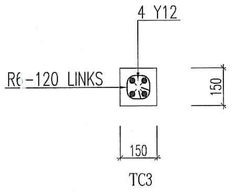
Revision



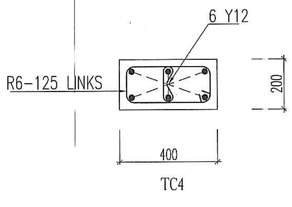
TC1



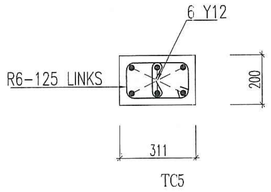
TC2



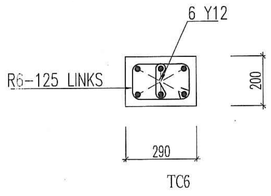
TC3



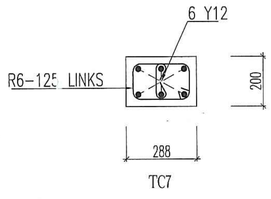
TC4



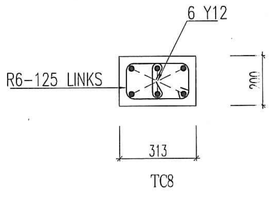
TC5



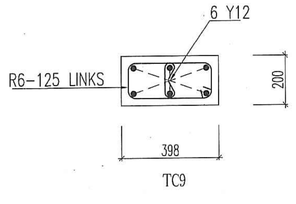
TC6



TC7

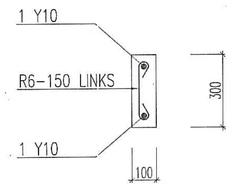


TC8

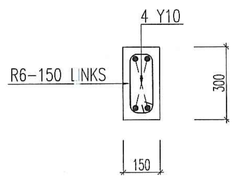


TC9

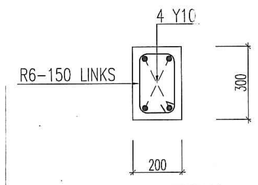
TIE COLUMNS DETAILS



SECTION THRU' BEAM
(FOR 100mm BLOCKWALL)

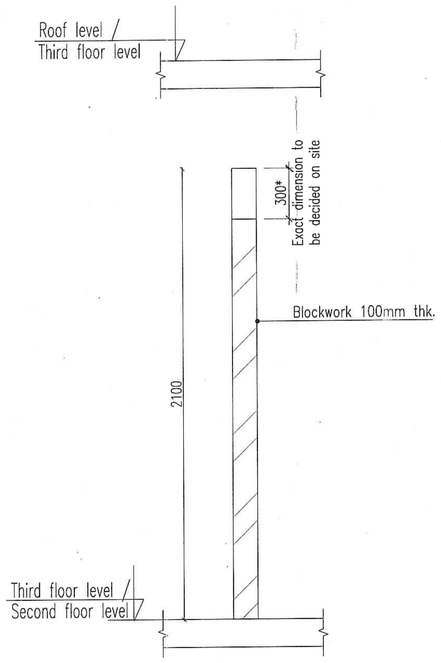


SECTION THRU' BEAM
(FOR 150mm BLOCKWALL)

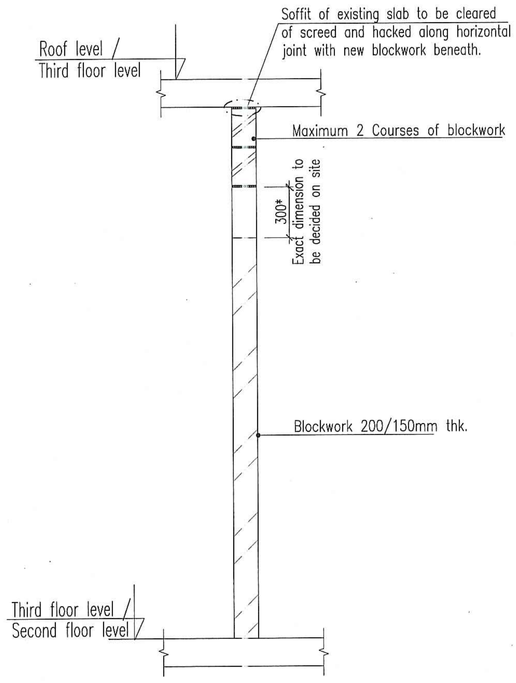


SECTION THRU' BEAM
(FOR 2000mm BLOCKWALL)

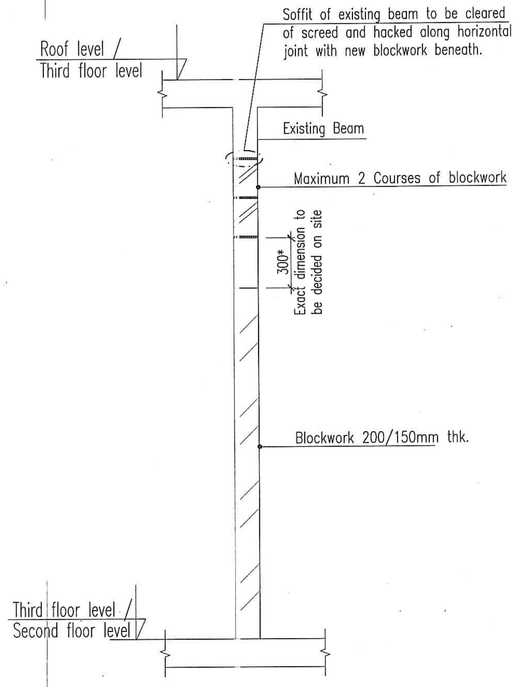
TIE BEAMS DETAILS



DETAILS OF BLOCKWALL 100mm thk.
ENDING at 2100mm



DETAILS OF BLOCKWALL ENDING
BELOW EXISTING SLAB



DETAILS OF BLOCKWALL ENDING
BELOW EXISTING BEAM

TENDER DOCUMENT

NOTES

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4. Contractor is to verify all site dimensions.
5. Do not scale – Use figured dimensions.

Revision	Date

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU-BASSIN BLOCK A

Title

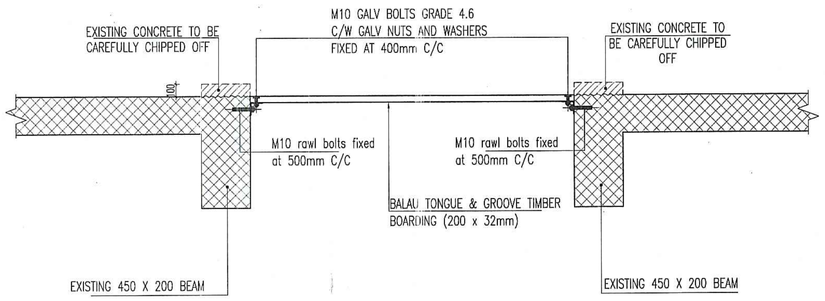
SECTIONS THROUGH WALL TYPES & TIE COLUMNS DETAILS.

DIRECTOR (C.E)	T. PARBHUNATH
LEAD ENGINEER	M.A.B. FURZUN
ENGINEER/SENIOR ENGINEER	S. GAYA – SEEVATHEAN (Mrs.)
Chief T.D.O	Mr V. Thomson
Principal T.D.O	Mr N. Tousaint
Senior T.D.O	Mr Y.P. Vythelingum
Technical Design Officer	Mr S. Gunputh

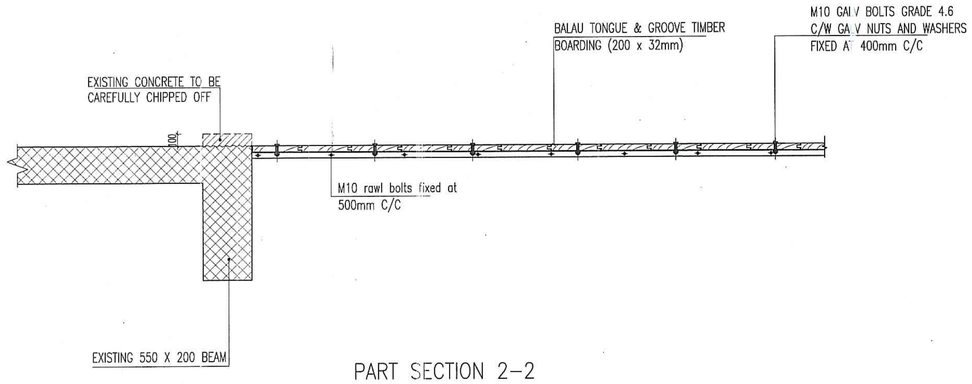
Scale: 1:50 | Date : DEC 2020 | Date Printed: 28/12/20

MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

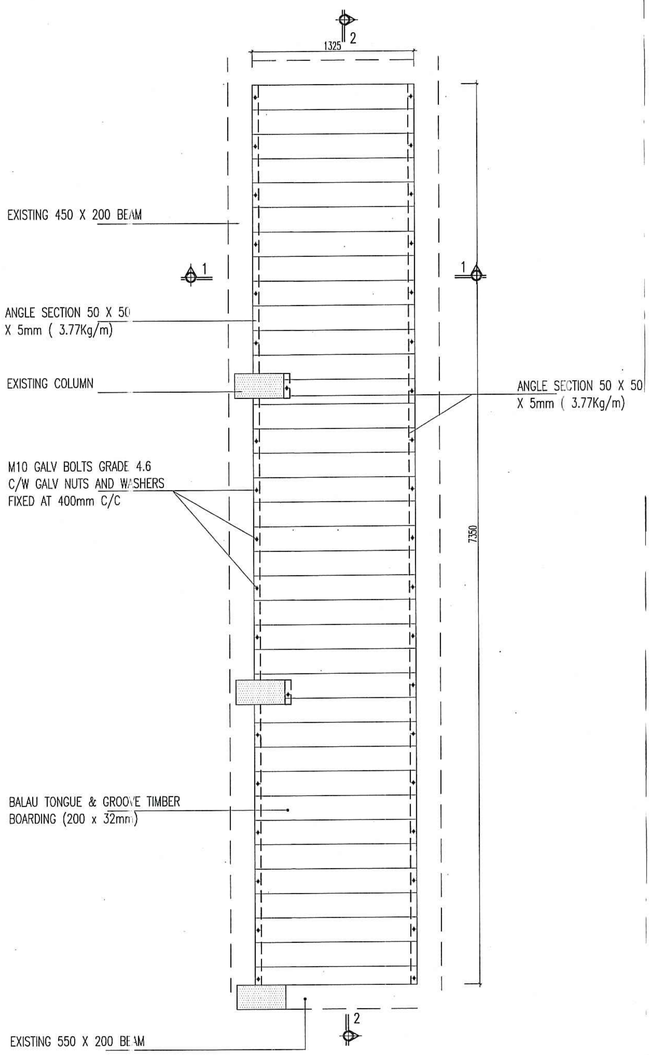
G741/ST07 | Revision | Comp. No. S



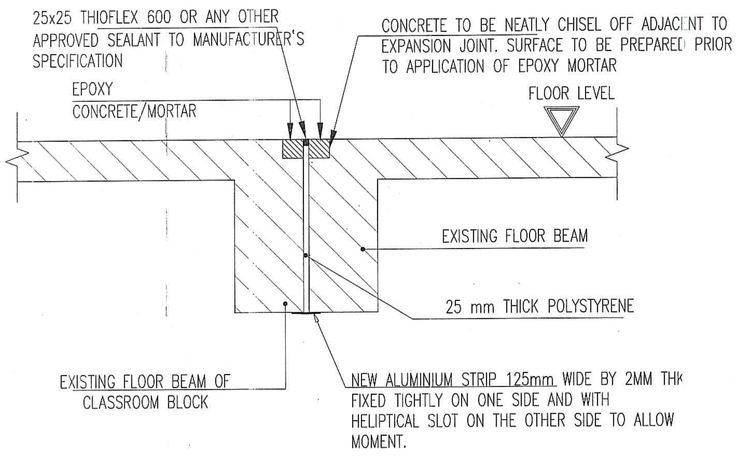
SECTION 1–1



PART SECTION 2–2



NEW WOODEN FLOORING



DETAILS FOR EXPANSION JOINT

NOTE:

1. IN CASE MAIN REINFORCEMENT OR LINK IS CORRODED, THE REINFORCEMENT IS TO BE BRUSHED CLEAN OF ALL RUST AND ADDITIONAL REINFORCEMENT OF SAME DIAMETER IS TO BE ADDED TO COVER THE LENGTH OF STEEL CORRODED + LAP LENGTH (40 TIMES DIAMETER) ON BOTH SIDES AND TO BE WELDED TO CORRODED BAR TO ENGINEER'S APPROVAL.
2. EXPANSION JOINT BETWEEN COLUMNS TO BE REPAIRED IN A SIMILAR WAY.

NOTES

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2. No deviation from the details shown on this drawing is allowed without prior permission in writing.
3. If any discrepancy between this drawing and any contract document is discovered – Please ask.
4. Contractor is to verify all site dimensions.
5. Do not scale – Use figured dimensions.

	Revision	Date

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU-BASSIN BLOCK A

Title

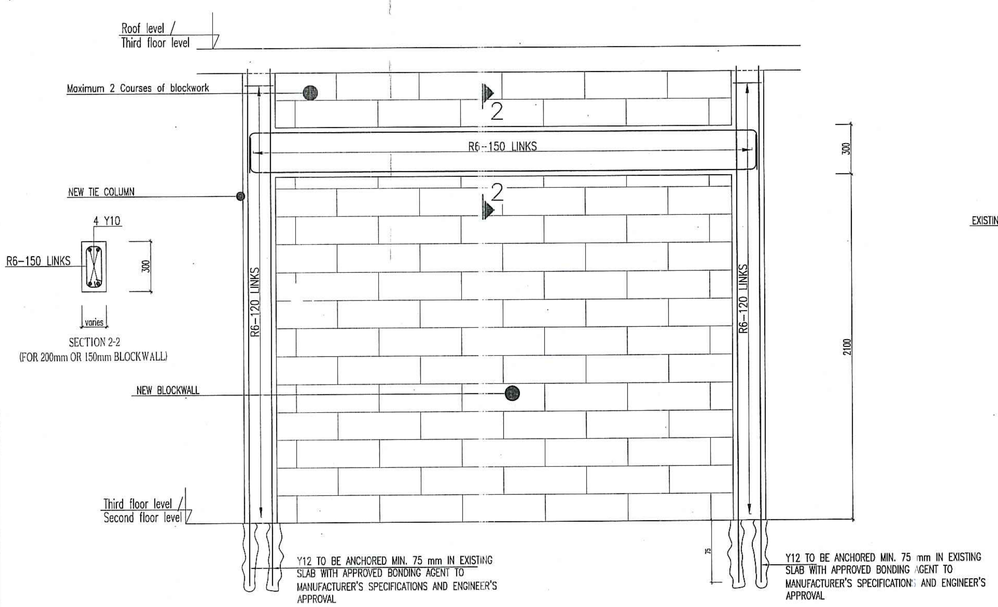
WOODEN FLOORING AND EXPANSION JOINT DETAILS

DIRECTOR (C.E)	T. PARBHUNATH
LEAD ENGINEER	M.A.B. FURZUN
ENGINEER/SENIOR ENGINEER	S. GAYA – SEEVATHEAN (Mrs.)
Chief T.D.O	Mr V. Thomson
Principal T.D.O	Mr N. Tousaint
Senior T.D.O	Mr Y.P. Vythelingum
Technical Design Officer	Mr S. Gunputh

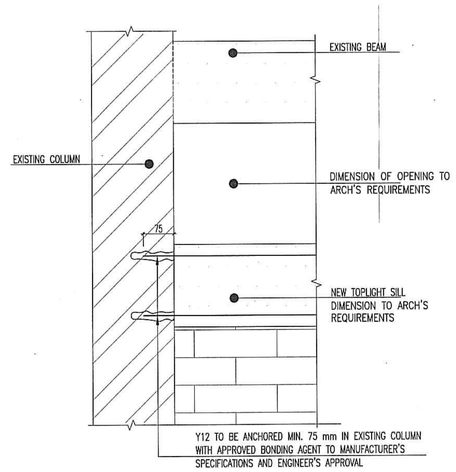
Scale: 1:25 | Date : NOV 2020 | Date Printed: 28/12/20

MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

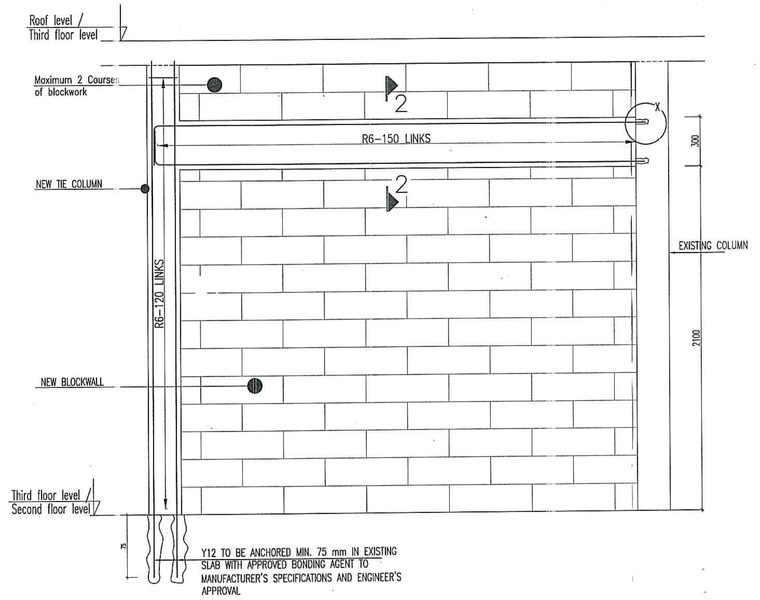
DRG No.	Revision	Comp. No.
G741/ST08		S



TYPE 2 - TYPICAL ELEVATION OF NEW BLOCKWALL BETWEEN NEW COLUMNS



Type 3. - NEW TOPLIGHT SILL DETAILS



TYPE 4. - TYPICAL ELEVATION OF NEW BLOCKWALL BETWEEN NEW COLUMNS AND EXISTING COLUMN

GENERAL NOTES

1 All structural drawings are to be read in conjuction with all ARCHITECT'S DRAWINGS and specifications and with such other written instruction as may be issued during the course of contract. All discrepancies shall be referred to the Engineer for decision before proceeding with the works.
2 All dimensions relevant to setting out and off site work shall be checked by the contractor before construction. The drawings shall not be scaled.
3 Workmanship and materials are to be in accordance with the relevant Mauritian Standards or British Standards and local statutory authorities regulations.
4 The contractor shall be responsible for maintaining the structure in a stable condition and ensuring that no part shall be overstressed under construction activities.
5 All dimensions are in millimetres unless stated otherwise and all levels are expressed in millimetres.

CONCRETE BLOCKWORK

1 All workmanship and materials shall be in accordance with BS 5628– Code of practice for use of masonry.
2 Concrete block shall be manufactured in accordance with BS 6073 –Precast concrete masonry units. They shall be cellular blocks of grade A 3.5 N/mm2. Size of concrete block shall be 457 x 203 x 100 ,150 or 200 thick unless otherwise specified.
3 The mortar for laying blocks shall consist of 1 part Portland cement : 3 to 4 parts of rock sand and an approved plasticiser unless otherwise specified.
4 Steel reinforcement to masonry shall be as shown on the drawings.
5 Reinforced concrete infill to blockwork where required shall be of grade 25/10, with reinforcement as specified.
6 All concrete blocks to be laid first before concreting of columns and beams unless otherwise shown in the structural drawings.
7 The number of laid blocks should not exceed 12 rows else tie beams are required.

Demolition Works

1. All demolition works shall be in accordance to enforced prevailing building regulations.
2. Blockwalls are to be cut with grinder and demolished using hand tools/light machinery, taking care not to damage surrounding structure and the reinforcement of adjacent existing concrete beams/lintels.
3. Existing reinforcement of beams / lintels to be bent and anchored min. 250mm in new columns.
4. All demolition debris should be carted away from site to an approved disposal site.

STRUCTURAL CONCRETE

1 All workmanship and materials shall be in accordance with BS 8110 – The Structural Use of concrete.
2 Minimum cover (mm) to all reinforcement unless otherwise shown shall be as follows:–

Element	Cover(mm)
(a) Foundation against earth face	75
(b) Foundation against blinding	50
(c) Columns	30 to links
(d) Reinforced Concrete Wall	35
(e) Beams	30 to links
(f) Slab on fill	30
(g) Suspended slabs	25

3 Size of concrete elements do not include thickness of applied finishes.
4 Beam widths are written first and beam depths include slab thickness.
5 No holes or embedment of pipes other than those shown on the structural drawings shall be made in concrete members without prior written approval of the Engineer.
6 Construction joints shall be properly constructed as specified and made only where shown or specifically approved by the Engineer.
7 Reinforcement is represented diagrammatically and not necessarily shown in true projection.
8 Welding of reinforcement shall not be permitted without the approval of the Engineer.
9 All reinforcement shall be securely supported in its correct position during concreting by approved bar chairs or spacers.
10 Reinforcement shall be checked by the Engineer and a written approval of the Engineer should be obtained before concreting.
11 All reinforcement to comply with MS 10 Mauritian standard for steel bars for the reinforcement of concrete.
12 Reinforcement symbols
All reinforcement to comply with MS 10 Mauritian standard for steel bars for the reinforcement of concrete.
Y – Hot rolled deformed bar – grade 425 (i.e minimun yield strength 425 N/mm2)
R – Structural grade mild steel plain round bar – grade 250 N/mm2
The number following the bar symbol is the nominal bar diameter in millimetres.
13 Concrete grades shall be as follows unless shown otherwise on drawings:–

Element	Grade of Concrete	Fcu (Mpa)
All structural concrete Unless otherwise specified	30/20	30

14 Existing manholes etc which need to be plugged are to be filled with mass concrete with max. 30% plums.

Aluminium Openings

Aluminium Openings (Applies to external openings only)

The Contractor shall make provision for the structural design of all Aluminium openings and their fixings and supervision of their installation on site. The external Aluminium Openings should be designed for a basic wind speed of 280 km/hr as per British Standard Code of Practice CP3 Ch V: Part 2 1972 including subsequent amendments to date.

Structural design and supervision of installation of the Aluminium openings should be carried out by a Civil/Structural Engineer registered with the Council of Registered Professional Engineers (Mauritius). Structural design of the Aluminium openings and supporting structure should all be to the latest edition of the relevant British Standards covering Aluminium openings and supporting structure including all amendments to date.

The Structural design calculations and workshop drawings of the Aluminium openings duly signed by the Registered Professional Civil/Structural Engineer should be submitted to the Ministry of National Infrastructure (MNI & CD) for comments and acceptance.

No Aluminium Openings should be fixed on site until clearance is obtained from the MNI & CD.

All Manufacturers' Literature for the proposed Aluminium openings and their fixings shall be submitted to the MNI & CD for comments.

The duties of the Civil/Structural Engineer carrying the supervision of all the structural works in connection with the installation of the Aluminium Openings shall include:

1. Detailed checking of all structural works in connection with the Aluminium Openings;
2. Issuing written approvals to the Contractor after each inspection of structural works for which he is satisfied;
3. Give instructions for appropriate repairs to faulty works, if any is observed during construction;
4. Certify that all items of structural works in connection with the erection of the Aluminium Openings for which the Contractor applies for payment have been carried out as per drawings and specifications and to his approval. In this respect, the Civil/Structural Engineer should issue a certificate which the Contractor should submit along with his application for payment. The certificate should read as follows: "I hereby certify that all structural works in connection with the erection of the Aluminium Openings for which the Contractor has applied for payment in application for payment No. ...(to be inserted by Engineer) have been carried out as per drawings and specifications and to my approval." The Certificate shall be signed by the Civil/Structural Engineer.
5. The Contractor shall submit to the MNI & CD copies of all approvals given by his Civil/Structural Engineer at the end of each week.

The Contractor shall liaise with the Architect for any water tests on the Aluminium openings to ensure no leakages. Such tests are to be to the Architect's approval.

The Contractor may be requested by the MNI & CD to send samples of any material used in the design of the Aluminium Openings to the Mauritius Standards Bureau (MSB) for checking compliance with any literature submitted for the material.

On completion of the works, the Contractor should issue a certificate as per the format specified in the Contract documents.

TENDER DOCUMENT

NOTES

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5 Do not scale – Use figured dimensions.

No.	Revision	Date

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU-BASSIN BLOCK A

Title

NOTES AND DETAILS FOR NEW BLOCKWALL

DIRECTOR (ENGINEER)	T. PARBHUNATH
LEAD ENGINEER	M.A.B FURZUN
ENGINEER/SENIOR ENGINEER	S. GAYA – SEEVATHEAN (Mrs.)
Chief T.D.O	V. THOMSON
Principal T.D.O	N. TOUSAINT
Senior T.D.O	
TECHNICAL DESIGN OFFICER	M. ALCINDOR, S.G

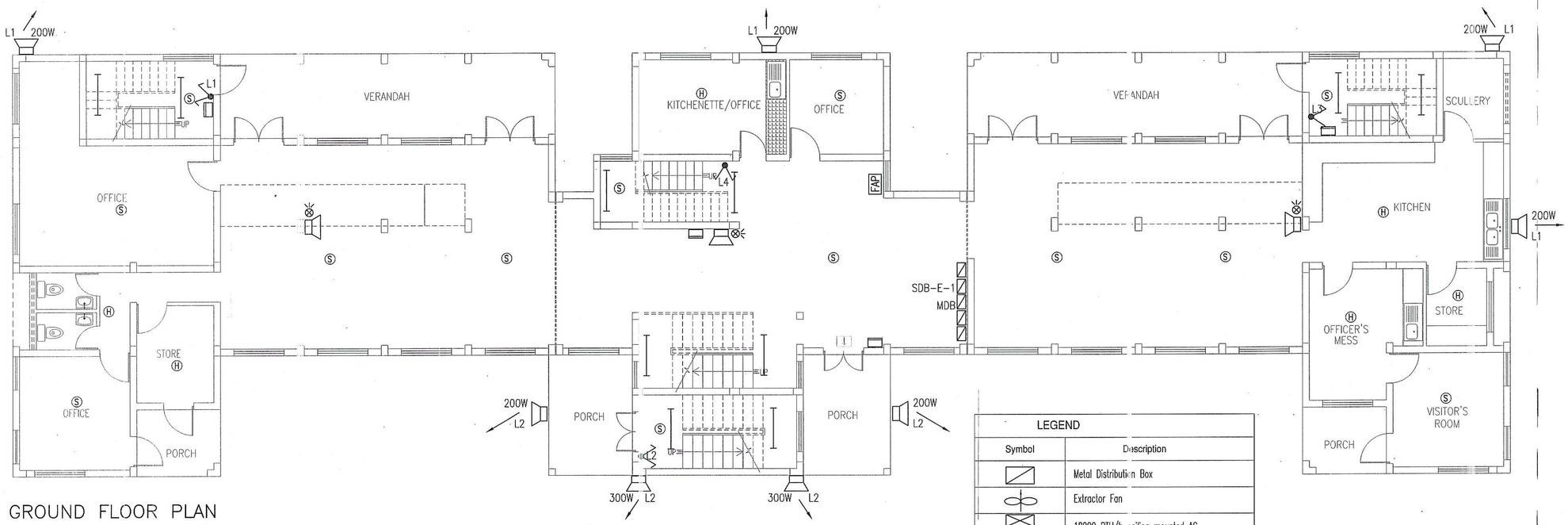
Scale- 1:75 | Date: APR 2019 | Print: 28.12.20

MINISTRY OF NATIONAL INFRASTRUCTURE C.D PHOENIX | Comp. No. S

DRG. No. G741/ST09 | Revision

List of Drawings:

G741/EL/01	–	Ground Floor Plan Electrical Layout
G741/EL/02	–	First Floor Plan Electrical Layout
G741/EL/03	–	Second Floor Plan Electrical Layout
G741/EL/04	–	Third Floor Plan Electrical Layout



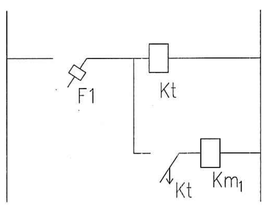
GROUND FLOOR PLAN

Note: The exact location of floodlights and outdoor AC units shall be indicated during implementation stage.

Existing SDB - E - 1

SCHEMATIC LAYOUT	RCBO RATING		CIRCUIT No.	DESCRIPTION	CABLE SIZE	CABLE ROUTING	PHASE
MCB 2P 20A Km_1 2P 32A; Existing distribution Block	2P 10A	30mA	L1	External lighting	3C x 1.5 mm²	Existing conduit routing / chasing	L1
	2P 10A	30mA	L2	External Lighting	3C x 1.5 mm²	Existing conduit routing / chasing	L2
	2P 10A	30mA	FAP	Fire Alarm Panel	3C x 1.5 mm²	Existing conduit routing / chasing	L3
	2P 10A	30mA	L1	Staircase 1	3C x 1.5 mm²	Existing conduit routing / chasing	L1
	2P 16A	30mA	L2	Staircase 2	3C x 2.5 mm²	Existing conduit routing / chasing	L2
	2P 16A	30mA	L3	Staircase 3	3C x 2.5 mm²	Existing conduit routing / chasing	L3
	2P 16A	30mA	L4	Staircase 4	3C x 2.5 mm²	Existing conduit routing / chasing	L1

Note: Wherever chasing works shall be carried out, multicore electrical cables shall be used



LEGEND	
Symbol	Description
	Metal Distribution Box
	Extractor Fan
18000	18000 BTU/h ceiling mounted AC
12000	12000 BTU/h wall mounted AC
	Double Switched Socket with Red LED Indicator
	Single Switched Socket with Red LED Indicator
	DP Switch
	Switch 1 Gang 1 Way
	Switch 2 Gang 1 Way
	Switch 3 Gang 1 Way
	Switch 4 Gang 1 Way
	Switch 5 Gang 1 Way
	Switch Dimmable
	Switch 1 Gang 2 Way
FAP	Fire Alarm Panel
S	Smoke Detector
H	Heat Detector
	Manual Call Point
	Sounder with Red LED Beacon Light
D	Type A – LED panel 1200x300 with dimmable driver
	Type B – LED panel 1200x300
E	Type C – LED panel 1200x300 with Emergency pack
200W	Type D – LED Floodlight
300W	Type E – LED Floodlight
	Type F – Weatherproof LED SMD 1200mm
D&E	Type G – LED panel 1200x300 with dimmable driver and Emergency pack
	PIR Sensor
T	Directional/ Exit Signage

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No.	Revision	Date

ENERGY SERVICES DIVISION

Director	A.V. Dumar
E.Engineer/S.E.Engineer	R. Khedan

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU–BASSIN BLOCK A

Title

GROUND FLOOR PLAN ELECTRICAL LAYOUT

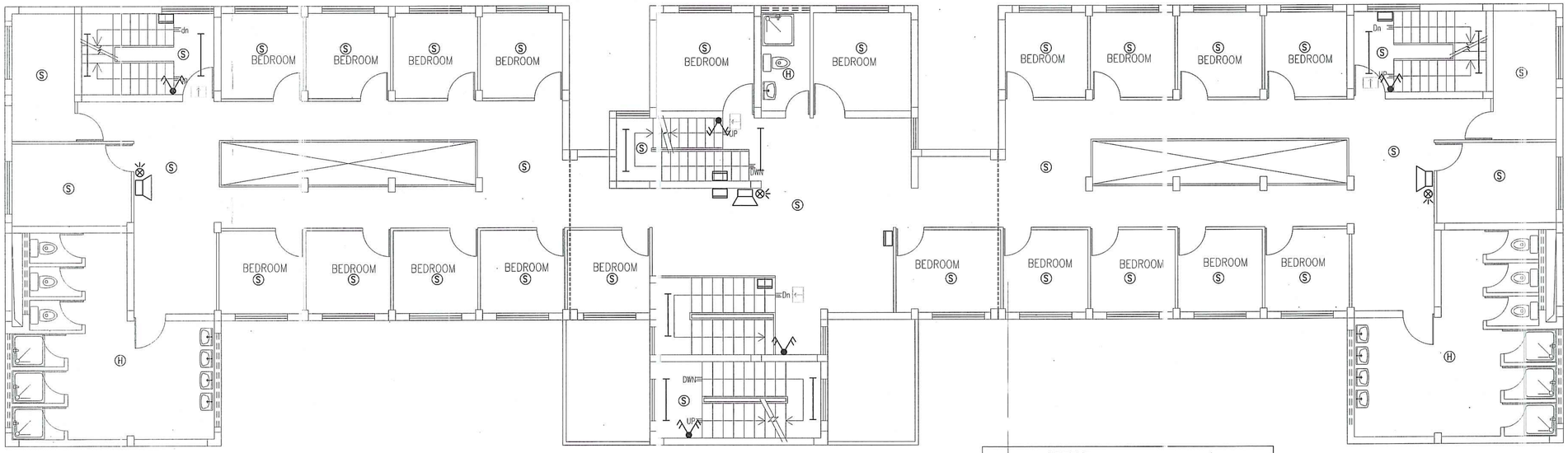
Deputy Director(Architecture)	Mrs S. Jaypal
Lead Architect	Mrs A. Callychurn
Architect	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Technical Design Officer	Mr H. Ramkorun

Scale 1:75 | Date : AUG 20 | Date Printed: 15.10.2021

MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

TENDER DOCUMENT

DRG. No. G741/EL/01 | Comp. No.



FIRST FLOOR PLAN

LEGEND	
Symbol	Description
	Metal Distribution Box
	Extractor Fan
18000	18000 BTU/h ceiling mounted AC
12000	12000 BTU/h wall mounted AC
	Double Switched Socket with Red LED Indicator
	Single Switched Socket with Red LED Indicator
	DP Switch
	Switch 1 Gang 1 Way
	Switch 2 Gang 1 Way
	Switch 3 Gang 1 Way
	Switch 4 Gang 1 Way
	Switch 5 Gang 1 Way
	Switch Dimmable
	Switch 1 Gang 2 Way
FAP	Fire Alarm Panel
S	Smoke Detector
H	Heat Detector
	Manual Call Point
	Sounder with Red LED Beacon Light
D	Type A – LED panel 1200x300 with dimmable driver
	Type B – LED panel 1200x300
E	Type C – LED panel 1200x300 with Emergency pack
200W	Type D – LED Floodlight
300W	Type E – LED Floodlight
	Type F – Weatherproof LED SMD 1200mm
D&E	Type G – LED panel 1200x300 with dimmable driver and Emergency pack
	PIR Sensor
T	Directional/ Exit Signage

NOTES

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No.	Revision	Date

ENERGY SERVICES DIVISION

Director	A.V. Dumar
E.Engineer/S.E.Engineer	R. Khedan

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU–BASSIN BLOCK A

Title

FIRST FLOOR PLAN
ELECTRICAL LAYOUT

Deputy Director(Architecture)	Mrs S. Jaypal
Lead Architect	Mrs A. Callychurn
Architect	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Technical Design Officer	Mr H. Ramkorun

Scale	Date : AUG 20	Date Printed: 15.10.2021
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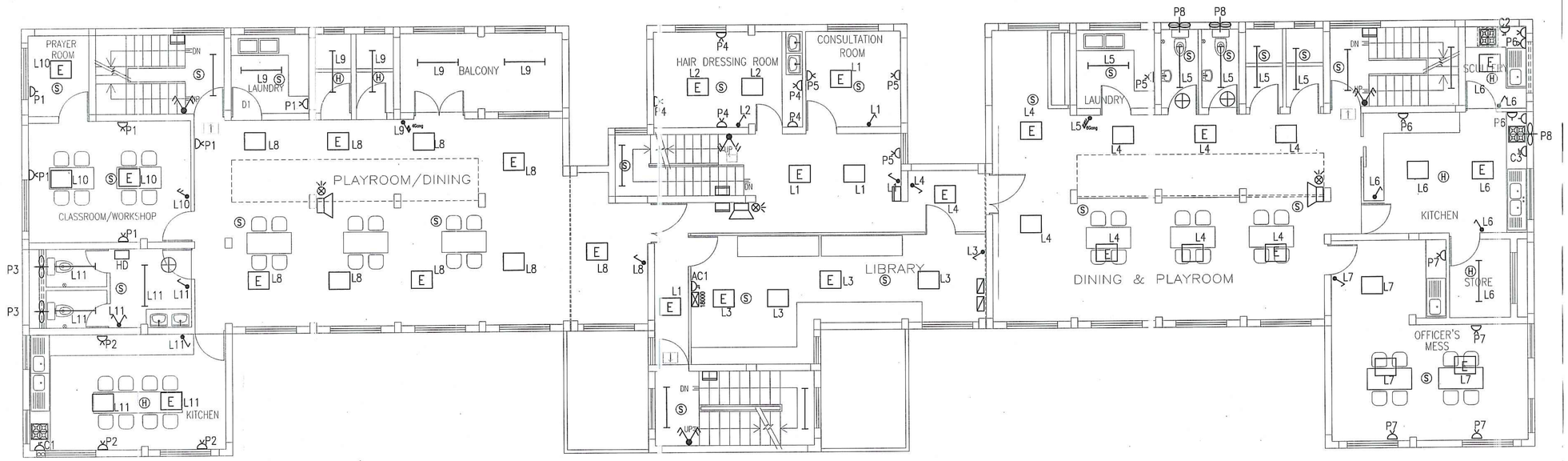
MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

TENDER DOCUMENT

DRG. No. G741/EL/02

Comp. No.



SECOND FLOOR PLAN

Note: The exact location of floodlights and outdoor AC units shall be indicated during implementation stage.

Essential SDB-E-2

SCHEMATIC LAYOUT	RCBO RATING		CIRCUIT No.	DESCRIPTION	CABLE SIZE	CABLE ROUTING	PHASE
BUSBAR 4P 80A; Existing Cable (Essential); Isolator 4P 63A	2P 10A	30mA	L1	Lighting Hall	3C x 1.5 mm²	Existing conduit routing / chasing	L1
	2P 10A	30mA	L2	Lighting Hall	3C x 1.5 mm²	Existing conduit routing / chasing	L2
	2P 10A	30mA	L3	Lighting Hall	3C x 1.5 mm²	Existing conduit routing / chasing	L3
	2P 10A	30mA	L4	Lighting Hall	3C x 1.5 mm²	Existing conduit routing / chasing	L1
	2P 10A	30mA	L5	Lighting Hall	3C x 1.5 mm²	Existing conduit routing / chasing	L2
	2P 10A	30mA	L6	Lighting Hall	3C x 1.5 mm²	Existing conduit routing / chasing	L3
	2P 10A	30mA	L7	Lighting Hall	3C x 1.5 mm²	Existing conduit routing / chasing	L1
	2P 10A	30mA	L8	Lighting Hall	3C x 1.5 mm²	Existing conduit routing / chasing	L2
	2P 10A	30mA	L9	Lighting Hall	3C x 1.5 mm²	Existing conduit routing / chasing	L3
	2P 10A	30mA	L10	Lighting Hall	3C x 1.5 mm²	Existing conduit routing / chasing	L1
	2P 10A	30mA	L11	Lighting Hall	3C x 1.5 mm²	Existing conduit routing / chasing	L2
	2P 10A	30mA	SP1	Spare	3C x 1.5 mm²		L3
	2P 10A	30mA	SP1	Spare	3C x 1.5 mm²		L1

Note: Wherever chasing works shall be carried out, multicore electrical cables shall be used

Non - Essential SDB-NE-2

SCHEMATIC LAYOUT	RCBO RATING		CIRCUIT No.	DESCRIPTION	CABLE SIZE	CABLE ROUTING	PHASE
BUSBAR 4P 100A; Existing Cable (Non-Essential); Isolator 4P 80A	2P 16A	30mA	P1	Power	3C x 2.5 mm²	Existing conduit routing / chasing	L1
	2P 16A	30mA	P2	Power	3C x 2.5 mm²	Existing conduit routing / chasing	L2
	2P 16A	30mA	P3	Power	3C x 2.5 mm²	Existing conduit routing / chasing	L3
	2P 16A	30mA	P4	Power	3C x 2.5 mm²	Existing conduit routing / chasing	L1
	2P 16A	30mA	P5	Power	3C x 2.5 mm²	Existing conduit routing / chasing	L2
	2P 16A	30mA	P6	Power	3C x 2.5 mm²	Existing conduit routing / chasing	L3
	2P 16A	30mA	P7	Power	3C x 2.5 mm²	Existing conduit routing / chasing	L1
	2P 16A	30mA	P8	Power	3C x 2.5 mm²	Existing conduit routing / chasing	L2
	2P 16A	30mA	P9	Hand Dryer	3C x 2.5 mm²	Existing conduit routing / chasing	L3
	2P 16A	30mA	SP1	Spare	3C x 2.5 mm²		L1
	2P 16A	30mA	SP2	Spare	3C x 2.5 mm²		L2
	2P 20A	30mA	C1	Oven	3C x 4.0 mm²	Existing conduit routing / chasing	L3
	2P 20A	30mA	C2	Oven	3C x 4.0 mm²	Existing conduit routing / chasing	L1
	2P 20A	30mA	C3	Oven	3C x 4.0 mm²	Existing conduit routing / chasing	L2
	2P 20A	30mA	AC1	Air Conditioner	3C x 4.0 mm²	Existing conduit routing / chasing	L3

Note: Wherever chasing works shall be carried out, multicore electrical cables shall be used

LEGEND	
Symbol	Description
	Metal Distribution Box
	Extractor Fan
18000	18000 BTU/h ceiling mounted AC
12000	12000 BTU/h wall mounted AC
	Double Switched Socket with Red LED Indicator
	Single Switched Socket with Red LED Indicator
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	Switch 3 Gang 1 Way
	Switch 4 Gang 1 Way
	Switch 5 Gang 1 Way
	Switch Dimmable
	Switch 1 Gang 2 Way
FAP	Fire Alarm Panel
S	Smoke Detector
H	Heat Detector
	Manual Call Point
	Sounder with Red LED Beacon Light
D	Type A – LED panel 1200x300 with dimmable driver
	Type B – LED panel 1200x300
E	Type C – LED panel 1200x300 with Emergency pack
200W	Type D – LED Floodlight
300W	Type E – LED Floodlight
	Type F – Weatherproof LED SMD 1200mm
D&E	Type G – LED panel 1200x300 with dimmable driver and Emergency pack
	PIR Sensor
	Directional/ Exit Signage

TENDER DOCUMENT

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Revision	Date

ENERGY SERVICES DIVISION

Director	A.V. Dumar
E.Engineer/S.E.Engineer	R. Khedan

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU-BASSIN BLOCK A

Title

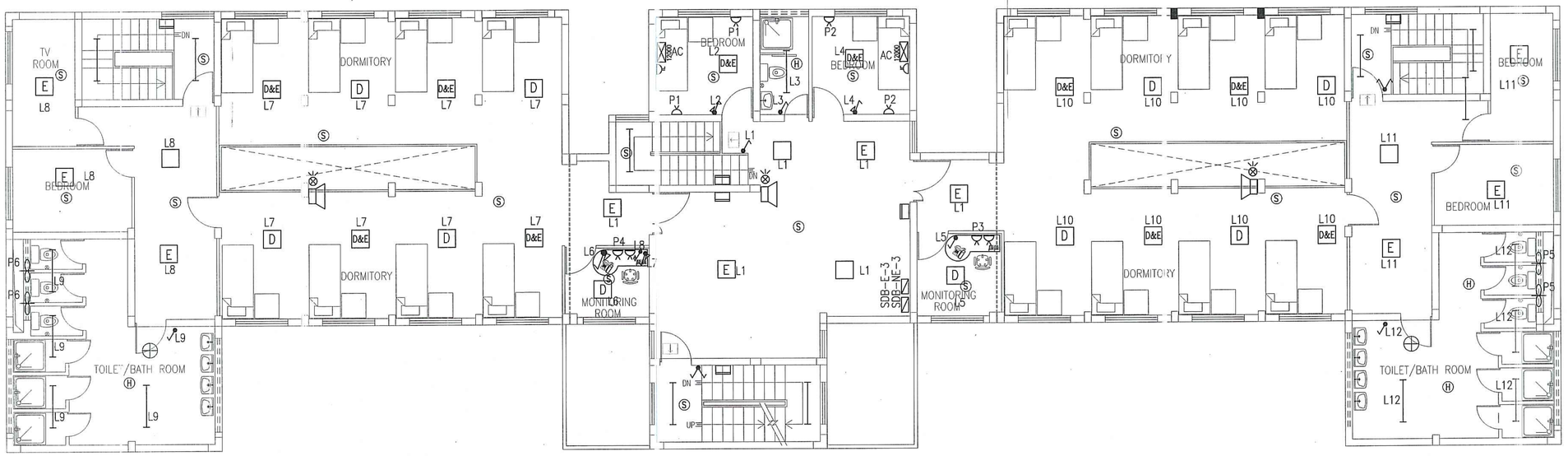
SECOND FLOOR PLAN ELECTRICAL LAYOUT

Deputy Director(Architecture)	Mrs S. Jaypal
Lead Architect	Mrs A. Callychurn
Architect	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Technical Design Officer	Mr H. Ramkorun

Scale 1:75 | Date : AUG 20 | Date Printed: 15.10.2021

MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

DRG. No. G741/EL/03 | Comp. No.



THIRD FLOOR PLAN

Essential SDB-E-3

SCHEMATIC LAYOUT	RCBO RATING		CIRCUIT No.	DESCRIPTION	CABLE SIZE	CABLE ROUTING	PHASE
BUSBAR 4P 80A; Existing Cable (Essential); Isolator 4P 63A	2P 10A	30mA	L1	Lighting Hall	3C x 1.5 mm²	Existing conduit routing / chasing	L1
	2P 10A	30mA	L2	Lighting Hall	3C x 1.5 mm²	Existing conduit routing / chasing	L2
	2P 10A	30mA	L3	Lighting Hall	3C x 1.5 mm²	Existing conduit routing / chasing	L3
	2P 10A	30mA	L4	Lighting Hall	3C x 1.5 mm²	Existing conduit routing / chasing	L1
	2P 10A	30mA	L5	Lighting Hall	3C x 1.5 mm²	Existing conduit routing / chasing	L2
	2P 10A	30mA	L6	Lighting Hall	3C x 1.5 mm²	Existing conduit routing / chasing	L3
	2P 10A	30mA	L7	Lighting Hall	3C x 1.5 mm²	Existing conduit routing / chasing	L1
	2P 10A	30mA	L8	Lighting Hall	3C x 1.5 mm²	Existing conduit routing / chasing	L2
	2P 10A	30mA	L9	Lighting Hall	3C x 1.5 mm²	Existing conduit routing / chasing	L3
	2P 10A	30mA	L10	Lighting Hall	3C x 1.5 mm²	Existing conduit routing / chasing	L1
	2P 10A	30mA	L11	Lighting Hall	3C x 1.5 mm²	Existing conduit routing / chasing	L2
	2P 10A	30mA	L12	Lighting	3C x 1.5 mm²	Existing conduit routing / chasing	L3
	2P 10A	30mA	SP1	Spare	3C x 1.5 mm²		L1
	2P 10A	30mA	SP1	Spare	3C x 1.5 mm²		L2

Note: Wherever chasing works shall be carried out, multicore electrical cables shall be used

Non - Essential SDB-NE-3

SCHEMATIC LAYOUT	RCBO RATING		CIRCUIT No.	DESCRIPTION	CABLE SIZE	CABLE ROUTING	PHASE
BUSBAR 4P 100A; Existing Cable (Non-Essential); Isolator 4P 80A	2P 16A	30mA	P1	Power	3C x 2.5 mm²	Existing conduit routing / chasing	L1
	2P 16A	30mA	P2	Power	3C x 2.5 mm²	Existing conduit routing / chasing	L2
	2P 16A	30mA	P3	Power	3C x 2.5 mm²	Existing conduit routing / chasing	L3
	2P 16A	30mA	P4	Power	3C x 2.5 mm²	Existing conduit routing / chasing	L1
	2P 16A	30mA	P5	Power	3C x 2.5 mm²	Existing conduit routing / chasing	L2
	2P 16A	30mA	P6	Power	3C x 2.5 mm²	Existing conduit routing / chasing	L3
	2P 20A	30mA	AC1	Air Conditioner	3C x 4.0 mm²	Existing conduit routing / chasing	L1
	2P 20A	30mA	AC2	Air Conditioner	3C x 4.0 mm²	Existing conduit routing / chasing	L2
	2P 16A	30mA	SP1	Spare	3C x 2.5 mm²		L3
	2P 16A	30mA	SP2	Spare	3C x 2.5 mm²		L1

Note: Wherever chasing works shall be carried out, multicore electrical cables shall be used

LEGEND	
Symbol	Description
	Metal Distribution Box
	Extractor Fan
18000	18000 BTU/h ceiling mounted AC
12000	12000 BTU/h wall mounted AC
	Double Switched Socket with Red LED Indicator
	Single Switched Socket with Red LED Indicator
	DP Switch
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	Switch 2 Gang 1 Way
	Switch 3 Gang 1 Way
	Switch 4 Gang 1 Way
	Switch 5 Gang 1 Way
	Switch Dimmable
	Switch 1 Gang 2 Way
FAP	Fire Alarm Panel
S	Smoke Detector
H	Heat Detector
	Manual Call Point
	Sounder with Red LED Beacon Light
D	Type A – LED panel 1200x300 with dimmable driver
	Type B – LED panel 1200x300
E	Type C – LED panel 1200x300 with Emergency pack
200W	Type D – LED Floodlight
300W	Type E – LED Floodlight
	Type F – Weatherproof LED SMD 1200mm
D&E	Type G – LED panel 1200x300 with dimmable driver and Emergency pack
	PIR Sensor
	Directional/ Exit Signage

TENDER DOCUMENT

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Revision	Date

ENERGY SERVICES DIVISION

Director	A.V. Dumar
E.Engineer/S.E.Engineer	R. Khedan

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU-BASSIN BLOCK A

Title

THIRD FLOOR PLAN ELECTRICAL LAYOUT

Deputy Director(Architecture)	Mrs S. Jaypal
Lead Architect	Mrs A. Callychurn
Architect	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Technical Design Officer	Mr H. Ramkorun

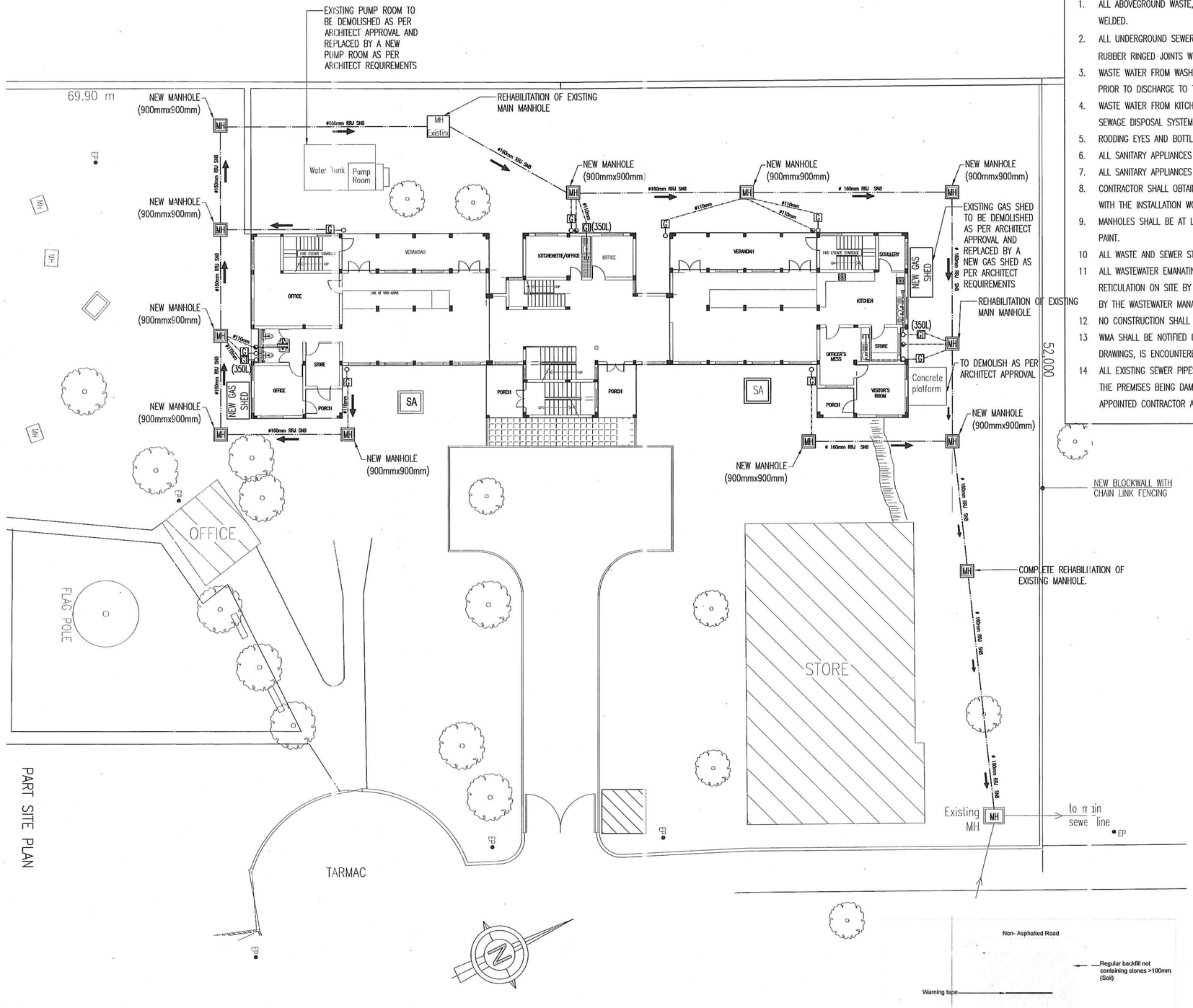
Scale: 1:75	Date : AUG 20	Date Printed: 15.10.2021

MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

DRG. No. G741/EL/04

Comp. No.

PART SITE PLAN

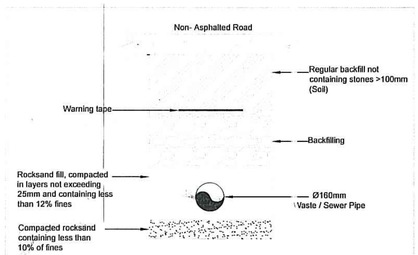


NOTES:

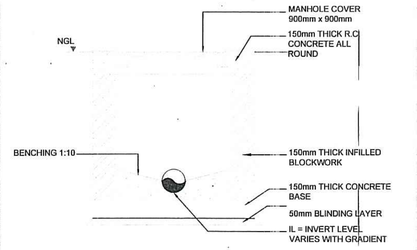
1. ALL ABOVEGROUND WASTE, SEWAGE AND VENT PIPEWORK SHALL BE UPVC PN10 AND SHALL BE SOLVENT WELDED.
2. ALL UNDERGROUND SEWER PIPES TO BE ø110mm OR ø160mm (EXCEPT OTHERWISE INDICATED) AND HAVE RUBBER RINGED JOINTS WITH A SLOPE OF AT LEAST 1:90.
3. WASTE WATER FROM WASH HAND BASIN, SHOWER AND FLOOR DRAINS SHALL BE CHANNELED TO GULLY TRAPS PRIOR TO DISCHARGE TO THE SEWAGE DISPOSAL SYSTEM.
4. WASTE WATER FROM KITCHEN SINKS SHALL BE CHANNELED TO GREASE TRAPS PRIOR TO DISCHARGE TO THE SEWAGE DISPOSAL SYSTEM.
5. RODDING EYES AND BOTTLE TRAPS SHALL BE PROVIDED AT ALL LOCATIONS WHEREVER REQUIRED.
6. ALL SANITARY APPLIANCES SHALL BE CONNECTED TO THE WASTE PIPEWORK VIA PVC BOTTLE TRAP.
7. ALL SANITARY APPLIANCES SHALL BE PROPERLY VENTED.
8. CONTRACTOR SHALL OBTAIN CLEARANCE FROM THE WASTEWATER MANAGEMENT AUTHORITY PRIOR TO PROCEEDING WITH THE INSTALLATION WORKS ON SITE.
9. MANHOLES SHALL BE AT LEAST 900mm x 900mm WITH APPROPRIATE BENCHING AND COATED WITH EPOXY PAINT.
10. ALL WASTE AND SEWER STACKS SHALL EXTEND TO ROOF LEVEL AND BE FITTED WITH A COWL VENT.
11. ALL WASTEWATER EMANATING FROM THE BUILDING SHALL BE DISPOSED OF INTO THE EXISTING SEWER RETICULATION ON SITE BY GRAVITY IN COMPLIANCE WITH THE TENDER DOCUMENTS AND RECOMMENDATIONS MADE BY THE WASTEWATER MANAGEMENT AUTHORITY.
12. NO CONSTRUCTION SHALL BE CARRIED OUT ON ANY EXISTING SEWER LINES.
13. WMA SHALL BE NOTIFIED IMMEDIATELY IN CASE ANY SEWER PIPE, APART FROM THOSE INDICATED IN THE TENDER DRAWINGS, IS ENCOUNTERED DURING CONSTRUCTION WORKS.
14. ALL EXISTING SEWER PIPES, BURIED WASTEWATER COMPONENTS OR NEIGBOURS SEWER CONNECTIONS CROSSING THE PREMISES BEING DAMAGED DURING CONSTRUCTION WORKS SHALL BE REPAIRED OR DIVERTED BY THE APPOINTED CONTRACTOR AT HIS OWN COST UNDER THIS CONTRACT.

LEGEND:

- ø160mm RRJ SN8 PVC PIPE BURRIED UNDERGROUND IN TRENCH AT A SLOPE OF 1:90
- UPVC PN10 SEWER PIPE
- UPVC PN10 WASTE PIPE
- RODDING EYE
- MH — NEW MANHOLE (900mmx900mm)
- ABC — DRY POWDER FIRE-EXTINGUISHER (4 KG)
- CO_2 — CARBON DIOXIDE FIRE-EXTINGUISHER (5 KG)
- G — P-TYPE GULLY TRAP
- GT — GREASE TRAP (350 LTS)
- UPVC PN10 WASTE STACK
- UPVC PN10 SEWER STACK
- DIRECTION OF FLOW



TYPICAL SECTION THROUGH TRENCH IN NON-VEHICULAR AREAS



TYPICAL SECTION SHOWING DETAIL OF PIPE DROP IN MANHOLE
SCALE 1: 20

TENDER DOCUMENT

NOTES

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4. Contractor is to verify all site dimensions.
5. Do not scale – Use figured dimensions.

No.	Revision	Date

MECHANICAL SERVICES DIVISION

Lead Mechanical Engineer	Mr G. Ramkelawon
ME/Senior Mechanical Engineer	Ms T. Marie Jeanne
Trainee Mechanical Engineer	A. Cazelin
Trainee Mechanical Engineer	A. Muddhoo 05/05/2021

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU-BASSIN BLOCK A

Title

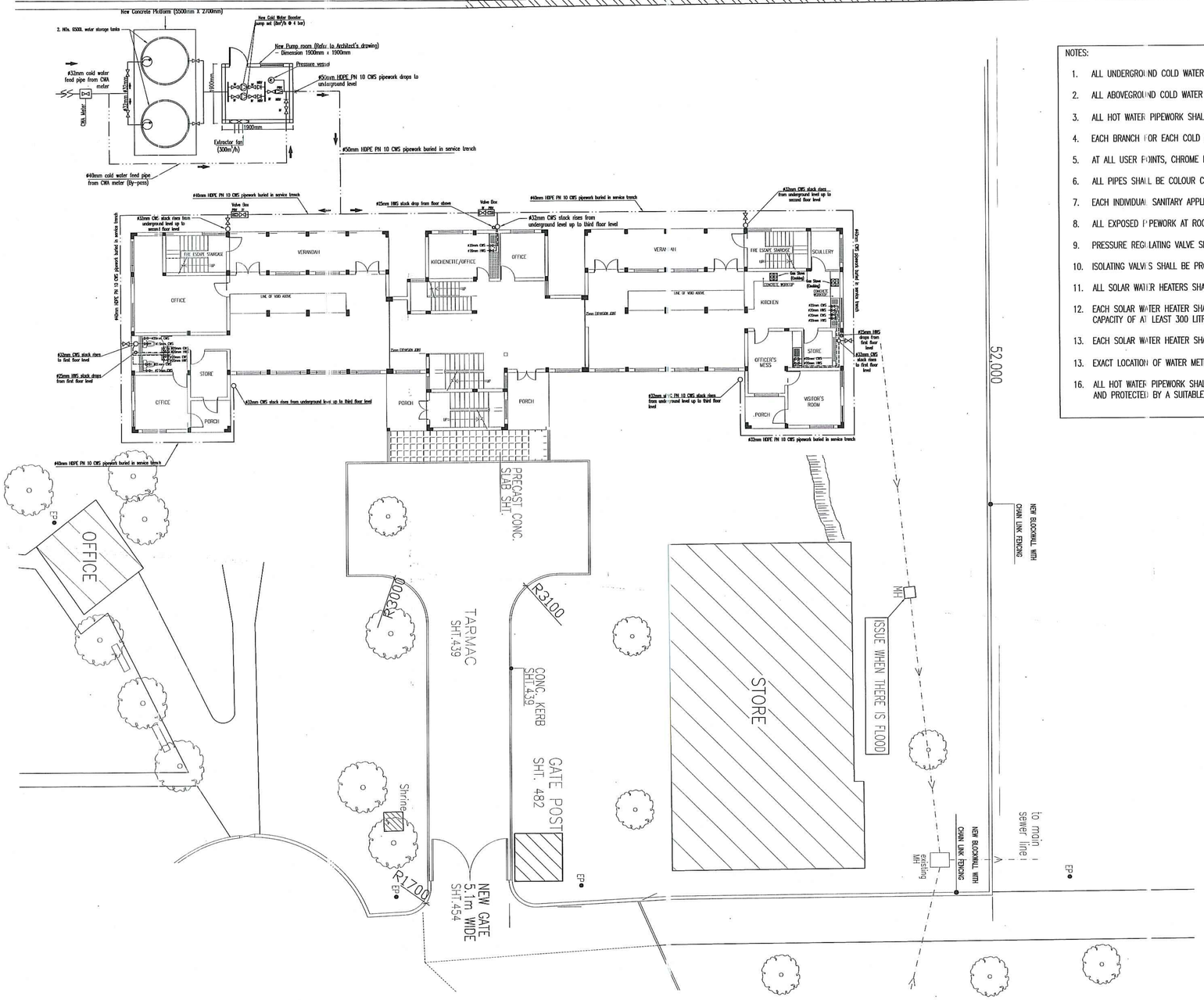
WASTE & SEWAGE SYSTEMS AND FIRE FIGHTING SYSTEM PART SITE PLAN

Deputy Director (Architecture)	Mrs S. Jaypal
Lead Architect	Mrs A. Callychurn
Architect	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Trainee Technical Design Officer	Mr H. Ramkorun

Scale : 1:150 | Date : Aug.2020 | Date Printed: 05/07/21

MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

DRG. No. G741/SW/M01 | Revision | Comp. No.



PART SITE PLAN

NOTES:

1. ALL UNDERGROUND COLD WATER PIPEWORK SHALL BE IN HDPE–PN 10.
2. ALL ABOVEGROUND COLD WATER PIPEWORK SHALL BE UPVC–PN 10.
3. ALL HOT WATER PIPEWORK SHALL BE HTA PN16 (CPVC) EXCEPT AS OTHERWISE INDICATED.
4. EACH BRANCH FOR EACH COLD WATER AND HOT WATER STACK SHALL BE FITTED WITH AN EASILY ACCESSIBLE ISOLATING VALVE.
5. AT ALL USER POINTS, CHROME PLATED RINGED FLEXIBLE PIPES SHALL BE USED.
6. ALL PIPES SHALL BE COLOUR CODED AS PER BS 1710.
7. EACH INDIVIDUAL SANITARY APPLIANCE SHALL BE FITTED WITH AN ISOLATING VALVE.
8. ALL EXPOSED PIPEWORK AT ROOF LEVEL SHALL BE PAINTED WITH UV RESISTANT PAINT.
9. PRESSURE REGULATING VALVE SHALL BE PROVIDED WHEREVER REQUIRED AS INDICATED IN THE DRAWINGS.
10. ISOLATING VALVES SHALL BE PROVIDED AT INLET AND OUTLET OF EACH HOT WATER STORAGE CYLINDER.
11. ALL SOLAR WATER HEATERS SHALL BE POSITIONED SO THAT THEY FACE NORTH IN ORDER TO ALLOW OPTIMUM USE OF SOLAR ENERGY.
12. EACH SOLAR WATER HEATER SHALL BE EQUIPPED WITH AT LEAST TWO FLAT PLATE COLLECTORS AND STORAGE TANKS HAVING A STORAGE CAPACITY OF AT LEAST 300 LITRES.
13. EACH SOLAR WATER HEATER SHALL BE EQUIPPED WITH AN INTEGRATED ELECTRIC BOOSTER OF AT LEAST 3.5KW.
13. EXACT LOCATION OF WATER METER SHALL BE AS PER CWA/ARCHITECT REQUIREMENTS.
16. ALL HOT WATER PIPEWORK SHALL BE PROPERLY INSULATED AT FULL LENGTH WITH SUITABLE INSULATION MATERIAL OF 25mm THICKNESS AND PROTECTED BY A SUITABLE SLEEVE FROM PHYSICAL DAMAGE.

LEGEND

- CWS PIPEWORK (CWA BY–PASS)
- UNDERGROUND HDPE PN10 (PRESSURISED)
- COLD WATER PIPEWORK UPVC PN10 (PRESSURISED)
- HOT WATER SUPPLY PIPEWORK HTA PN 16 (C–PVC)
- COLD WATER SUPPLY STACK (PRESSURISED)
- HOT WATER SUPPLY STACK (PRESSURISED)
- THERMOSTATIC MIXING VALVE (TMV)
- ISOLATING VALVE/GATE VALVE/BALL VALVE
- NON RETURN VALVE (NRV)
- PRESSURE REGULATING VALVE (PRV)
- EXPANSION CONTROL VALVE (EV)
- EXTRACTOR FAN ($300m^3/h$)
- DIRECTION OF FLOW
- SOLAR WATER HEATER (SWH 300 LTS)
- WM — Washing Machine (9kg)
- Water Hammer arrestor
- Valve Box comprising of an isolating valve and a PRV
- Pump
- CWA Meter (With inspection chamber)
- PV — Pressure Vessel
- Booster Pump set assembly

NOTES

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No.	Revision	Date

MECHANICAL SERVICES DIVISION

Lead Mechanical Engineer	Mr G. Ramkelawon
ME/Senior Mechanical Engineer	Ms T. Marie Jeanne
Trainee Mechanical Engineer	A. Cazelin 05/07/2021
Trainee Mechanical Engineer	A. Muddhoo

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU–BASSIN BLOCK A

Title

PART SITE PLAN

COLD & HOT WATER SYSTEMS

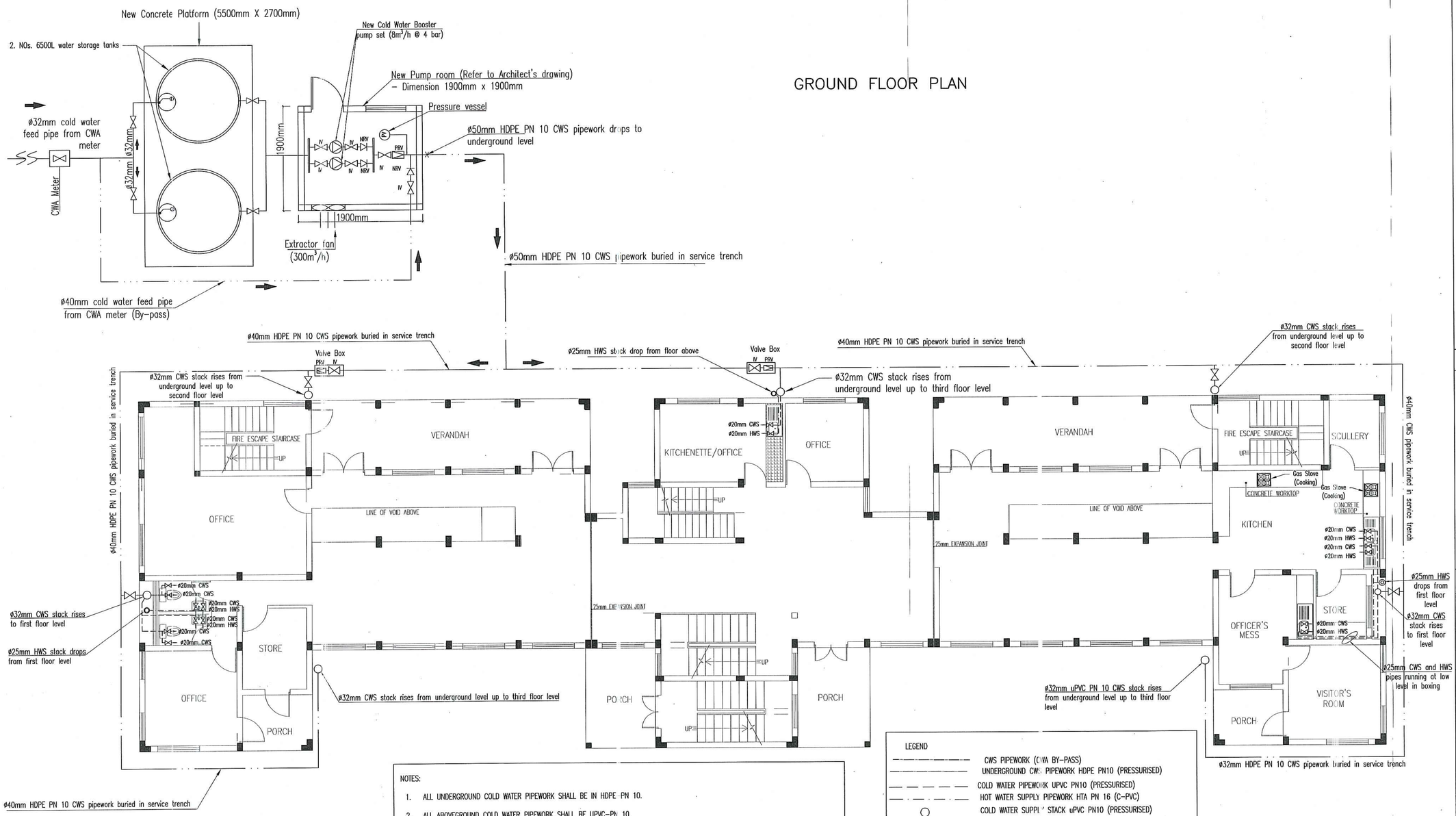
Deputy Director (Architecture)	Mrs S. Jaypal
Lead Architect	Mrs A. Callychurn
Architect	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Trainee Technical Design Officer	Mr H. Ramkorun

Scale : 1:150	Date : Aug 20	Date Printed : 05/07/21

MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

DRG. No.	Revision	Comp. No.
G741/SW/M02		

GROUND FLOOR PLAN



NOTES:

1. ALL UNDERGROUND COLD WATER PIPEWORK SHALL BE IN HDPE-PN 10.
2. ALL ABOVEGROUND COLD WATER PIPEWORK SHALL BE UPVC-PN 10.
3. ALL HOT WATER PIPEWORK SHALL BE HTA PN16 (C-PVC) EXCEPT AS OTHERWISE INDICATED.
4. EACH BRANCH FOR EACH COLD WATER AND HOT WATER STACK SHALL BE FITTED WITH AN EASILY ACCESSIBLE ISOLATING VALVE.
5. AT ALL USER POINTS, CHROME PLATED RINGED FLEXIBLE PIPES SHALL BE USED.
6. ALL PIPES SHALL BE COLOUR CODED AS PER BS 1710.
7. EACH INDIVIDUAL SANITARY APPLIANCE SHALL BE FITTED WITH AN ISOLATING VALVE.
8. ALL EXPOSED PIPEWORK AT ROOF LEVEL SHALL BE PAINTED WITH UV RESISTANT PAINT.
9. PRESSURE REGULATING VALVE SHALL BE PROVIDED WHEREVER REQUIRED AS INDICATED IN THE DRAWINGS.
10. ISOLATING VALVES SHALL BE PROVIDED AT INLET AND OUTLET OF EACH HOT WATER STORAGE CYLINDER.
11. ALL SOLAR WATER HEATERS SHALL BE POSITIONED SO THAT THEY FACE NORTH IN ORDER TO ALLOW OPTIMUM USE OF SOLAR ENERGY.
12. EACH SOLAR WATER HEATER SHALL BE EQUIPPED WITH AT LEAST TWO FLAT PLATE COLLECTORS AND STORAGE TANKS HAVING A STORAGE CAPACITY OF AT LEAST 300 LITRES.
13. EACH SOLAR WATER HEATER SHALL BE EQUIPPED WITH AN INTEGRATED ELECTRIC BOOSTER OF AT LEAST 3.5KW.
13. EXACT LOCATION OF WATER METER SHALL BE AS PER CWA/ARCHITECT REQUIREMENTS.
17. EACH DRAW-OFF POINT SHALL BE FITTED WITH AN INDIVIDUAL ISOLATING VALVE/STOP COCK.
16. ALL HOT WATER PIPEWORK SHALL BE PROPERLY INSULATED AT FULL LENGTH WITH SUITABLE INSULATION MATERIAL OF 25mm THICKNESS AND PROTECTED BY A SUITABLE SLEEVE FROM PHYSICAL DAMAGE.

LEGEND

- CWS PIPEWORK (CWA BY-PASS)
- UNDERGROUND CWS PIPEWORK HDPE PN10 (PRESSURISED)
- COLD WATER PIPEWORK UPVC PN10 (PRESSURISED)
- HOT WATER SUPPLY PIPEWORK HTA PN 16 (C-PVC)
- COLD WATER SUPPLY STACK uPVC PN10 (PRESSURISED)
- HOT WATER SUPPLY STACK HTA PN16 C-PVC (PRESSURISED)
- THERMOSTATIC MIXING VALVE (TMV)
- ISOLATING VALVE/GATE VALVE/BALL VALVE
- NON RETURN VALVE (NRV)
- PRESSURE REGULATING VALVE (PRV)
- EXPANSION CONTROL VALVE (EV)
- EXTRACTOR FAN (300m³/h)
- DIRECTION OF FLOW
- SOLAR WATER HEATER (SWH 300 LTS)
- WM — Washing Machine (5kg)
- Water Hammer Arrestor
- Valve Box comprising of an isolating valve and a PRV
- Pump
- CWA Meter (With inspection chamber)
- PV — Pressure Vessel
- Booster Pump set assembly

NOTES

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5. Do not scale – Use figured dimensions.

No.	Revision	Date

MECHANICAL SERVICES DIVISION

Lead Mechanical Engineer	Mr G. Ramkelawon
ME/Senior Mechanical Engineer	Ms T. Marie Jeanne
Trainee Mechanical Engineer	A. Cazelin 05/05/2021
Trainee Mechanical Engineer	A. Muddhoo

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU-BASSIN BLOCK A

Title

GROUND FLOOR PLAN

COLD & HOT WATER SYSTEMS

Deputy Director(Architecture)	Mrs S. Jaypal
Lead Architect	Mrs A. Callychurn
Architect	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Trainee Technical Design Officer	Mr H. Ramkorun

Scale 1:75	Date : AUG 20	Date Printed: 05/07/21

MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

TENDER DOCUMENT

DRG. No. G741/M01	Revision	Comp. No.
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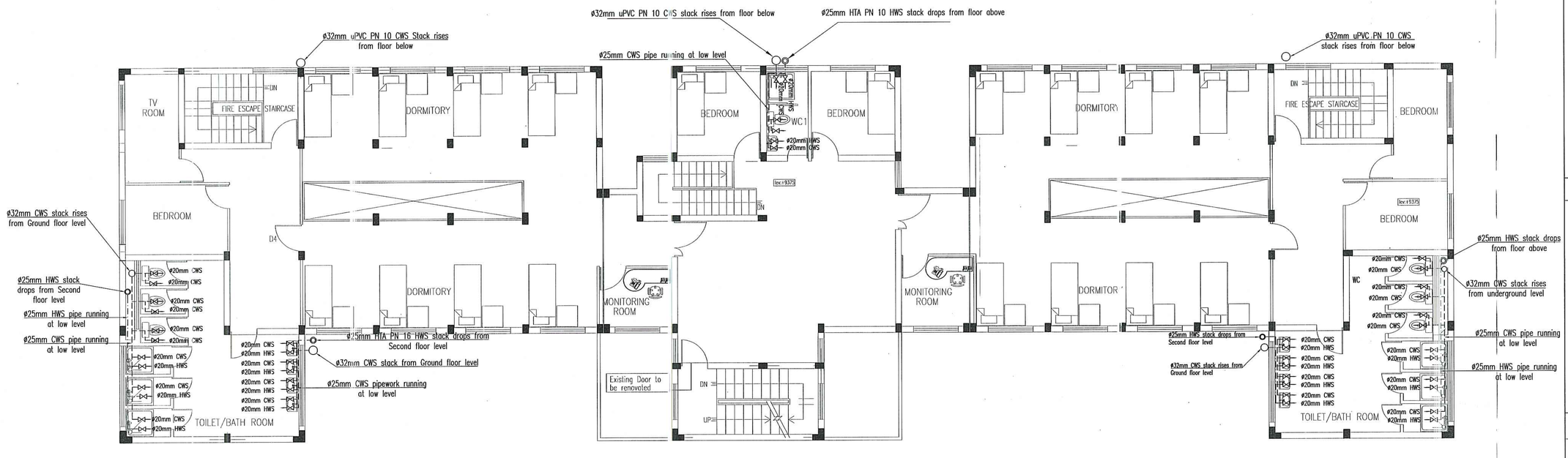
PROPOSED FIRST FLOOR PLAN



NOTES:

1. ALL UNDERGROUND COLD WATER PIPEWORK SHALL BE IN HDPE–PN 10.
2. ALL ABOVEGROUND COLD WATER PIPEWORK SHALL BE UPVC–PN 10.
3. ALL HOT WATER PIPEWORK SHALL BE HTA PN16 (C–PVC) EXCEPT AS OTHERWISE INDICATED.
4. EACH BRANCH FOR EACH COLD WATER AND HOT WATER STACK SHALL BE FITTED WITH AN EASILY ACCESSIBLE ISOLATING VALVE.
5. AT ALL USER POINTS, CHROME PLATED RINGED FLEXIBLE PIPES SHALL BE USED.
6. ALL PIPES SHALL BE COLOUR CODED AS PER BS 1710.
7. EACH INDIVIDUAL SANITARY APPLIANCE SHALL BE FITTED WITH AN ISOLATING VALVE.
8. ALL EXPOSED PIPEWORK AT ROOF LEVEL SHALL BE PAINTED WITH UV RESISTANT PAINT.
9. PRESSURE REGULATING VALVE SHALL BE PROVIDED WHEREVER REQUIRED AS INDICATED IN THE DRAWINGS.
10. ISOLATING VALVES SHALL BE PROVIDED AT INLET AND OUTLET OF EACH HOT WATER STORAGE CYLINDER.
11. ALL SOLAR WATER HEATERS SHALL BE POSITIONED SO THAT THEY FACE NORTH IN ORDER TO ALLOW OPTIMUM USE OF SOLAR ENERGY.
12. EACH SOLAR WATER HEATER SHALL BE EQUIPPED WITH AT LEAST TWO FLAT PLATE COLLECTORS AND STORAGE TANKS HAVING A STORAGE CAPACITY OF AT LEAST 300 LITRES.
13. EACH SOLAR WATER HEATER SHALL BE EQUIPPED WITH AN INTEGRATED ELECTRIC BOOSTER OF AT LEAST 3.5KW.
17. EACH DRAW–OFF POINT SHALL BE FITTED WITH AN INDIVIDUAL ISOLATING VALVE/STOP COCK.
16. ALL HOT WATER PIPEWORK SHALL BE PROPERLY INSULATED AT FULL LENGTH WITH SUITABLE INSULATION MATERIAL OF 25mm THICKNESS AND PROTECTED BY A SUITABLE SLEEVE FROM PHYSICAL DAMAGE.

LEGEND

- CWS PIPEWORK (CWA BY–PASS)
- UNDERGROUND COLD WATER SUPPLY PIPEWORK HDPE PN10 (PRESSURISED)
- COLD WATER SUPPLY PIPEWORK UPVC PN10 (PRESSURISED)
- HOT WATER SUPPLY PIPEWORK HTA PN 16
- COLD WATER SUPPLY STACK uPVC PN 10 (PRESSURISED)
- HOT WATER SUPPLY STACK HTA PN 16 (PRESSURISED)
- THERMOSTATIC MIXING VALVE (TMV)
- ISOLATING VALVE/GATE VALVE/BALL VALVE
- NON RETURN VALVE (NRV)
- PRESSURE REGULATING VALVE (PRV)
- EXPANSION CONTROL VALVE (EV)
- EXTRACTOR FAN (300m³/h)
- DIRECTION OF FLOW
- SOLAR WATER HEATER (SWH 300 LTS)
- WM — Washing Machine (9kg)
- Water Hammer Arrestor
- Valve Box comprising of an isolating valve and a PRV

NOTES

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Revision	Date

MECHANICAL SERVICES DIVISION

Lead Mechanical Engineer	Mr G. Ramkelawon
ME/Senior Mechanical Engineer	Ms T. Marie Jeanne
Trainee Mechanical Engineer	A. Cazelin 09/08/2021
Trainee Mechanical Engineer	A. Muddhoo

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU–BASSIN BLOCK A

Title

FIRST FLOOR PLAN

COLD & HOT WATER SYSTEMS

Deputy Director(Architecture)	Mrs S. Jaypal
Lead Architect	Mrs A. Callychurn
Architect	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Trainee Technical Design Officer	Mr H. Ramkorun

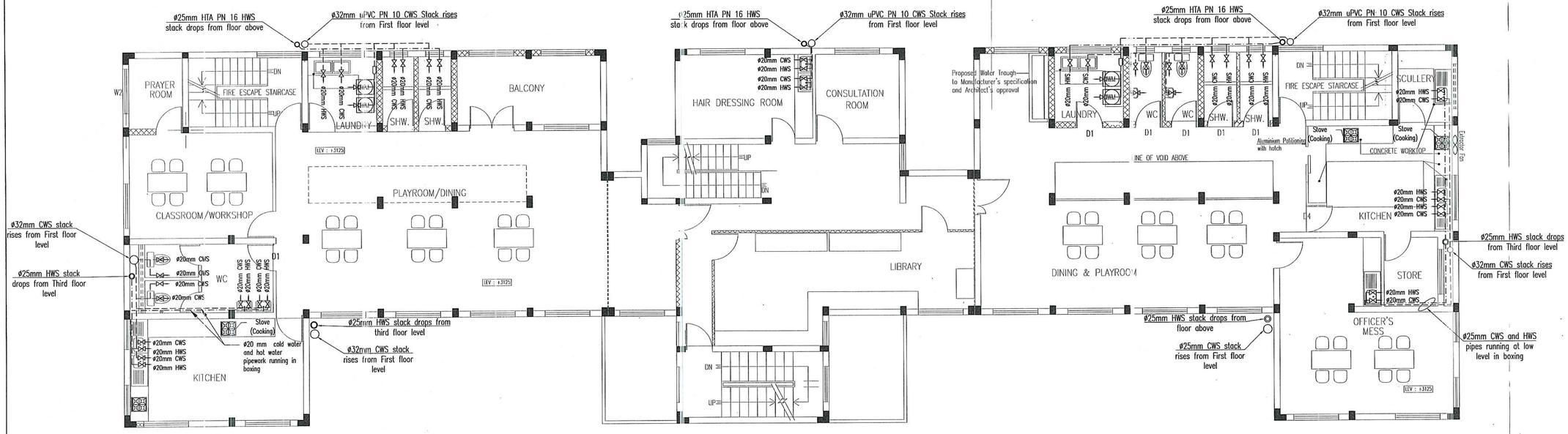
Scale: 1:75	Date : AUG 20	Date Printed: 05/07/21

MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

TENDER DOCUMENT

DRG. No. G741/M02	Revision	Comp. No.

PROPOSED SECOND FLOOR PLAN



NOTES:

1. ALL UNDERGROUND COLD WATER PIPEWORK SHALL BE IN HDPE–PN 10.
2. ALL ABOVEGROUND COLD WATER PIPEWORK SHALL BE UPVC–PN 10.
3. ALL HOT WATER PIPEWORK SHALL BE HTA PN16 (C–PVC) EXCEPT AS OTHERWISE INDICATED.
4. EACH BRANCH FOR EACH COLD WATER AND HOT WATER STACK SHALL BE FITTED WITH AN EASILY ACCESSIBLE ISOLATING VALVE.
5. AT ALL USER POINTS, CHROME PLATED RINGED FLEXIBLE PIPES SHALL BE USED.
6. ALL PIPES SHALL BE COLOUR CODED AS PER BS 1710.
7. EACH INDIVIDUAL SANITARY APPLIANCE SHALL BE FITTED WITH AN ISOLATING VALVE.
8. ALL EXPOSED PIPEWORK AT ROOF LEVEL SHALL BE PAINTED WITH UV RESISTANT PAINT.
9. PRESSURE REGULATING VALVE SHALL BE PROVIDED WHEREVER REQUIRED AS INDICATED IN THE DRAWINGS.
10. ISOLATING VALVES SHALL BE PROVIDED AT INLET AND OUTLET OF EACH HOT WATER STORAGE CYLINDER.
11. ALL SOLAR WATER HEATERS SHALL BE POSITIONED SO THAT THEY FACE NORTH IN ORDER TO ALLOW OPTIMUM USE OF SOLAR ENERGY.
12. EACH SOLAR WATER HEATER SHALL BE EQUIPPED WITH AT LEAST TWO FLAT PLATE COLLECTORS AND STORAGE TANKS HAVING A STORAGE CAPACITY OF AT LEAST 300 LITRES.
13. EACH SOLAR WATER HEATER SHALL BE EQUIPPED WITH AN INTEGRATED ELECTRIC BOOSTER OF AT LEAST 3.5KW.
14. WATER HAMMER ARRESTORS SHALL BE INCORPORATED WHEREVER REQUIRED TO PREVENT CYCLIC WATER HAMMER ACTING ON WASHING MACHINES THUS PROTECT SAME FROM DAMAGES.
17. EACH DRAW–OFF POINT SHALL BE FITTED WITH AN INDIVIDUAL ISOLATING VALVE/STOP COCK.
18.
16. ALL HOT WATER PIPEWORK SHALL BE PROPERLY INSULATED AT FULL LENGTH WITH SUITABLE INSULATION MATERIAL OF 25mm THICKNESS AND PROTECTED BY A SUITABLE SLEEVE FROM PHYSICAL DAMAGE.

LEGEND

- CWS PIPEWORK (CWA BY–PASS)
- UNDERGROUND COLD WATER SUPPLY PIPEWORK HDPE PN10 (PRESSURISED)
- COLD WATER SUPPLY PIPEWORK UPVC PN10 (PRESSURISED)
- HOT WATER SUPPLY PIPEWORK HTA PN 16
- COLD WATER SUPPLY STACK uPVC PN 10 (PRESSURISED)
- HOT WATER SUPPLY STACK HTA PN 16 (PRESSURISED)
- THERMOSTATIC MIXING VALVE (TMV)
- ISOLATING VALVE/GATE VALVE/BALL VALVE
- NON RETURN VALVE (NRV)
- PRESSURE REGULATING VALVE (PRV)
- EXPANSION CONTROL VALVE (EV)
- EXTRACTOR FAN (300m³/h)
- DIRECTION OF FLOW
- SOLAR WATER HEATER (SWH 300 LTS)
- Washing Machine (9kg)
- Water Hammer Arrestor
- Valve Box comprising of an isolating valve and a PRV

NOTES

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Revision	Date

MECHANICAL SERVICES DIVISION

Lead Mechanical Engineer	Mr G. Ramkelawon
ME/Senior Mechanical Engineer	Ms T. Marie Jeanne
Trainee Mechanical Engineer	A. Cazelin 09/08/2021
Trainee Mechanical Engineer	A. Muddhoo

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU–BASSIN BLOCK A

Title

SECOND FLOOR PLAN

COLD & HOT WATER SYSTEMS

Deputy Director(Architecture)	Mrs S. Joypal
Lead Architect	Mrs A. Callychurn
Architect	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Trainee Technical Design Officer	Mr H. Ramkorun

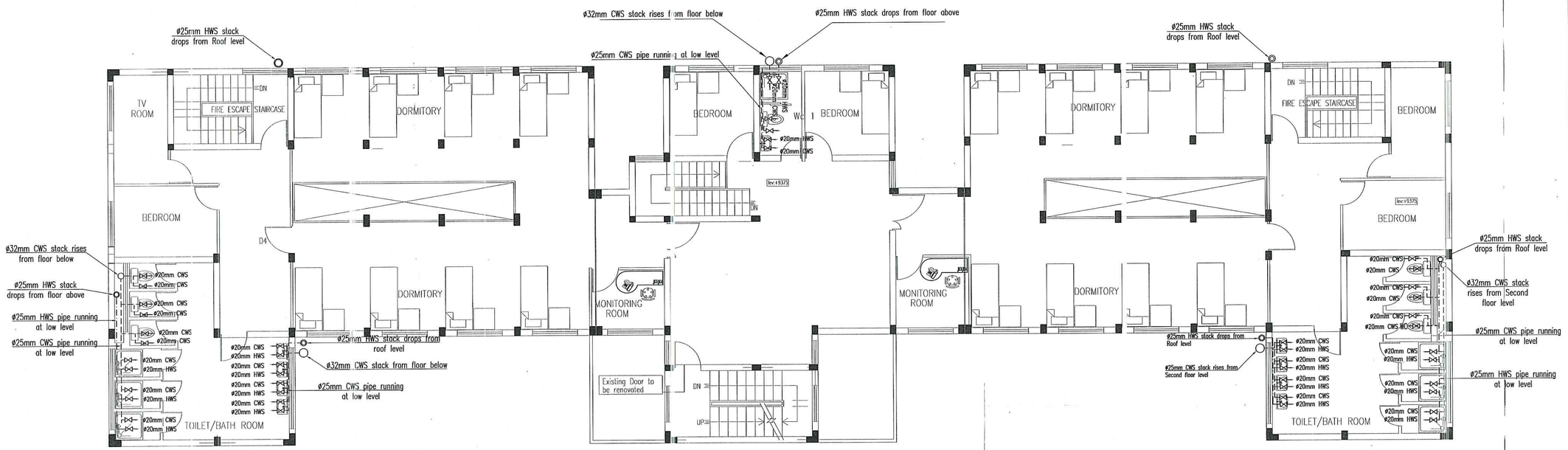
Scale	Date : AUG 20	Date Printed: 05/07/21
1:75		

MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

TENDER DOCUMENT

DRG. No. G741/M03 | Revision | Comp. No.

PROPOSED THIRD FLOOR PLAN



NOTES:

1. ALL UNDERGROUND COLD WATER PIPEWORK SHALL BE IN HDPE–PN 10.
2. ALL ABOVEGROUND COLD WATER PIPEWORK SHALL BE UPVC–PN 10.
3. ALL HOT WATER PIPEWORK SHALL BE HTA PN16 (C–PVC) EXCEPT AS OTHERWISE INDICATED.
4. EACH BRANCH FOR EACH COLD WATER AND HOT WATER STACK SHALL BE FITTED WITH AN EASILY ACCESSIBLE ISOLATING VALVE.
5. AT ALL USER POINTS, CHROME PLATED RINGED FLEXIBLE PIPES SHALL BE USED.
6. ALL PIPES SHALL BE COLOUR CODED AS PER BS 1710.
7. EACH INDIVIDUAL SANITARY APPLIANCE SHALL BE FITTED WITH AN ISOLATING VALVE.
8. ALL EXPOSED PIPEWORK AT ROOF LEVEL SHALL BE PAINTED WITH UV RESISTANT PAINT.
9. PRESSURE REGULATING VALVE SHALL BE PROVIDED WHEREVER REQUIRED AS INDICATED IN THE DRAWINGS.
10. ISOLATING VALVES SHALL BE PROVIDED AT INLET AND OUTLET OF EACH HOT WATER STORAGE CYLINDER.
11. ALL SOLAR WATER HEATERS SHALL BE POSITIONED SO THAT THEY FACE NORTH IN ORDER TO ALLOW OPTIMUM USE OF SOLAR ENERGY.
12. EACH SOLAR WATER HEATER SHALL BE EQUIPPED WITH AT LEAST TWO FLAT PLATE COLLECTORS AND STORAGE TANKS HAVING A STORAGE CAPACITY OF AT LEAST 300 LITRES.
13. EACH SOLAR WATER HEATER SHALL BE EQUIPPED WITH AN INTEGRATED ELECTRIC BOOSTER OF AT LEAST 3.5KW.
17. EACH DRAW–OFF POINT SHALL BE FITTED WITH AN INDIVIDUAL ISOLATING VALVE/STOP COCK.
16. ALL HOT WATER PIPEWORK SHALL BE PROPERLY INSULATED AT FULL LENGTH WITH SUITABLE INSULATION MATERIAL OF 25mm THICKNESS AND PROTECTED BY A SUITABLE SLEEVE FROM PHYSICAL DAMAGE.

LEGEND

- CWS PIPEWORK (CWA BY–PASS)
- UNDERGROUND COLD WATER SUPPLY PIPEWORK HDPE PN10 (PRESSURISED)
- COLD WATER SUPPLY PIPEWORK UPVC PN10 (PRESSURISED)
- HOT WATER SUPPLY PIPEWORK HTA PN 16
- COLD WATER SUPPLY STACK uPVC PN 10 (PRESSURISED)
- HOT WATER SUPPLY STACK HTA PN 16 (PRESSURISED)
- THERMOSTATIC MIXING VALVE (TMV)
- ISOLATING VALVE/GATE VALVE/BALL VALVE
- NON RETURN VALVE (NRV)
- PRESSURE REGULATING VALVE (PRV)
- EXPANSION CONTROL VALVE (EV)
- EXTRACTOR FAN (300m³/h)
- DIRECTION OF FLOW
- SOLAR WATER HEATER (SWH 300 LTS)
- WM — Washing Machine (9kg)
- Water Hammer Arrestor
- Valve Box comprising of an isolating valve and a PRV

NOTES

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5. Do not scale – Use figured dimensions.

	Revision	Date

MECHANICAL SERVICES DIVISION

Lead Mechanical Engineer	Mr G. Ramkelawon
ME/Senior Mechanical Engineer	Ms T. Marie Jeanne
Trainee Mechanical Engineer	A. Cazelin
Trainee Mechanical Engineer	A. Muddhoo

05/08/21

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU–BASSIN BLOCK A

Title

THIRD FLOOR PLAN

COLD & HOT WATER SYSTEMS

Deputy Director(Architecture)	Mrs S. Jaypal
Lead Architect	Mrs A. Callychurn
Architect	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Trainee Technical Design Officer	Mr H. Ramkorun

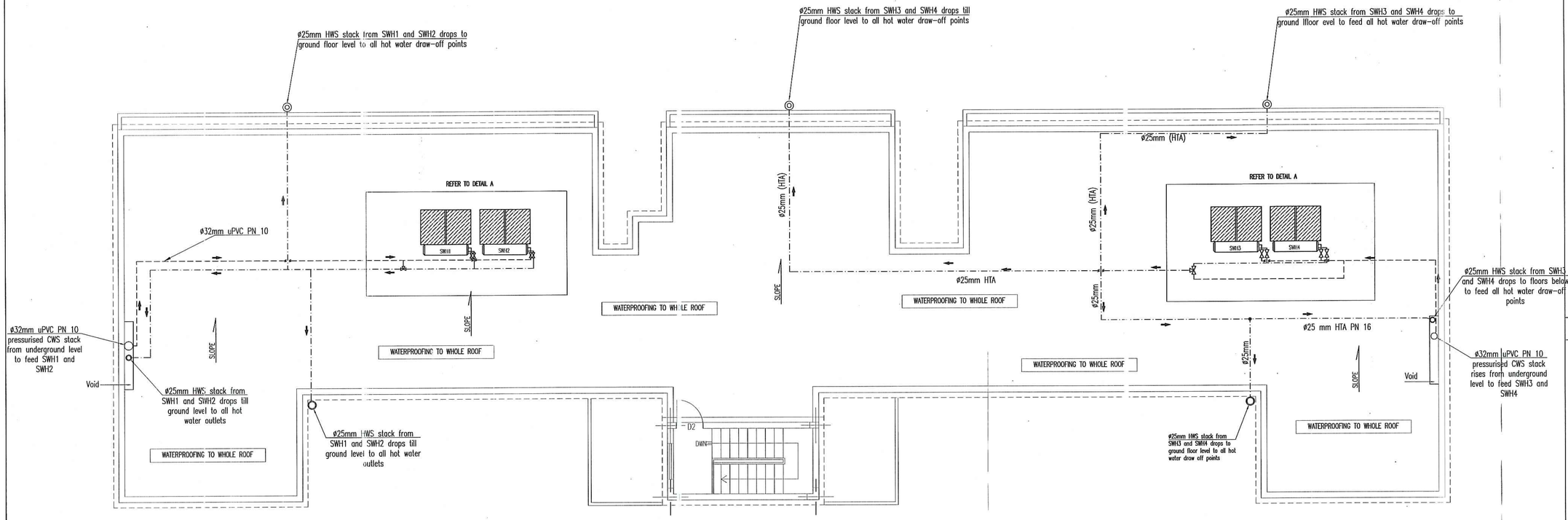
Scale: 1:75	Date : AUG 20	Date Printed: 05/07/21

MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

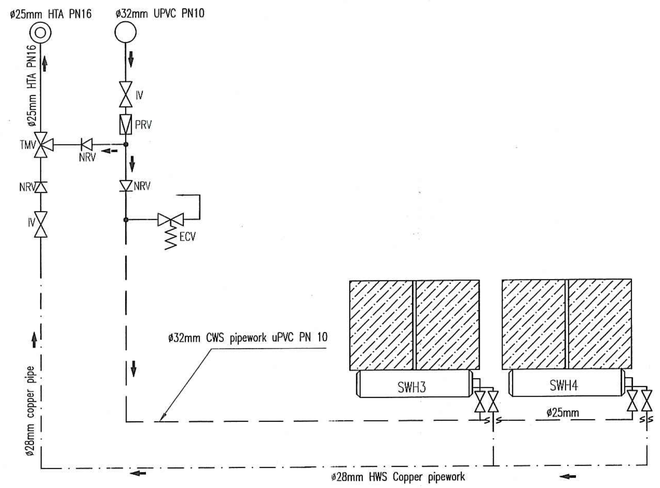
TENDER DOCUMENT

DRG. No. G741/M04 | Revision | Comp. No.

ROOF PLAN



DETAIL A



NOTES:

1. ALL UNDERGROUND COLD WATER PIPEWORK SHALL BE IN HDPE–PN 10.
2. ALL ABOVEGROUND COLD WATER PIPEWORK SHALL BE UPVC–PN 10.
3. ALL HOT WATER PIPEWORK SHALL BE HTA (C–PVC) PN16 AND SHALL BE PROPERLY INSULATED EXCEPT OTHERWISE INDICATED.
4. ALL PIPEWORK PASSING THROUGH FLOORS, WALLS AND CONCRETE SHALL BE PROTECTED BY A SUITABLE PIPE SLEEVE.
5. EACH BRANCH FOR EACH COLD WATER AND HOT WATER STACK SHALL BE FITTED WITH AN EASILY ACCESSIBLE ISOLATING VALVE.
6. AT ALL USER POINTS, CHROME PLATED RINGED FLEXIBLE PIPES SHALL BE USED.
7. ALL PIPES SHALL BE COLOUR CODED AS PER BS 1710.
8. EACH INDIVIDUAL SANITARY APPLIANCE SHALL BE PAINTED WITH UV RESISTANT PAINT.
9. ALL EXPOSED PIPEWORK AT ROOF LEVEL SHALL BE PAINTED WITH UV RESISTANT PAINT.
10. PRESSURE REGULATING VALVE SHALL BE PROVIDED WHEREVER REQUIRED.
11. ISOLATING VALVES SHALL BE PROVIDED AT INLET AND OUTLET OF EACH HOT WATER STORAGE CYLINDER.
12. EACH PANEL OF EACH SOLAR WATER HEATER SHALL BE POSITIONED SO THAT THEY FACE THE NORTH DIRECTION.
13. EACH SOLAR WATER HEATER SHALL BE EQUIPPED WITH AT LEAST TWO FLAT PLATE COLLECTORS AND STORAGE TANKS HAVING A STORAGE CAPACITY OF AT LEAST 300 LITRES.
14. EACH SOLAR WATER HEATER SHALL BE EQUIPPED WITH AN ELECTRIC BOOSTER OF AT LEAST 3.5KW.
15. THE COLD WATER INLET PIPEWORK TO WASHING MACHINES SHALL BE FITTED WITH WATER HAMMER ARRESTORS AND ISOLATING VALVES IN CORRECT ARRANGEMENT.
16. ALL HOT WATER PIPEWORK SHALL BE PROPERLY INSULATED AT FULL LENGTH WITH SUITABLE INSULATION MATERIAL OF 25mm THICKNESS AND PROTECTED BY A SUITABLE SLEEVE FROM PHYSICAL DAMAGE.
17. EACH DRAW–OFF POINT SHALL BE FITTED WITH AN INDIVIDUAL ISOLATING VALVE/STOP COCK.

LEGEND

- CWS PIPEWORK (CWA BY–PASS)
- UNDERGROUND COLD WATER SUPPLY PIPEWORK HDPE PN10 (PRESSURISED)
- COLD WATER SUPPLY PIPEWORK UPVC PN10 (PRESSURISED)
- HOT WATER SUPPLY PIPEWORK HTA PN 16
- COLD WATER SUPPLY STACK uPVC PN 10 (PRESSURISED)
- HOT WATER SUPPLY STACK HTA PN 16 (PRESSURISED)
- THERMOSTATIC MIXING VALVE (TMV)
- ISOLATING VALVE/GATE VALVE/BALL VALVE
- NON RETURN VALVE (NRV)
- PRESSURE REGULATING VALVE (PRV)
- EXPANSION CONTROL VALVE (EV)
- EXTRACTOR FAN ($300m^3/h$)
- DIRECTION OF FLOW
- SOLAR WATER HEATER (SWH 300 LTS)
- WM — Washing Machine (9kg)
- Water Hammer Arrestor
- Valve Box comprising of an isolating valve and a PRV

SCHEDULE OF SOLAR WATER HEATERS	
SOLAR WATER HEATER NO.	STORAGE CAPACITY
SWH–1	300 LTS
SWH–2	300 LTS
SWH–3	300 LTS
SWH–4	300 LTS

NOTES

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4. Contractor is to verify all site dimensions.
5. Do not scale – Use figured dimensions.

No.	Revision	Date

MECHANICAL SERVICES DIVISION	
Lead Mechanical Engineer	Mr G. Ramkelawon
ME/Senior Mechanical Engineer	Ms T. Marie Jeanne
Trainee Mechanical Engineer	A. Cazelin 07/08/2021
Trainee Mechanical Engineer	A. Muddhoo

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU–BASSIN BLOCK A

Title

ROOF PLAN
COLD & HOT WATER SYSTEMS

Deputy Director(Architecture)	Mrs S. Jaypal
Lead Architect	Mrs A. Callychurn
Architect	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Trainee Technical Design Officer	Mr H. Ramkorun

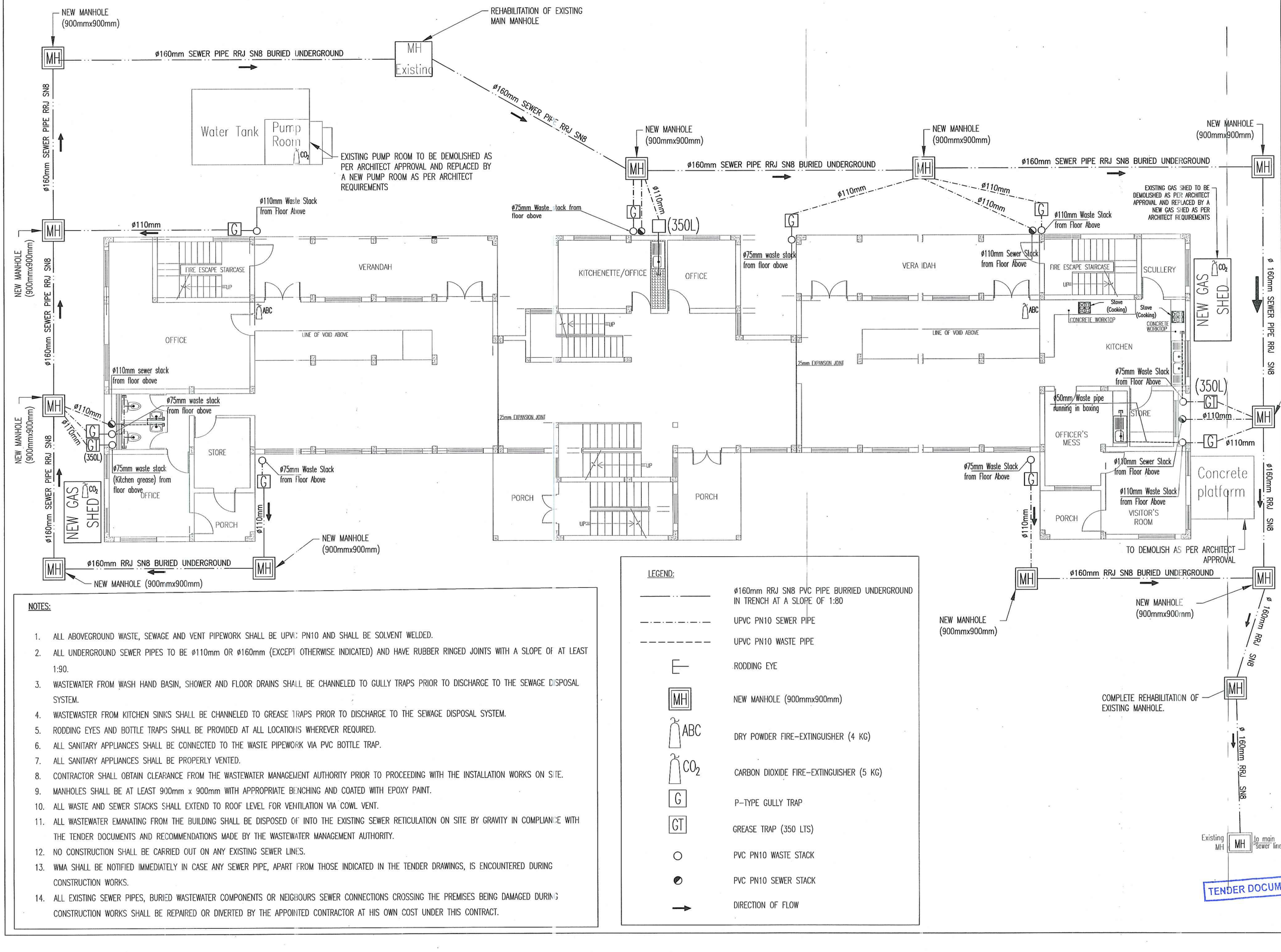
Scale 1:75 | Date : AUG 20 | Date Printed: 05/07/21

MINISTRY OF PUBLIC INFRASTRUCTURE PHOENIX

TENDER DOCUMENT

DRG. No. G741/M05 | Revision | Comp. No. 10

GROUND FLOOR PLAN



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4. Contractor is to verify all site dimensions.
5. Do not scale – Use figured dimensions.

NOTES:

1. ALL ABOVEGROUND WASTE, SEWAGE AND VENT PIPEWORK SHALL BE UPVC PN10 AND SHALL BE SOLVENT WELDED.
2. ALL UNDERGROUND SEWER PIPES TO BE ø110mm OR ø160mm (EXCEPT OTHERWISE INDICATED) AND HAVE RUBBER RINGED JOINTS WITH A SLOPE OF AT LEAST 1:90.
3. WASTEWATER FROM WASH HAND BASIN, SHOWER AND FLOOR DRAINS SHALL BE CHANNELED TO GULLY TRAPS PRIOR TO DISCHARGE TO THE SEWAGE DISPOSAL SYSTEM.
4. WASTEWASTER FROM KITCHEN SINKS SHALL BE CHANNELED TO GREASE TRAPS PRIOR TO DISCHARGE TO THE SEWAGE DISPOSAL SYSTEM.
5. RODDING EYES AND BOTTLE TRAPS SHALL BE PROVIDED AT ALL LOCATIONS WHEREVER REQUIRED.
6. ALL SANITARY APPLIANCES SHALL BE CONNECTED TO THE WASTE PIPEWORK VIA PVC BOTTLE TRAP.
7. ALL SANITARY APPLIANCES SHALL BE PROPERLY VENTED.
8. CONTRACTOR SHALL OBTAIN CLEARANCE FROM THE WASTEWATER MANAGEMENT AUTHORITY PRIOR TO PROCEEDING WITH THE INSTALLATION WORKS ON SITE.
9. MANHOLES SHALL BE AT LEAST 900mm x 900mm WITH APPROPRIATE BENCHING AND COATED WITH EPOXY PAINT.
10. ALL WASTE AND SEWER STACKS SHALL EXTEND TO ROOF LEVEL FOR VENTILATION VIA COWL VENT.
11. ALL WASTEWATER EMANATING FROM THE BUILDING SHALL BE DISPOSED OF INTO THE EXISTING SEWER RETICULATION ON SITE BY GRAVITY IN COMPLIANCE WITH THE TENDER DOCUMENTS AND RECOMMENDATIONS MADE BY THE WASTEWATER MANAGEMENT AUTHORITY.
12. NO CONSTRUCTION SHALL BE CARRIED OUT ON ANY EXISTING SEWER LINES.
13. WMA SHALL BE NOTIFIED IMMEDIATELY IN CASE ANY SEWER PIPE, APART FROM THOSE INDICATED IN THE TENDER DRAWINGS, IS ENCOUNTERED DURING CONSTRUCTION WORKS.
14. ALL EXISTING SEWER PIPES, BURIED WASTEWATER COMPONENTS OR NEIGBOURS SEWER CONNECTIONS CROSSING THE PREMISES BEING DAMAGED DURING CONSTRUCTION WORKS SHALL BE REPAIRED OR DIVERTED BY THE APPOINTED CONTRACTOR AT HIS OWN COST UNDER THIS CONTRACT.

LEGEND:

- ø160mm RRJ SN8 PVC PIPE BURRIED UNDERGROUND IN TRENCH AT A SLOPE OF 1:80
- UPVC PN10 SEWER PIPE
- UPVC PN10 WASTE PIPE
- RODDING EYE
- MH — NEW MANHOLE (900mmx900mm)
- ABC — DRY POWDER FIRE–EXTINGUISHER (4 KG)
- CO_2 — CARBON DIOXIDE FIRE–EXTINGUISHER (5 KG)
- G — P–TYPE GULLY TRAP
- GT — GREASE TRAP (350 LTS)
- PVC PN10 WASTE STACK
- PVC PN10 SEWER STACK
- DIRECTION OF FLOW

No.	Revision	Date
	REHABILITATION OF EXISTING MAIN MANHOLE	

MECHANICAL SERVICES DIVISION	
Lead Mechanical Engineer	Mr G. Ramkelawon
ME/Senior Mechanical Engineer	Ms T. Marie Jeanne
Trainee Mechanical Engineer	A. Cazelin 09/08/2021
Trainee Mechanical Engineer	A. Muddhoo

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU–BASSIN BLOCK A

Title

WASTE AND SEWAGE SYSTEMS & FIRE FIGHTING SYSTEM GROUND FLOOR PLAN

Deputy Director(Architecture)	Mrs S. Jaypal
Lead Architect	Mrs A. Callychurn
Architect	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Trainee Technical Design Officer	Mr A.R. Pandoo

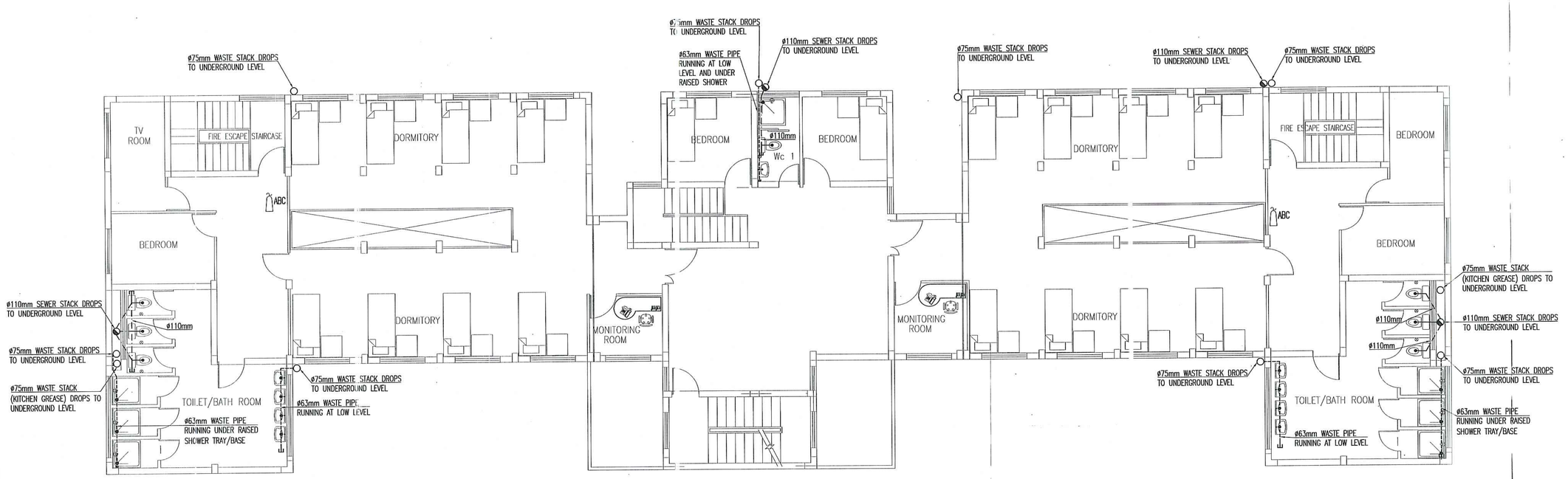
Scale	Date : AUG 20	Date Printed: 05/07/21
1:75		

MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

TENDER DOCUMENT

DRG. No. G741/M06	Revision	Comp. No.
		S

FIRST FLOOR PLAN



NOTES:

1. ALL ABOVEGROUND WASTE, SEWAGE AND VENT PIPEWORK SHALL BE UPVC PN10 AND SHALL BE SOLVENT WELDED.
2. ALL UNDERGROUND SEWER PIPES TO BE ø110mm OR ø160mm (EXCEPT OTHERWISE INDICATED) AND HAVE RUBBER RINGED JOINTS WITH A SLOPE OF AT LEAST 1:90.
3. WASTE WATER FROM WASH HAND BASIN, SHOWER AND FLOOR DRAINS SHALL BE CHANNELED TO GULLY TRAPS PRIOR TO DISCHARGE TO THE SEWAGE DISPOSAL SYSTEM.
4. WASTE WASTER FROM KITCHEN SINKS SHALL BE CHANNELED TO GREASE TRAPS PRIOR TO DISCHARGE TO THE SEWAGE DISPOSAL SYSTEM.
5. RODDING EYES AND BOTTLE TRAPS SHALL BE PROVIDED AT ALL LOCATIONS WHEREVER REQUIRED.
6. ALL SANITARY APPLIANCES SHALL BE CONNECTED TO THE WASTE PIPEWORK VIA PVC BOTTLE TRAP.
7. ALL SANITARY APPLIANCES SHALL BE PROPERLY VENTED.
8. CONTRACTOR SHALL OBTAIN CLEARANCE FROM THE WASTEWATER MANAGEMENT AUTHORITY PRIOR TO PROCEEDING WITH THE INSTALLATION WORKS ON SITE.
9. MANHOLES SHALL BE AT LEAST 900mm x 900mm WITH APPROPRIATE BENCHING AND COATED WITH EPOXY PAINT.
10. ALL WASTE AND SEWER STACKS SHALL EXTEND TO ROOF LEVEL FOR VENTILATION VIA COWL VENT.

LEGEND:

——··——	ø160mm RRJ SN8 PVC PIPE BURRIED UNDERGROUND IN TRENCH AT A SLOPE OF 1:80
—·—·—·—	UPVC PN10 SEWER PIPE
– – – – –	UPVC PN10 WASTE PIPE
E—	RODDING EYE
MH	NEW MANHOLE (900mmx900mm)
ABC	DRY POWDER FIRE-EXTINGUISHER (4 KG)
CO_2	CARBON DIOXIDE FIRE-EXTINGUISHER (5 KG)
G	P-TYPE GULLY TRAP
GT	GREASE TRAP (350 LTS)
○	PVC PN10 WASTE STACK
◐	PVC PN10 SEWER STACK
→	DIRECTION OF FLOW

NOTES

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4. Contractor is to verify all site dimensions.
5. Do not scale – Use figured dimensions.

	Revision	Date

MECHANICAL SERVICES DIVISION

Lead Mechanical Engineer	Mr G. Ramkelawon
ME/Senior Mechanical Engineer	Ms T. Marie Jeanne
Trainee Mechanical Engineer	A. Cazelin 05/08/2021
Trainee Mechanical Engineer	A. Muddhoo

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU-BASSIN BLOCK A

Title

WASTE AND SEWAGE SYSTEMS & FIRE FIGHTING SYSTEM FIRST FLOOR PLAN

Deputy Director(Architecture)	Mrs S. Jaypal
Lead Architect	Mrs A. Callychurn
Architect	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Trainee Technical Design Officer	Mr H. Ramkorun

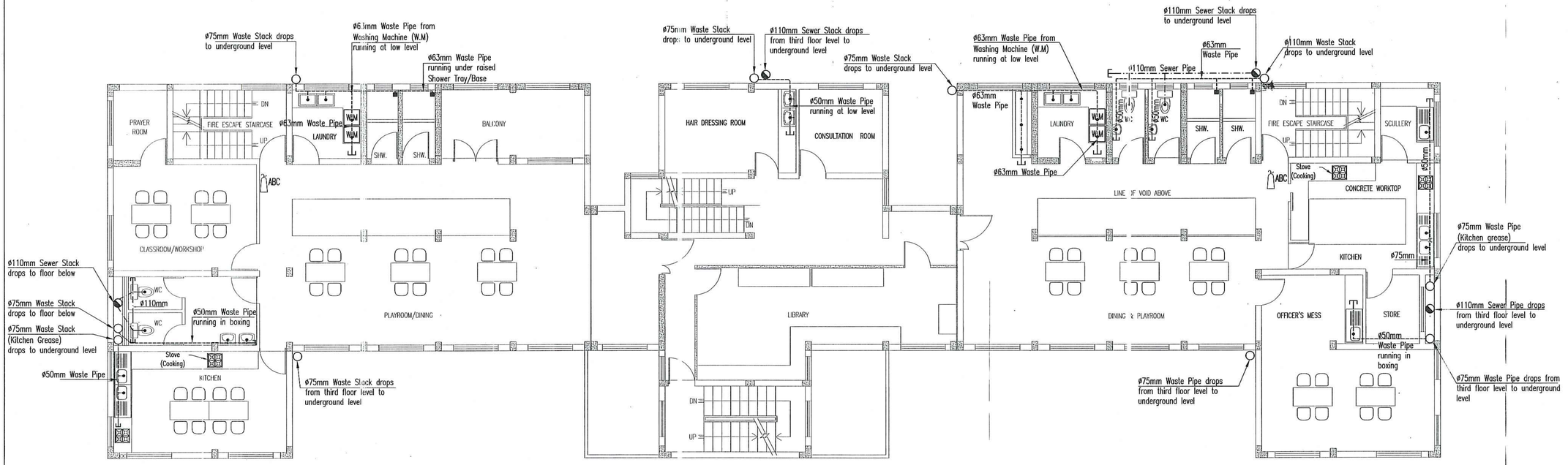
Scale: 1:75	Date : AUG 20	Date Printed: 05/07/21

MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

TENDER DOCUMENT

DRG. No. G741/M07	Revision	Comp. No.

SECOND FLOOR PLAN



NOTES:

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2. ALL UNDERGROUND SEWER PIPES TO BE ø110mm OR ø160mm (EXCEPT OTHERWISE INDICATED) AND HAVE RUBBER RINGED JOINTS WITH A SLOPE OF AT LEAST 1:90.
3. WASTE WATER FROM WASH HAND BASIN, SHOWER AND FLOOR DRAINS SHALL BE CHANNELED TO GULLY TRAPS PRIOR TO DISCHARGE TO THE SEWAGE DISPOSAL SYSTEM.
4. WASTE WASTER FROM KITCHEN SINKS SHALL BE CHANNELED TO GREASE TRAPS PRIOR TO DISCHARGE TO THE SEWAGE DISPOSAL SYSTEM.
5. RODDING EYES AND BOTTLE TRAPS SHALL BE PROVIDED AT ALL LOCATIONS WHEREVER REQUIRED.
6. ALL SANITARY APPLIANCES SHALL BE CONNECTED TO THE WASTE PIPEWORK VIA PVC BOTTLE TRAP.
7. ALL SANITARY APPLIANCES SHALL BE PROPERLY VENTED.
8. CONTRACTOR SHALL OBTAIN CLEARANCE FROM THE WASTEWATER MANAGEMENT AUTHORITY PRIOR TO PROCEEDING WITH THE INSTALLATION WORKS ON SITE.
9. MANHOLES SHALL BE AT LEAST 900mm x 900mm WITH APPROPRIATE BENCHING AND COATED WITH EPOXY PAINT.
10. ALL WASTE AND SEWER STACKS SHALL EXTEND TO ROOF LEVEL FOR VENTILATION VIA COWL VENT.

LEGEND:

——— · ———	ø160mm RRJ SN8 PVC PIPE BURRIED UNDERGROUND IN TRENCH AT A SLOPE OF 1:80
—·—·—·—	UPVC PN10 SEWER PIPE
– – – – –	UPVC PN10 WASTE PIPE
⊢	RODDING EYE
MH	NEW MANHOLE (900mmx900mm)
ABC	DRY POWDER FIRE-EXTINGUISHER (4 KG)
CO_2	CARBON DIOXIDE FIRE-EXTINGUISHER (5 KG)
G	P-TYPE GULLY TRAP
GT	GREASE TRAP (350 LTS)
○	PVC PN10 WASTE STACK
◴	PVC PN10 SEWER STACK
→	DIRECTION OF FLOW

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Revision	Date

MECHANICAL SERVICES DIVISION

Lead Mechanical Engineer	Mr G. Ramkelawon
ME/Senior Mechanical Engineer	Ms T. Marie Jeanne
Trainee Mechanical Engineer	A. Cazelin 09/08/2021
Trainee Mechanical Engineer	A. Muddhoo

Project

SMALL HOME PROJECT
AT
REHABILITATION YOUTH CENTRE
(GIRLS)
AT BEAU-BASSIN
BLOCK A

Title

WASTE AND SEWAGE SYSTEMS
&
FIRE FIGHTING SYSTEM
SECOND FLOOR PLAN

Deputy Director(Architecture)	Mrs S. Jaypal
Lead Architect	Mrs A. Callychurn
Architect	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Technical Design Officer	Mr I. Toolsee
Trainee Technical Design Officer	Mr H. Ramkorun

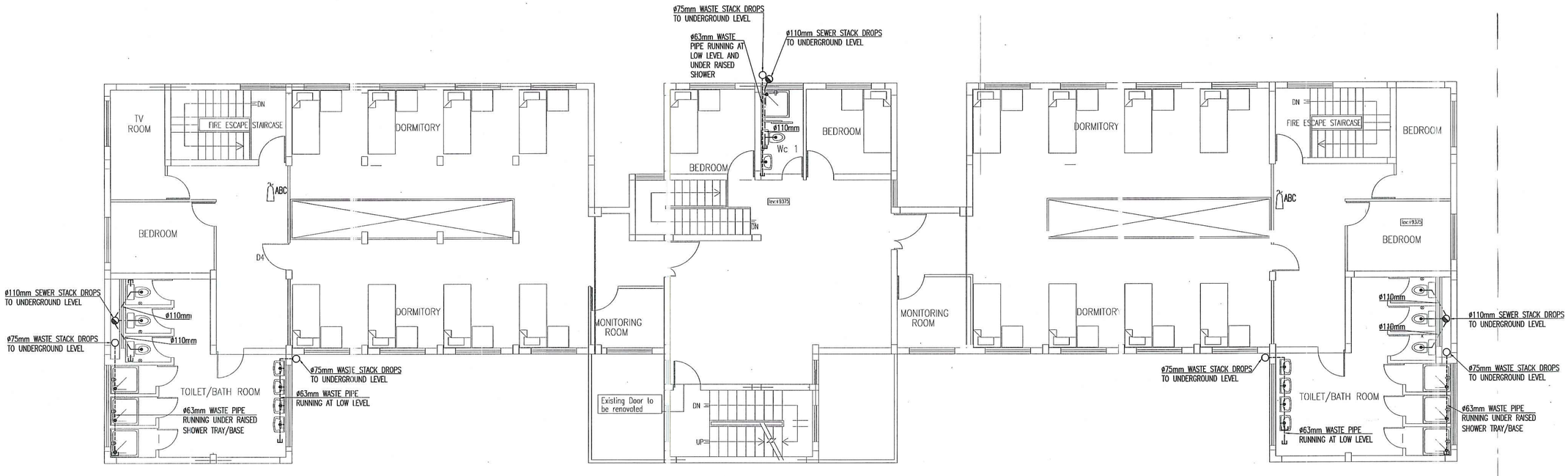
Scale	Date	Date Printed
1:75	AUG 20	05/07/21

MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

TENDER DOCUMENT

DRG. No.	Revision	Comp. No.
G741/M08		

THIRD FLOOR PLAN



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3. WASTE WATER FROM WASH HAND BASIN, SHOWER AND FLOOR DRAINS SHALL BE CHANNELED TO GULLY TRAPS PRIOR TO DISCHARGE TO THE SEWAGE DISPOSAL SYSTEM.
4. WASTE WASTER FROM KITCHEN SINKS SHALL BE CHANNELED TO GREASE TRAPS PRIOR TO DISCHARGE TO THE SEWAGE DISPOSAL SYSTEM.
5. RODDING EYES AND BOTTLE TRAPS SHALL BE PROVIDED AT ALL LOCATIONS WHEREVER REQUIRED.
6. ALL SANITARY APPLIANCES SHALL BE CONNECTED TO THE WASTE PIPEWORK VIA PVC BOTTLE TRAP.
7. ALL SANITARY APPLIANCES SHALL BE PROPERLY VENTED.
8. CONTRACTOR SHALL OBTAIN CLEARANCE FROM THE WASTEWATER MANAGEMENT AUTHORITY PRIOR TO PROCEEDING WITH THE INSTALLATION WORKS ON SITE.
9. MANHOLES SHALL BE AT LEAST 900mm x 900mm WITH APPROPRIATE BENCHING AND COATED WITH EPOXY PAINT.
10. ALL WASTE AND SEWER STACKS SHALL EXTEND TO ROOF LEVEL FOR VENTILATION VIA COWL VENT.

LEGEND:

——·——	ø160mm RRJ SN8 PVC PIPE BURRIED UNDERGROUND IN TRENCH AT A SLOPE OF 1:80
—·—·—·—	UPVC PN10 SEWER PIPE
– – – – –	UPVC PN10 WASTE PIPE
E—	RODDING EYE
MH	NEW MANHOLE (900mmx900mm)
ABC	DRY POWDER FIRE-EXTINGUISHER (4 KG)
CO_2	CARBON DIOXIDE FIRE-EXTINGUISHER (5 KG)
G	P-TYPE GULLY TRAP
GT	GREASE TRAP (350 LTS)
○	PVC PN10 WASTE STACK
◐	PVC PN10 SEWER STACK
→	DIRECTION OF FLOW

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Revision	Date

MECHANICAL SERVICES DIVISION

Lead Mechanical Engineer	Mr G. Ramkelawon
ME/Senior Mechanical Engineer	Ms T. Marie Jeanne
Trainee Mechanical Engineer	A. Cazelin 08/07/2021
Trainee Mechanical Engineer	A. Muddhoo

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU-BASSIN BLOCK A

Title

WASTE AND SEWAGE SYSTEMS & FIRE FIGHTING SYSTEM THIRD FLOOR PLAN

Deputy Director(Architecture)	Mrs S. Jaypal
Lead Architect	Mrs A. Callychurn
Architect	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Trainee Technical Design Officer	Mr H. Ramkorun

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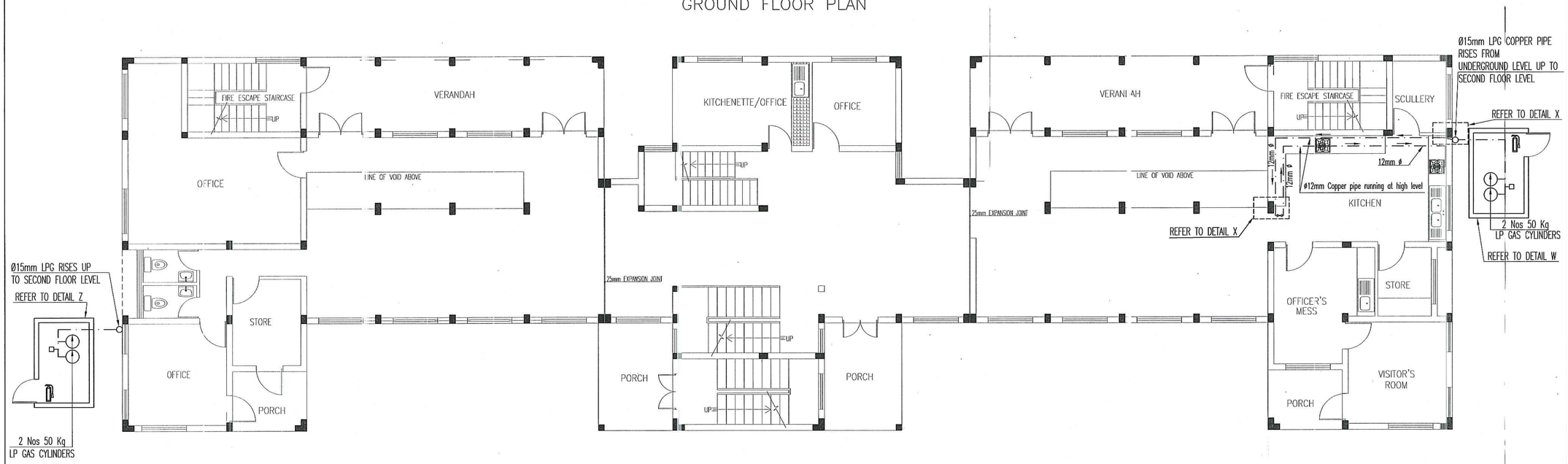
MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

TENDER DOCUMENT

DRG. No. G741/M09 | Revision | Comp. No.

GROUND FLOOR PLAN



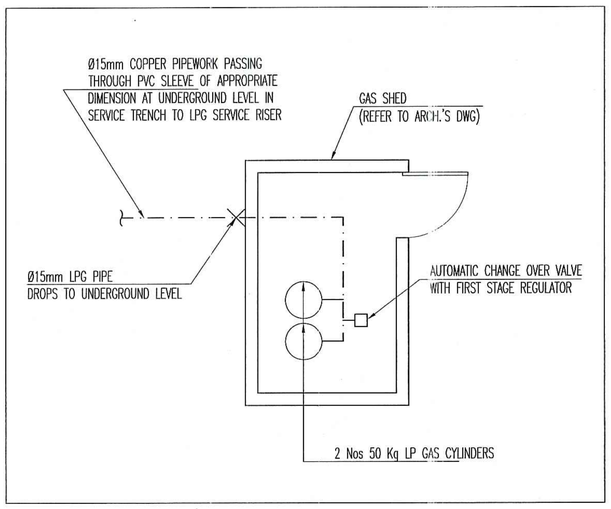
LEGEND :

- LPG COPPER PIPEWORK
- LPG COPPER PIPE
- GAS VALVE
- EMERGENCY STOP VALVE
- SECOND STAGE REGULATOR
- PVC SLEEVE FOR GAS PIPE
- GAS CONTROL VALVE COMPRISING OF QUARTER TURN VALVE, 2ND STAGE REGULATOR AND EMERGENCY STOP VALVE
- AUTOMATIC CHANGE OVER VALVE WITH FIRST STAGE REGULATOR
- GAS STOVE

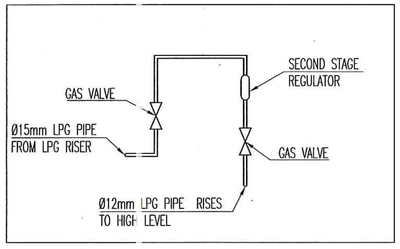
NOTES:

1. THE LPG INSTALLATION SHALL CONFORM TO BS 5482 AND SHALL MEET ALL SAFETY NORMS AND FIRE REGULATIONS.
2. ALL LPG GAS PIPES SHALL BE IN COPPER CONFORM TO BS EN1057 AND SHALL BE COLOUR CODED IN ACCORDANCE WITH BS 1710. (EXCEPT AS OTHERWISE INDICATED)
3. ALL JOINTS IN COPPER PIPES SHALL BE SWEATED TYPE SILVER SOLDER OR BRAZED USING A JOINING MATERIAL WITH A MELTING POINT EXCEEDING 540 °C.
4. ALL PIPE WORK SHALL BE PROPERLY SUPPORTED WITH STRONG HANGERS, ANCHORS, BRACKETS, SADDLES GUIDE, ETC.
5. ALL UNDERGROUND PIPE WORK SHALL BE BURIED AT A DEPTH NOT LESS THAN 800mm.
6. A MINIMUM CLEARANCE OF 150mm SHALL BE MAINTAINED BETWEEN THE LPG PIPE AND ELECTRICAL CONDUIT AND CABLES.
7. THE LPG SPECIALIST CONTRACTOR SHALL SUBMIT DETAILED INSTALLATION DRAWINGS (SHOP DRAWINGS) CERTIFIED BY A REGISTERED MECHANICAL ENGINEER PRIOR TO IMPLEMENTATION ON SITE.
8. ALL LPG PIPEWORK PASSING THROUGH FLOORS, WALLS, CEILINGS, PARTITIONS ETC. SHALL BE ROUTED IN APPROPRIATE SLEEVES.

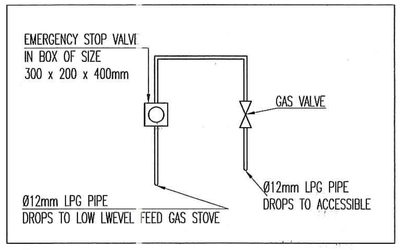
DETAIL W



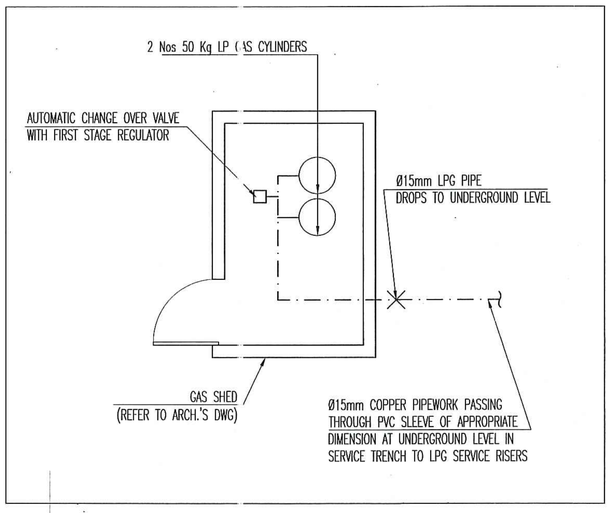
DETAIL X



DETAIL Y



DETAIL Z



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No.	Revision	Date

MECHANICAL SERVICES DIVISION

Director (Mechanical)	Mr P. Ramful
Lead Engineer	Mr V. Ramsurrun
Engineer / Senior Engineer	Ms T. Marie Jeanne
Trainee Mechanical Engineer	Ms A. Cazelin
Trainee Mechanical Engineer	Ms A. Muddhoo

05/2021

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU-BASSIN BLOCK A

Title

GROUND FLOOR PLAN
LPG SYSTEM

Deputy Director(Architecture)	Mrs S. Jaypal
Lead Architect	Mrs A. Callychurn
Architect	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Trainee Technical Design Officer	Mr H. Ramkorun

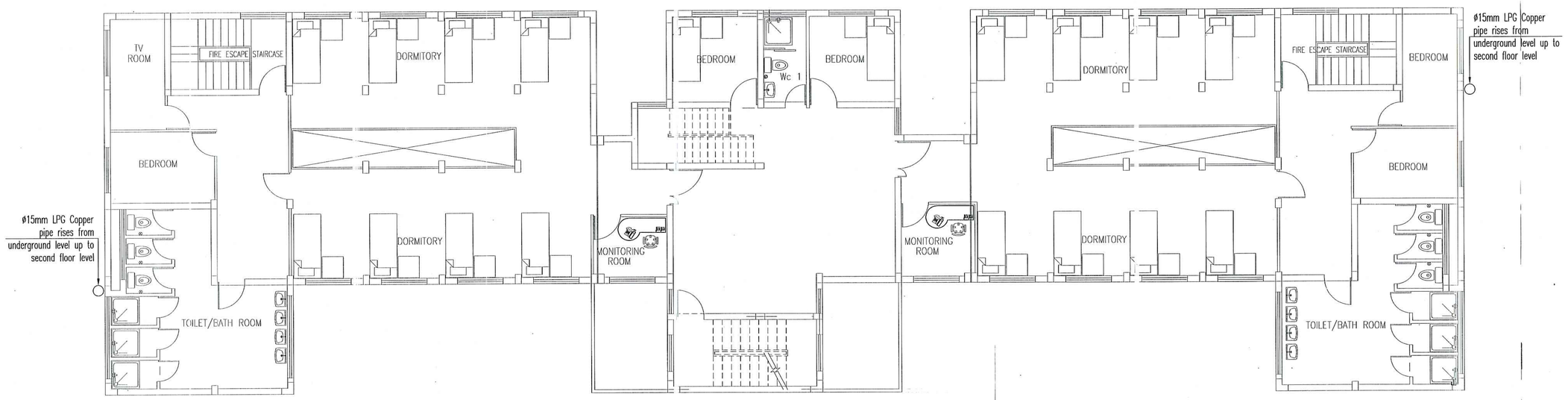
Scale	Date : AUG 20	Date Printed: 05/07/21
1:75		

MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

TENDER DOCUMENT

DRG. No.	Revision	Comp. No.
G741/LPG/01		S

FIRST FLOOR PLAN



NOTES:

1. THE LPG INSTALLATION SHALL CONFORM TO BS 5482 AND SHALL MEET ALL SAFETY NORMS AND FIRE REGULATIONS.
2. ALL LPG GAS PIPES SHALL BE IN COPPER CONFORM TO BS EN1057 AND SHALL BE COLOUR CODED IN ACCORDANCE WITH BS 1710. (EXCEPT AS OTHERWISE INDICATED)
3. ALL JOINTS IN COPPER PIPES SHALL BE SWEATED TYPE SILVER SOLDER OR BRAZED USING A JOINING MATERIAL WITH A MELTING POINT EXCEEDING 540 °C.
4. ALL PIPE WORK SHALL BE PROPERLY SUPPORTED WITH STRONG HANGERS, ANCHORS, BRACKETS, SADDLES GUIDE, ETC.
5. ALL UNDERGROUND PIPE WORK SHALL BE BURIED AT A DEPTH NOT LESS THAN 800mm.
6. A MINIMUM CLEARANCE OF 150mm SHALL BE MAINTAINED BETWEEN THE LPG PIPE AND ELECTRICAL CONDUIT AND CABLES.
7. THE LPG SPECIALIST CONTRACTOR SHALL SUBMIT DETAILED INSTALLATION DRAWINGS (SHOP DRAWINGS) CERTIFIED BY A REGISTERED MECHANICAL ENGINEER PRIOR TO IMPLEMENTATION ON SITE.
8. ALL LPG PIPEWORK PASSING THROUGH WALL, CEILINGS, PARTITIONS ETC. SHALL BE ROUTED IN APPROPRIATE SLEEVES.

LEGEND :

- LPG COPPER PIPEWORK
- LPG COPPER PIPE
- GAS VALVE
- EMERGENCY STOP VALVE
- SECOND STAGE REGULATOR
- GAS CONTROL VALVE COMPRISING OF QUARTER TURN VALVE, 2ND STAGE REGULATOR AND EMERGENCY STOP VALVE
- AUTOMATIC CHANGE OVER VALVE WITH FIRST STAGE REGULATOR
- PVC SLEEVE FOR GAS PIPE

NOTES

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Revision	Date

MECHANICAL SERVICES DIVISION

Director (Mechanical)	Mr P. Ramful
Lead Engineer	Mr V. Ramsurrun
Engineer / Senior Engineer	Ms T. Marie Jeanne
Trainee Mechanical Engineer	Ms A. Cazelin 05/07/2021
Trainee Mechanical Engineer	Ms A. Muddhoo

Project

SMALL HOME PROJECT AT REHABILITATION YOUTH CENTRE (GIRLS) AT BEAU-BASSIN BLOCK A

Title

First Floor Plan
LPG System

Deputy Director(Architecture)	Mrs S. Jaypal
Lead Architect	Mrs A. Callychurn
Architect	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Trainee Technical Design Officer	Mr A. Pandoo

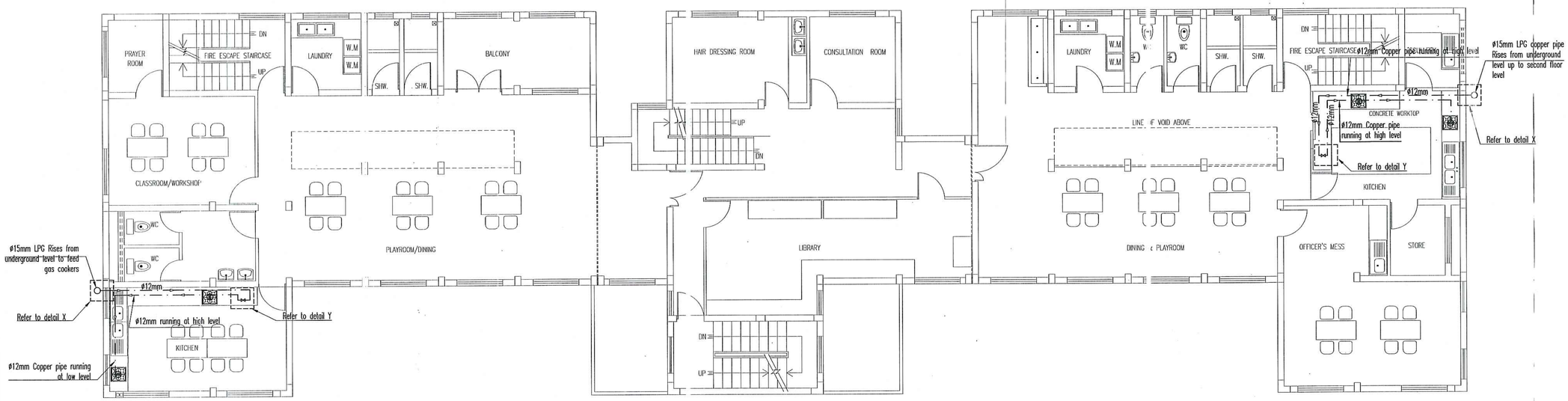
Scale: 1:75	Date : AUG 20	Date Printed: 05/07/21

MINISTRY OF NATIONAL INFRASTRUCTURE & COMMUNITY DEVELOPMENT PHOENIX

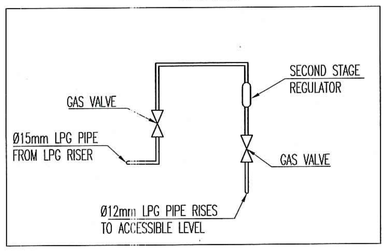
TENDER DOCUMENT

DRG. No. G741/LPG/02 | Comp. No.

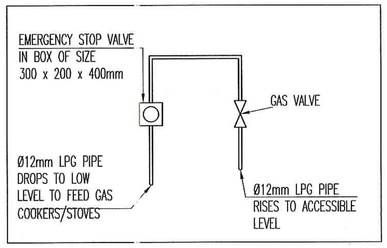
SECOND FLOOR PLAN



DETAIL X



DETAIL Y



NOTES:

1. THE LPG INSTALLATION SHALL CONFORM TO BS 5482 AND SHALL MEET ALL SAFETY NORMS AND FIRE REGULATIONS.
2. ALL LPG GAS PIPES SHALL BE IN COPPER CONFORM TO BS EN1057 AND SHALL BE COLOUR CODED IN ACCORDANCE WITH BS 1710. (EXCEPT AS OTHERWISE INDICATED)
3. ALL JOINTS IN COPPER PIPES SHALL BE SWEATED TYPE SILVER SOLDER OR BRAZED USING A JOINING MATERIAL WITH A MELTING POINT EXCEEDING 540 °C.
4. ALL PIPE WORK SHALL BE PROPERLY SUPPORTED WITH STRONG HANGERS, ANCHORS, BRACKETS, SADDLES GUIDE, ETC.
5. ALL UNDERGROUND PIPE WORK SHALL BE BURIED AT A DEPTH NOT LESS THAN 800mm.
6. A MINIMUM CLEARANCE OF 150mm SHALL BE MAINTAINED BETWEEN THE LPG PIPE AND ELECTRICAL CONDUIT AND CABLES.
7. THE LPG SPECIALIST CONTRACTOR SHALL SUBMIT DETAILED INSTALLATION DRAWINGS (SHOP DRAWINGS) CERTIFIED BY A REGISTERED MECHANICAL ENGINEER PRIOR TO IMPLEMENTATION ON SITE.
8. ALL LPG PIPEWORK PASSING THROUGH FLOORS, WALLS, CEILINGS, PARTITIONS ETC. SHALL BE ROUTED IN APPROPRIATE SLEEVES.

LEGEND :

- LPG COPPER PIPEWORK
- LPG COPPER PIPE
- GAS VALVE
- EMERGENCY STOP VALVE
- SECOND STAGE REGULATOR
- GAS CONTROL VALVE COMPRISING OF QUARTER TURN VALVE, 2ND STAGE REGULATOR AND EMERGENCY STOP VALVE
- AUTOMATIC CHANGE OVER VALVE WITH FIRST STAGE REGULATOR
- GAS STOVE
- PVC SLEEVE FOR GAS PIPE

NOTES

1. Read this drawing with all Architect's and Engineer's relevant details.
2. No deviation from the details shown on this drawing is allowed without prior permission in writing.
3. If any discrepancy between this drawing and any contract document is discovered – Please ask.
4. Contractor is to verify all site dimensions.
5. Do not scale – Use figured dimensions.

Revision	Date

MECHANICAL SERVICES DIVISION	
Director (Mechanical)	Mr P. Ramful
Lead Engineer	Mr S. Ramkelawon
Engineer / Senior Engineer	Ms T. Marie Jeanne
Trainee Mechanical Engineer	Ms A. Cazelin
Trainee Mechanical Engineer	Ms A. Muddhoo

02/08/21

Project

SMALL HOME PROJECT
AT
REHABILITATION YOUTH CENTRE
(GIRLS)
AT BEAU-BASSIN
BLOCK A

Title

SECOND FLOOR PLAN
LPG SYSTEM

Deputy Director(Architecture)	Mrs S. Jaypal
Lead Architect	Mrs A. Callychurn
Architect	Mr R.A. Boodhoo
Chief Technical Design Officer	Mr V. Thomson
Principal Technical Design Officer	Mr S. Kureeman
Senior Technical Design Officer	Mr Y.P. Vythelingum
Technical Design Officer	Mr H.M. Namooya

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