

Rotary

PEOPLE of ACTION



ALADURA PRIMARY ALADURA PRIMARY SCHOOL PROJECT -

Toilet Block Building Specifications

Version 5.2: September 18th 2024

Summary

This document spells out in detail the minimum requirements for two toilet blocks to be built at the school, funded by the Rotary Club of Glenferrie and The Rotary Foundation

Sierra Leone Taskforce

Rotary Club of Glenferrie/Rotary Club of Bo

Aladura Primary School Project: Building Specifications

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What we are Building

1 x Ventilated Improved Pit toilet for males: Block A

1 x Ventilated Improved Pit toilet for females: Block B

2 x ventilated latrine pits

2 x 2000 Water tanks on concrete base with wastewater seepage

Ventilated Pit Latrine: Block 'A' Pit and Block Dimensions

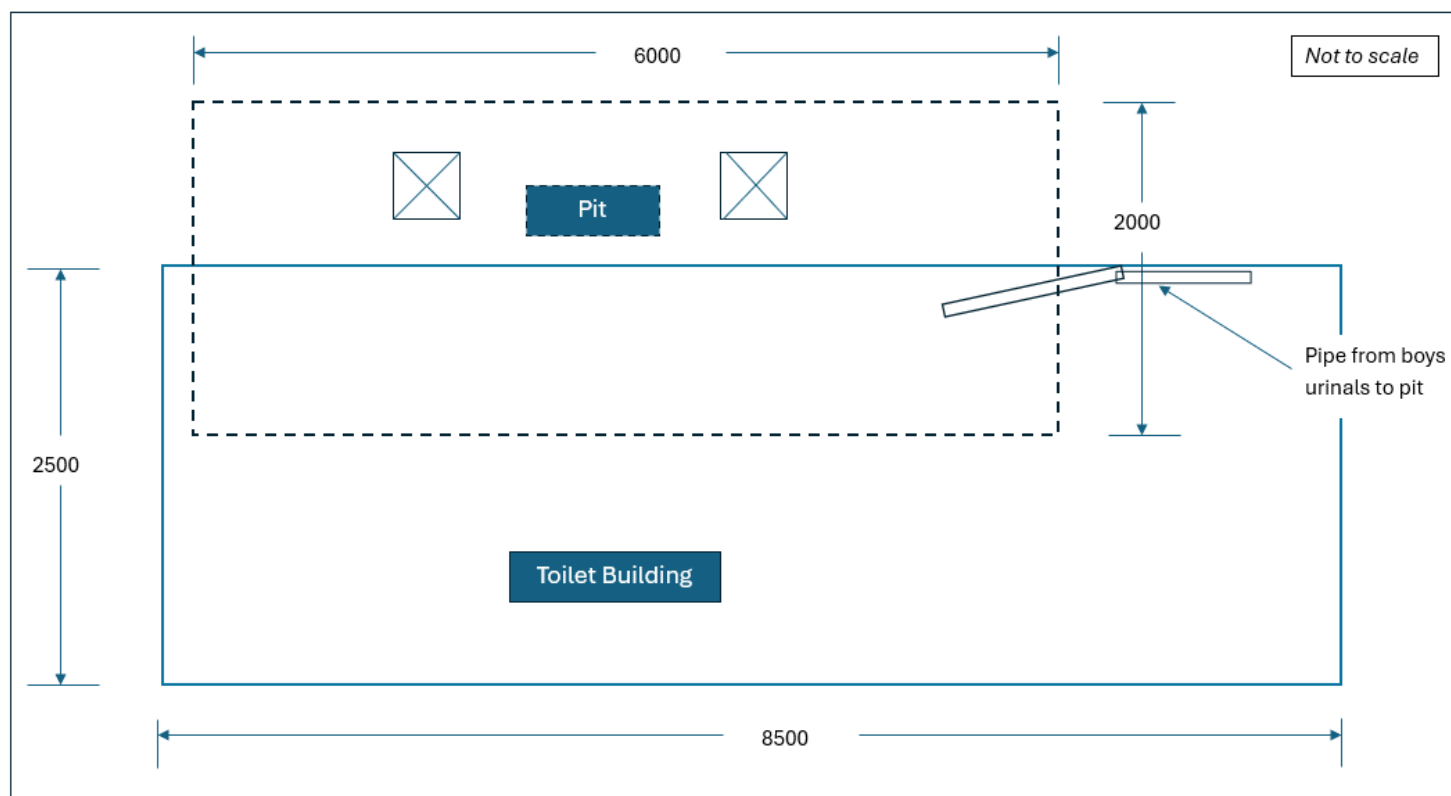


Fig. 1: Pit and building dimensions – Block A

Pit and Footings Specifications

- The toilet footings ([See Appendix 1](#)) are to be constructed before digging the pit.
- The footings will be vertical as shown in Appendix 1.
- The walls of the pit to be braced with temporary hardwood beams to prevent cave-in (see Appendix 1)
- Each pit to be 6 metres long x 2 metres wide x 4 metres deep.
 - Braced during construction by timber beams with end plates as shown in Appendix 1
 - Floor not to be lined to facilitate seepage

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- Pit walls to be lined with cement blocks and buttressed with three pairs of concrete beams (**M20 mix**) as shown in the plan in Appendix 1, replacing the timber beams as the walls are constructed
 - The cement sand crete blocks to be bedded and jointed in good cement sand mortar (1:4 mix). That is 8-part sand to a bag of cement of 50kg. The internal walls are then rendered smooth with cement sand mortar (1:4 mix). This to prevent seepage through the walls of the cesspit and it is then provided with soak away to drain the excess water from the pit.
- Located under toilet block, offset 50% (see Appendix 1)
- To be covered with concrete slab (to cover the whole area of the toilet block and pit) upon which the toilet block is to be constructed.
 - Concrete mix for the slab base to be of extra strong **M20** mix to prevent collapse and injury: 1 part cement - 1.5 parts sand – 3 parts aggregate (stone)
 - More cement if necessary to strengthen.
 - Reinforce the concrete with **two** layers of steel rods (see diagram in Appendix 1)
- Pit to be ventilated: A “**Ventilated Improved Pit Latrine**”. Install a **black** exhaust pipe out of the pit, mounted at least 100mm off the rear wall of the block, to a height well above the roof, with a fly trap at the top.
- Pit will have manholes with concrete covers to allow access for emptying
- Pit for Block B will be the same as shown in the above diagram for Block A.

Ventilated Pit Latrine



Fig 2: Ventilated Improved Pit - Loughborough University UK

[Click here for the full document](#)

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Toilet Building Specifications

- Located at least 30 metres from school building and water well.
- Positioned so that the stall doors are visible to teachers through the windows at the school building.
- Constructed of standard cement blocks, 150mm wide, 230mm high, 450mm long
- Standard cement blocks made of 1:8 mix.
- Mortar to be high quality 1part cement to 4 parts sand
- All walls to be rendered (plastered) and painted. External walls to be 1:3 mix render; Internal walls to be 1:4 render.
- Each block to have a safety wall at the front of the block, no higher than 5 **standard cement blocks for safety** reasons.
- Main wall 9 **standard cement blocks** high
- Stalls to have steel doors at least 100mm off the floor, painted with two coats of oil paint.
- Toilets to be the Asian squat style porcelain bowls laid in concrete.
- Boys toilet (Block A) to have one large stall with three porcelain urinals.
- Concrete floor inside stalls to slope towards the pans.
- Depth of each stall plus the distance from the stall door to the safety wall is the length of one sheet of corrugated roofing iron.
- Each toilet block to have a 2000 litre water tank at the front, fed by water from the toilet block roof, mounted on a concrete slab at a height of 200mm above ground.
- The tank to have a tap installed at a height sufficient to get a standard bucket under it.
- A seepage pit filled with gravel to be dug under the tap to facilitate drainage.
- PVC Guttering and piping at the front of each toilet block to collect rain and refill each of the water tanks.
- Building to have eaves 300mm, around sides and back of block
- Fascia boards all around building
- To conform with VIP requirements, a ventilation hole is to be placed at the front of each toilet stall, above the door, to facilitate air flow. The ventilation hole to be the size of one half of a standard cement block i.e 150mm wide 230mm high 225mm long.

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Toilet Block A

One toilet block of five toilet stalls for males, one stall for staff (with lock on the door) and four for students plus an additional stall to hold three urinals. To be constructed first.

Note: Access aisle open at both ends until Block 'B' is completed, and temporary wooden partition between the boys toilets and the temporary girl's toilets.

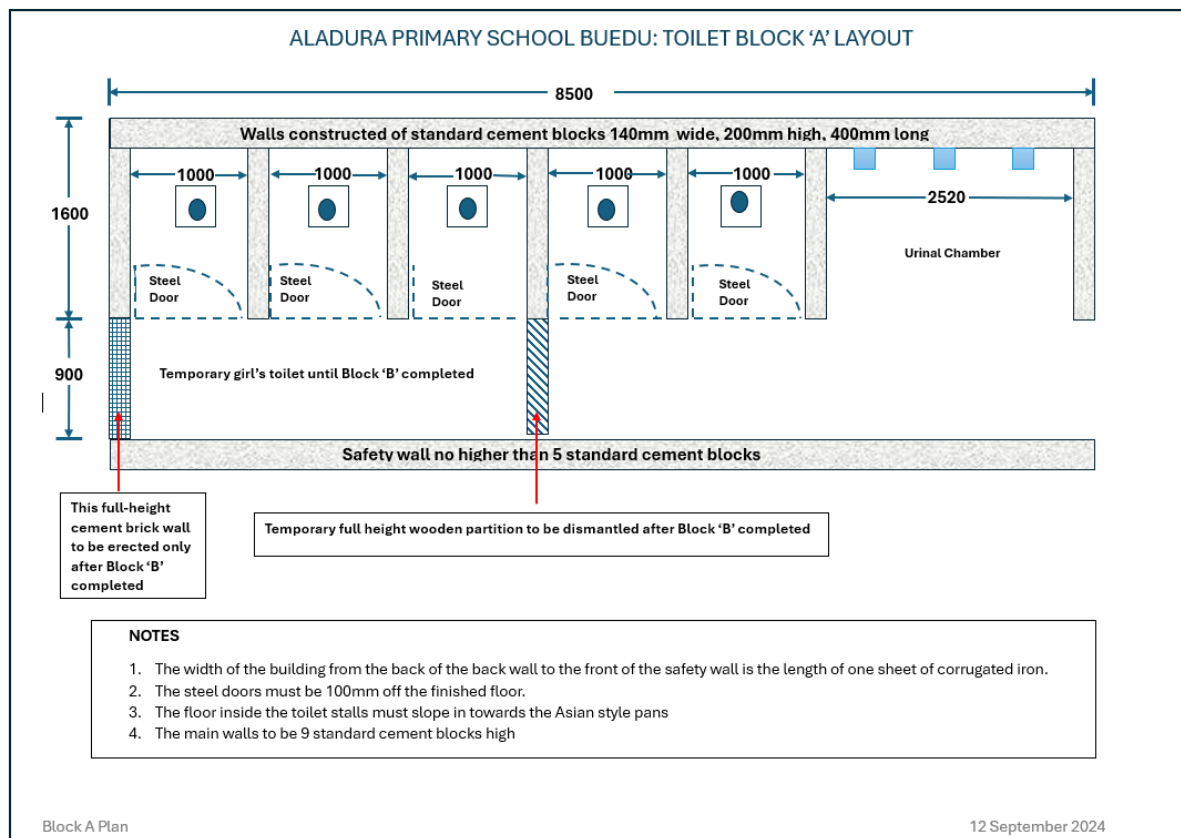


Fig 3: Block 'A' Layout

Example Photo – Block 'A'



Fig 4: Toilet block example – Block 'A' design

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Toilet Block B

One toilet block of five toilet stalls, four for students and one lockable for staff, plus a stall with three urinals.

Note: Access aisle closed at one end. Specifications as for Block A, except no urinal chamber.

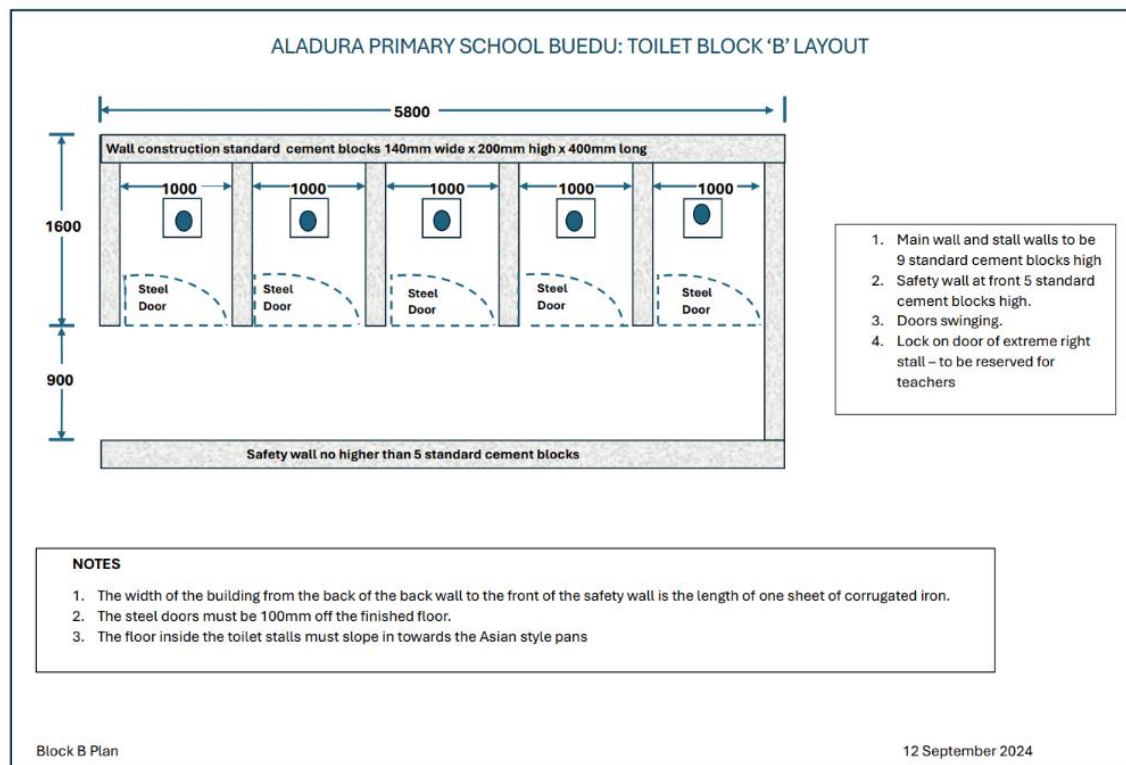


Fig 5: Toilet block example – Block 'B' design

Example Photo Block 'B'



Block B:
Female toilet

Fig 6: Toilet Block 'B' Layout

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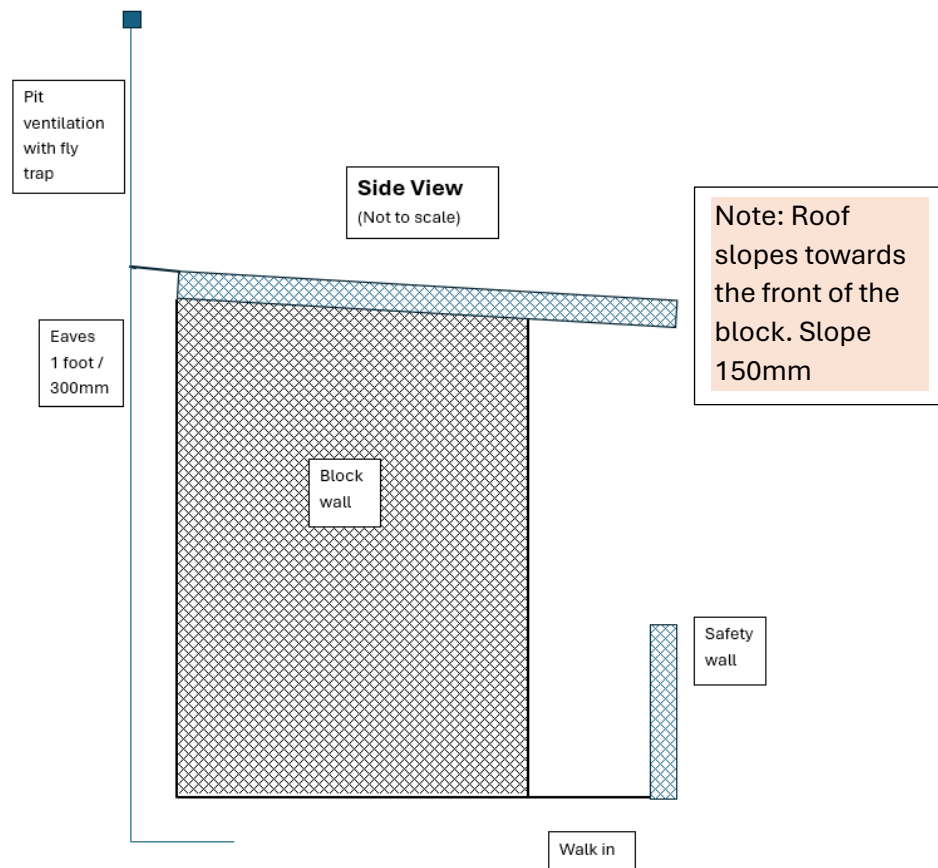


Fig 7: Side view both blocks

Roof structure

- Rooves:
 - Corrugated iron.
 - The iron sheeting to extend out from the back of the stalls to the safety wall.
 - Capping beam required at the top of all walls, with N12 steel rod reinforcement plus roof ties, placed under the steel.
 - The space between the capping beam is then concreted – **M20 mix 1:1.5:3**
 - Wooden cross beams to be affixed to the roof supports along the length of the roof, approximately 900mm apart
 - The wooden roof supports are then attached with the roof ties.
 - The rooves will slope to feed rainwater into the guttering and then into the water tank - **slope 5”(150mm) back to front.**
 - [See Appendix 1](#) for drawing of roof supports.

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Roof Structure: Example Photos



Fig 8: Photos of roof beam structure

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Appendix 1: Engineering Drawings PP Don Moore

TOILET BLOCK THE ALADURA PRIMARY SCHOOL BUEDU SIERRA LEONE

GENERAL NOTES

- G1. These Structural Engineering Drawings shall be read in conjunction with all Architectural and other Consultants Drawings, specifications and any other written instructions or amendments that may be issued during the course of the Contract.
- G2. These Engineering Drawings must not be scaled. All dimensions shown shall be checked and verified by the Contractor before construction or fabrication is commenced.
- G3. No substitutions are to be made or sizes of structural members varied without first obtaining the written consent of the Consulting Engineers.
- G4. All dimensions are in millimetres unless stated otherwise. All levels are expressed in metres.
- G5. During construction, the Contractor shall be responsible for bracing, and maintaining the structure and all excavations in a stable condition and ensuring no part is overstressed by construction activities or wind and other lateral forces.
- G6. All workmanship and materials are to be in accordance with the relevant Australian Standards (including all amendments) the Specification and National Construction Code.
- G7. The approval of any substitution by the Consulting Engineers is not an authorisation for an extra. Any extras involved must be taken up with the Architect and or Project Manager before work commences.
- G8. The Consulting Engineers accepts no responsibility unless the work is inspected and approved by the Consulting Engineers or an Authorised Representative during construction. All inspections required shall be confirmed with the Consulting Engineers 24 hours in advance of time required (working days only included).
- G9. Where additional construction loads such as mobile cranes etc. are to be imposed on the structure, the Contractor shall provide full details of the proposed temporary supports to the Consulting Engineers for approval, a minimum of 7 days prior to the proposed works commencing.
- G10. The structural work on these drawings has been designed for the following live loads:

AREA	LIVE LOAD
Roof	0.25 kPa
Floors (General)	3.00 kPa

FOUNDATIONS AND FOOTINGS

- F1. Underside of footings and raft slab beams to be constructed at the levels and bearing on material as noted and described on footing or foundation plan and details.
- F2. All grass roots, vegetation and compressible topsoil must be removed from the area of the slab.
- F3. Prior to any compacted filling being placed the ground below the slab shall be rolled with a roller compactor and any 'soft spots' encountered shall be dug out and replaced with compacted crushed rock in accordance with AS Code 2870.
- F4. The ground in the immediate of the perimeter of the building shall be graded to fall 50mm minimum away from the building of a distance of 1,000mm and shaped to prevent ponding of water.

CONCRETE

- C1. Concrete to be prepared to the mixes outlined on the details.
- C2. No concrete shall be placed until excavation formwork and/or reinforcement has been inspected and approved by the Consulting Engineers or an Authorised Representative.
- C3. Reinforcement in suspended slabs, beams, footings, ribs and stair slabs to be supported on approved concrete, plastic, or plastic tipped wire stools, with approved bases to avoid damage to the waterproof membrane, at not more than 750mm centres bothways for slabs and 750 mm centres for beams footings or ribs.
- C4. Main reinforcement in footings, columns, beams, retaining walls, and stair and suspended slabs must not be spliced, except where shown or noted on the Engineering Drawings.
- Reinforcement to be securely tied at all laps and intersections, with 1.2mm black annealed wired.
- Welding of reinforcement will not be permitted, unless noted on the Structural Engineering Drawings.
- C5. Concrete must be moist cured by an approved method for seven days after pouring and curing must commence within 2 hours of placement.
- C6. Concrete shall be separated from supporting masonry by two layers of malthoid (or an approved equivalent). For slabs on ground and paving, vertical faces of slabs, masonry walls and columns are to be separated by 12mm thick bituminous caneite or similar.

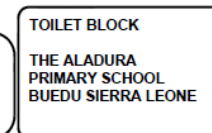
DRAWING INDEX

- S1 - GENERAL NOTES
S2 - TOILET BLOCK A
S3 - TOILET BLOCK B
S4 - TOILET BLOCK SECTION
S5 - SECTION PIT EXCAVATION

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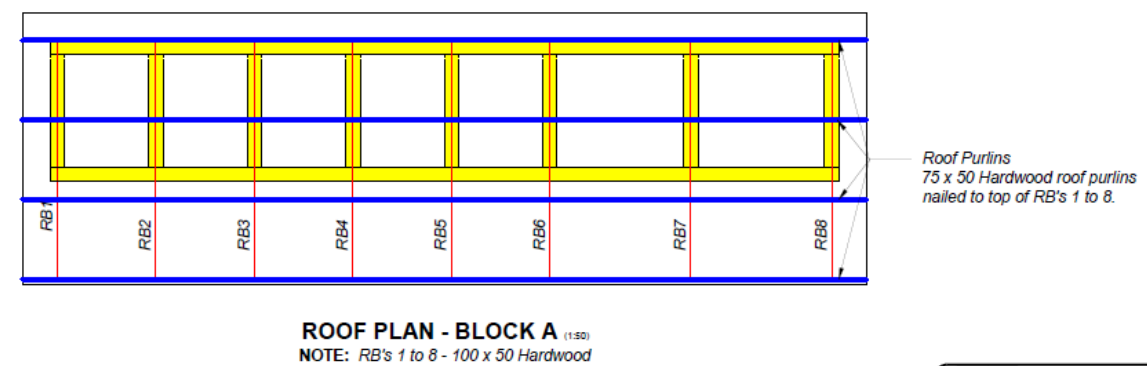
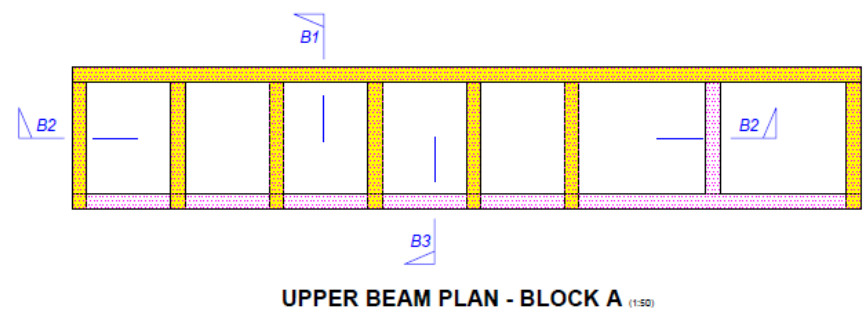
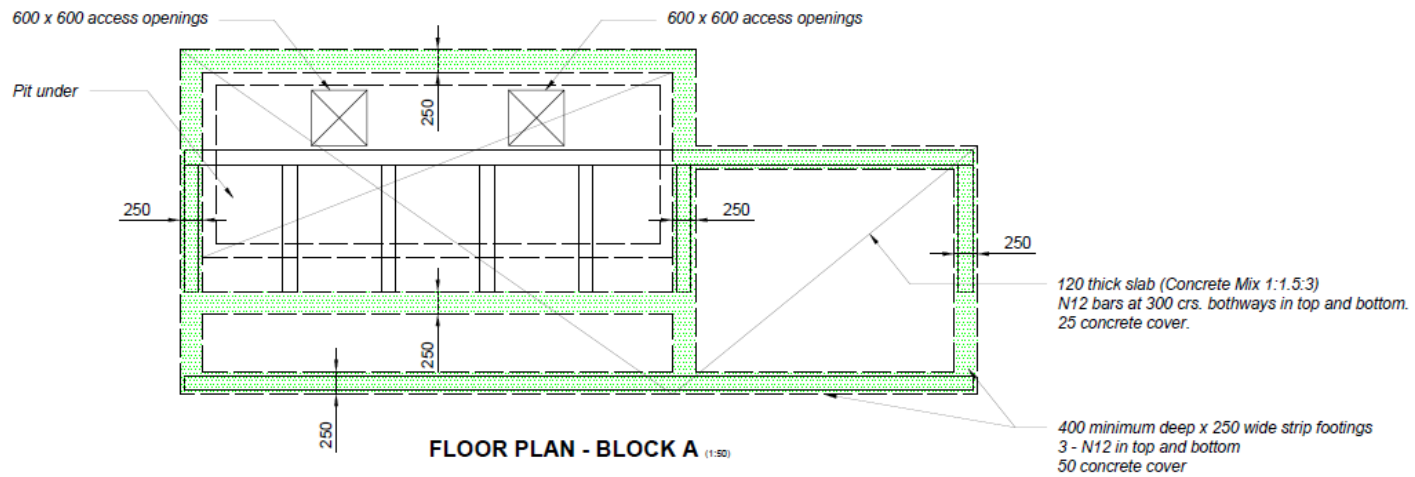
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No.	AMENDMENT	DATE
1	Construction Issue	16-09-24

AMENDMENTS		
No.	AMENDMENT	DATE



GENERAL NOTES	
DATE	May 2024
DRAWN	
DESIGNED	Don Moore
APPROVED	
JOB NO.	3338.24
DRAWING NO.	S1
REVISION	A

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A	Construction Issue	16/08/24

AMENDMENTS		DATE
NO.	AMENDMENT	



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Consulting Structural & Civil Engineers

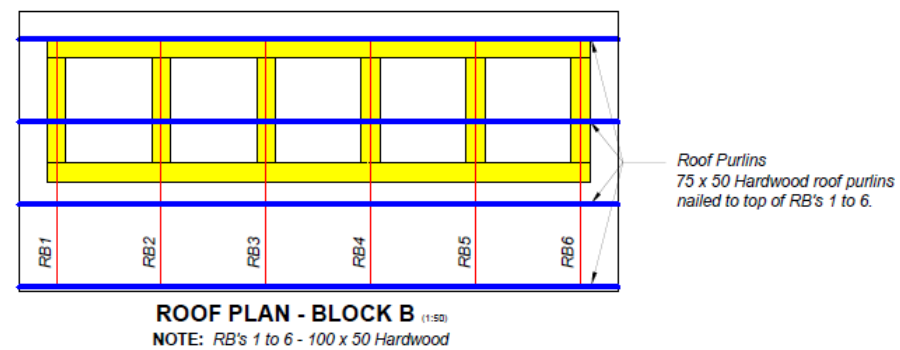
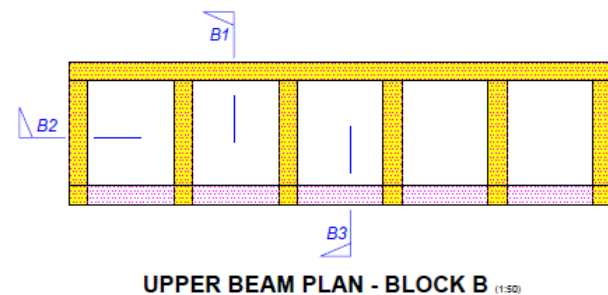
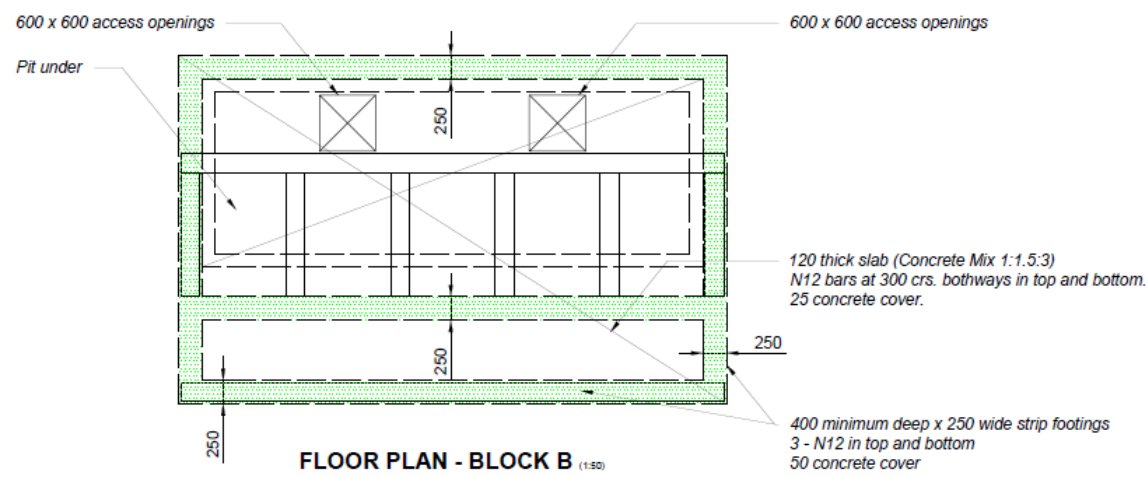
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Created: 8/10/2024 by L.C. Rev: 07/08/2024

TOILET BLOCK

**THE ALADURA
PRIMARY SCHOOL
BUEDU SIERRA LEONE**

TOILET BLOCK A	
DATE	May 2024
DRAWN	
DESIGNED	Don Moore
APPROVED	
JOB NO.	3338.24
DRAWING No.	S2
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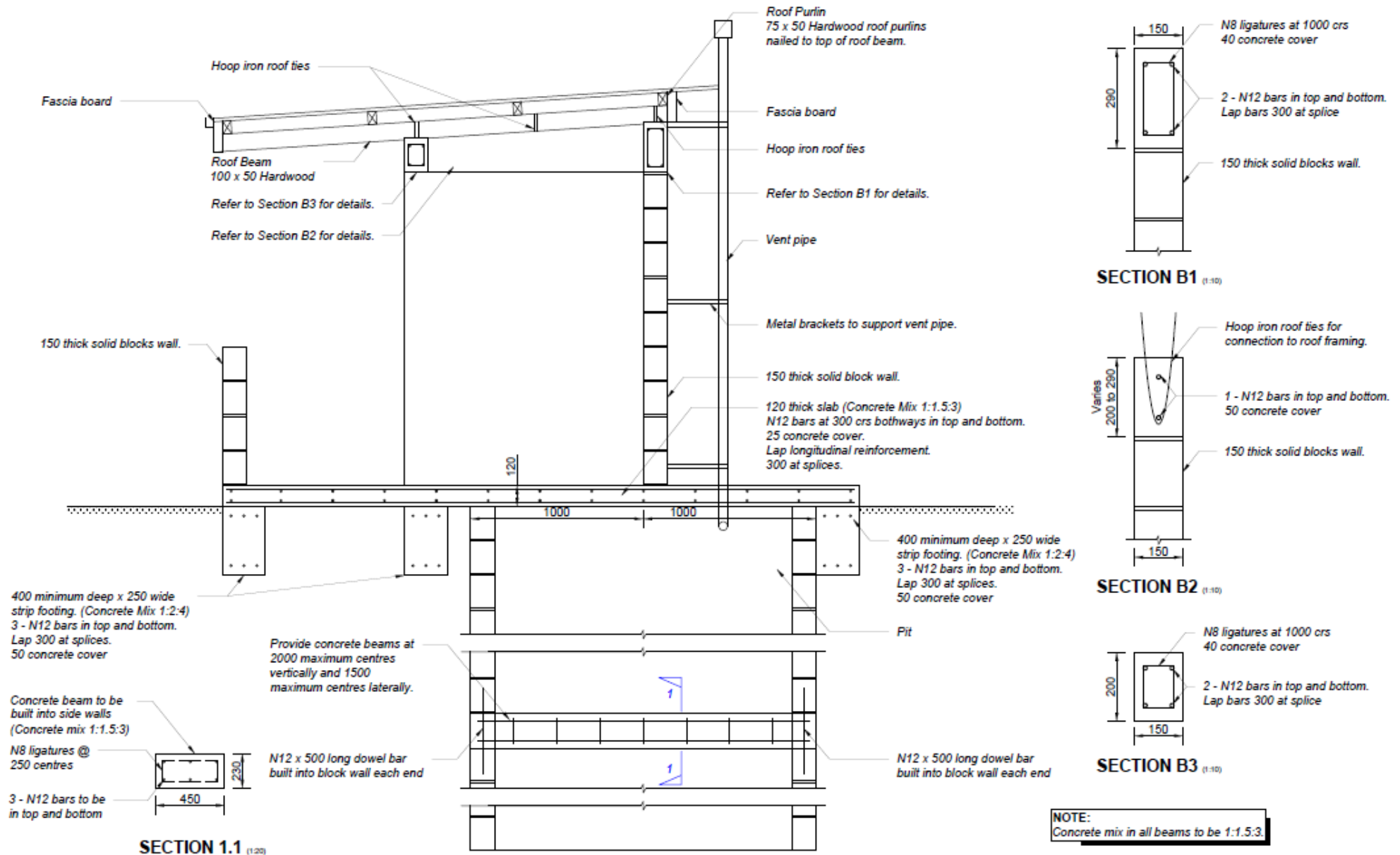
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TOILET BLOCK

THE ALADURA
PRIMARY SCHOOL
BUEDU SIERRA LEONE

TOILET BLOCK B	
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DESIGNED	Don Moore
APPROVED	
JOB NO.	3338.24
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TYPICAL SECTION TOILET BLOCK (1:20)

ISSUED FOR CONSTRUCTION

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NO.	AMENDMENTS	DATE



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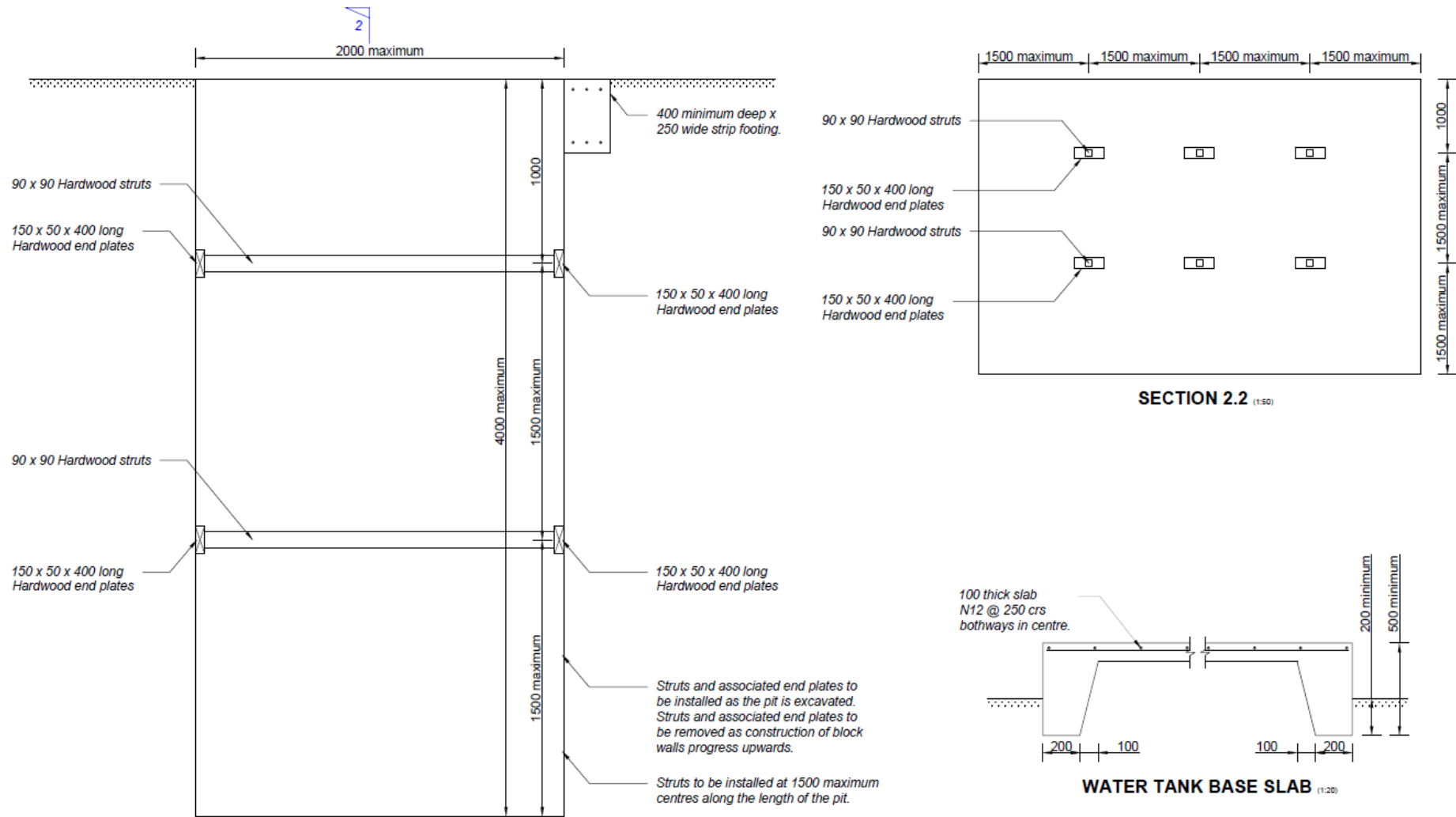
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TOILET BLOCK

THE ALADURA
PRIMARY SCHOOL
BUEDU SIERRA LEONE

TOILET BLOCK SECTION	
DATE: May 2024	DRAWING No.
DRAWN	S4
DESIGNED: Don Moore	REVISION
APPROVED	A
JOB NO. 3336.34	

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SECTION PIT EXCAVATION (1:20)

NOTE:
Pit to be excavated after the strip footings have been installed.

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NO.	AMENDMENTS	DATE



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TOILET BLOCK
THE ALADURA
PRIMARY SCHOOL
BUEDU SIERRA LEONE

SECTION PIT EXCAVATION	
DATE	May 2024
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JOB NO.	3338.24
DRAWING NO.	S5
REVISION	A