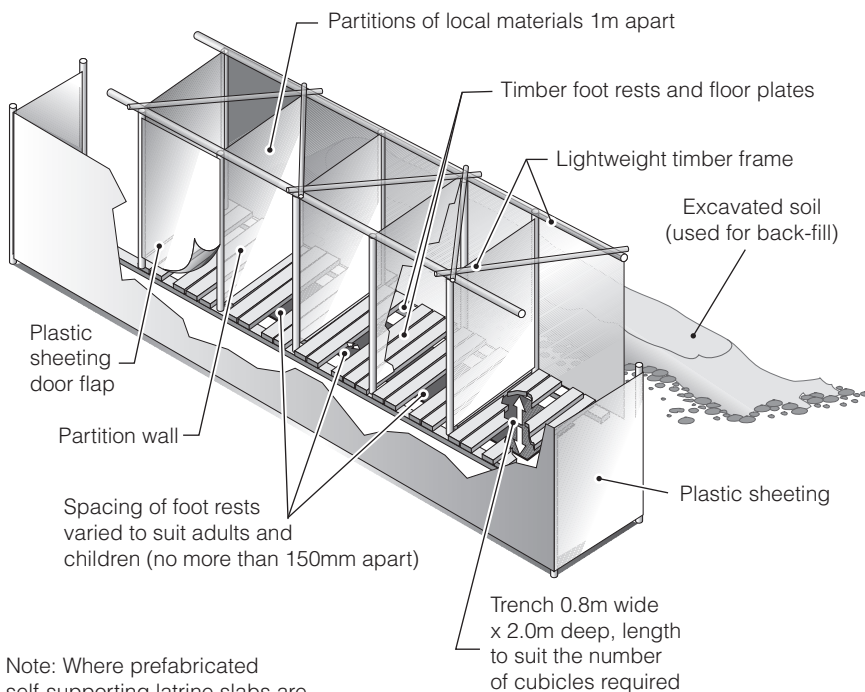


Appendix 4.

Bills of Quantities

A4.1 Deep trench latrines



Note: Where prefabricated self-supporting latrine slabs are to be used in place of timber cubicle sizes may need to be adjusted to fit slab width (e.g. 0.8m)

Superstructure

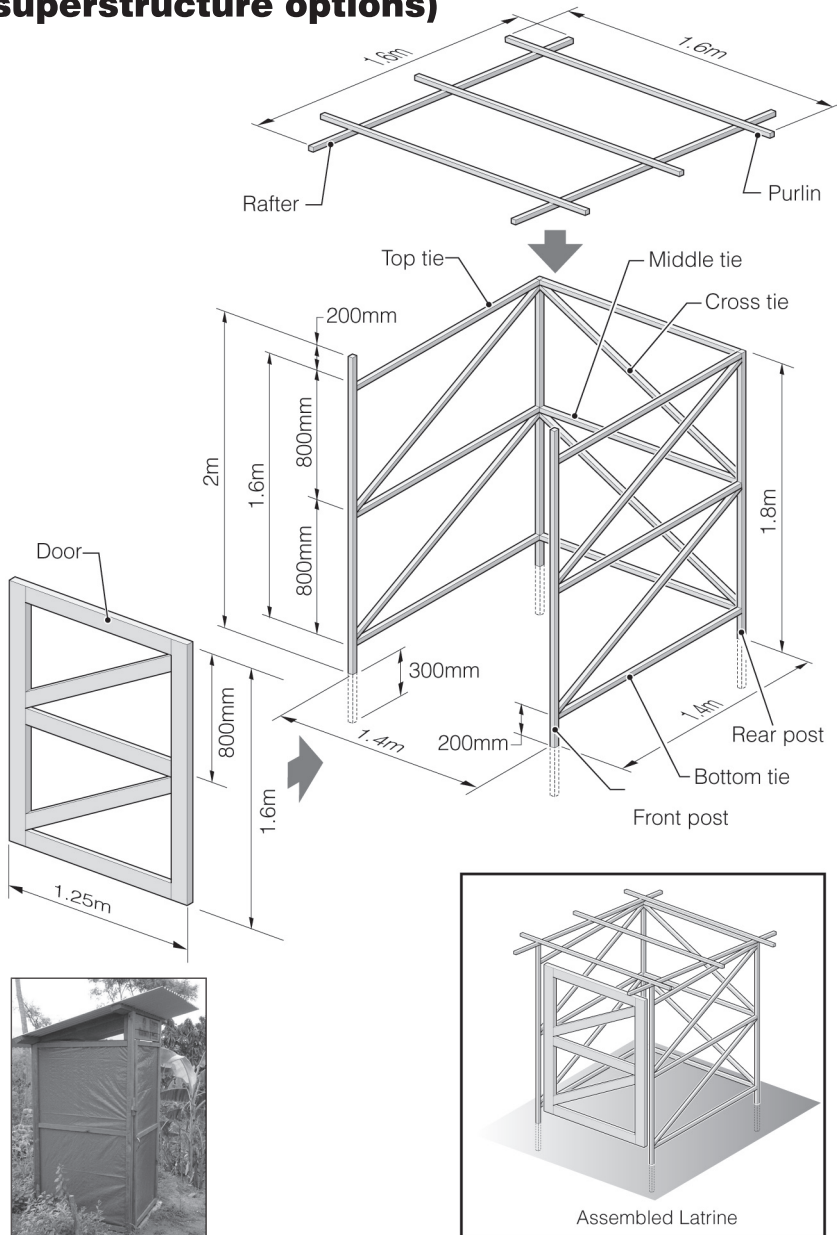
Table A4.1. BoQ: Deep trench latrine (4-unit block)

| Dimensions | Length (m) | Width (m) | Depth (m) |
|----------------------------|------------|-----------|--------------------------|
| Excavation of trench | 4.00 | 0.80 | 2.00 |
| Superstructure | Unit | Quantity | Linear metric length (m) |
| Timber 50 x 50 x 2300mm RT | front post | 5 | 11.50 |
| Timber 50 x 50 x 2100mm RT | back post | 5 | 10.50 |

Table A4.1. BoQ: Deep trench latrine (4-unit block) continued ...

| Dimensions | Length (m) | Width (m) | Depth (m) |
|--------------------------------------|-------------------|-----------|-----------|
| Timber: 50 x 25 x 1200mm RT | cross tie | 5 | 6.00 |
| Timber: 50 x 25 x 1800mm RT | diagonal tie | 5 | 9.00 |
| Timber: 75 x 25 x 4000mm RT | long tie (bottom) | 2 | 8.00 |
| Timber: 75 x 25 x 4000mm RT | long tie (top) | 2 | 8.00 |
| Galvanized-wood nails 2" | No. | 40 | |
| Galvanized-wood nails 1" | No. | 186 | |
| Bottle tops or folded plastic pads | No. | 226 | |
| Plastic sheeting (2m wide x 1m long) | walls | 10 | 10.00 |
| Plastic sheeting (2m wide x 1m long) | door | 4 | 4.00 |
| Slab and supports | | | |
| Timber: 15 x 100 x 4000mm RT | support planks | 2 | 8.00 |
| Wooden Slab: 1m x 1.2m | slab | 4 | |
| Roof | | | |
| Timber: 38 x 50 x 1800mm RT | rafter | 5 | 9.00 |
| Timber: 25 x 25 x (4000+400) mm RT | purlin | 3 | 13.20 |
| Plastic sheeting (2m wide x 1m long) | roof | 4.8 | 4.80 |
| Bottle tops or folded plastic pads | No. | 86 | |
| Galvanized-wood nails 1" | No. | 86 | |
| Privacy screen (optional) | | | |
| Timber 50 x 50 x 2300mm RT | posts | 5 | 11.50 |
| Plastic sheeting (2m wide x 1m long) | screen | 8 | 8.00 |
| Bottle tops or folded plastic pads | No. | 52 | |
| Galvanized-wood nails 1" | No. | 52 | |

A4.2 Simple pit latrine (with different superstructure options)



**Table A4.2. BoQ: Simple pit latrine
(with different superstructure options)**

| Dimensions | Depth (m) | Diameter (m) | |
|--|-----------------|--------------|--------------------------|
| Excavation of pit | 3.00 | 0.80 | |
| Superstructure frame | Unit | Quantity | Linear metric length (m) |
| Timber: 50 x 50 x 2300mm RT | front post | 2 | 4.60 |
| Timber: 50 x 50 x 2100mm RT | back post | 2 | 4.20 |
| Timber: 38 x 25 x 1750mm RT | cross tie | 6 | 10.50 |
| Timber: 50 x 50 x 1300mm RT | bottom tie | 3 | 3.90 |
| Timber: 38 x 50 x 1300mm RT | middle tie | 3 | 3.90 |
| Timber: 50 x 50 x 1300mm RT | top tie | 3 | 3.90 |
| Galvanized-wood nails 2" | No. | 30 | |
| Door frame | | | |
| Timber: 38 x 50 x 1600mm RT | uprights | 2 | 3.20 |
| Timber: 38 x 50 x 1400mm RT | cross tie | 2 | 2.80 |
| Timber: 38 x 50 x 1150mm RT | horizontal ties | 3 | 3.45 |
| Hinges | No. | 3 | |
| Wood screws (1.5") | No. | 18 | |
| Galvanized-wood nails 2" | No. | 10 | |
| Roof | | | |
| Timber: 38 x 50 x 2000mm RT | rafter | 2 | 4.00 |
| Timber: 25 x 25 x 1800mm RT | purlin | 3 | 5.40 |
| Corrugated-iron sheeting (2m x 1.8m wide) | roof | 1 | |
| Galvanized-roofing nails | No. | 8 | |

Table A4.2. BoQ: Simple pit latrine
(with different superstructure options) continued

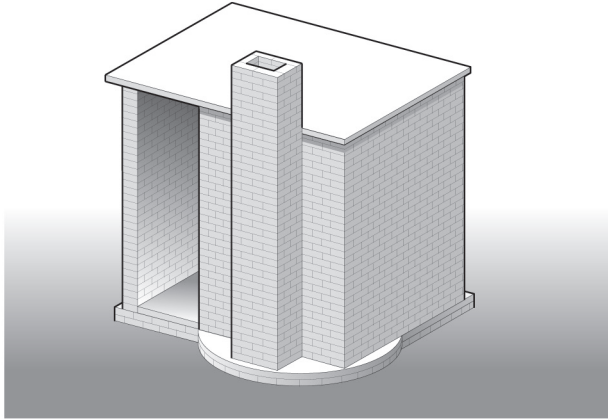
| Slab | | | |
|--|-------|-----|-------|
| Domed-concrete slab (1.2m diameter) OR Reinforced-concrete slab: 1m x 1.2m OR Self-supporting plastic (Oxfam) slab: 0.8m x 1.2m | slab | 1 | |
| Superstructure: CORRUGATED IRON | | | |
| Corrugated-iron sheeting (1.6m x 1.4m wide) | walls | 3 | |
| Corrugated-iron sheeting (1.6m x 1.2m wide) | door | 1 | |
| Galvanized-roofing nails | No. | 36 | |
| Superstructure: WOODEN SLATS | | | |
| Timber: 75 x 15 x 1400 mm RT | walls | 66 | 92.40 |
| Timber: 75 x 15 x 1250 mm RT | door | 22 | 27.50 |
| Galvanised wood nails 1.5” | No. | 176 | |
| Superstructure: PLASTIC SHEETING | | | |
| Plastic sheeting (2m wide x 1m long) | walls | 4.2 | 4.20 |
| Plastic sheeting (2m wide x 1m long) | door | 1.3 | 1.30 |
| Bottle tops or folded plastic pads | No. | 88 | |
| Galvanized-wood nails 1” | No. | 88 | |

A4.3 Concrete-block-lined single pit (for use with simple pit or VIP latrine)

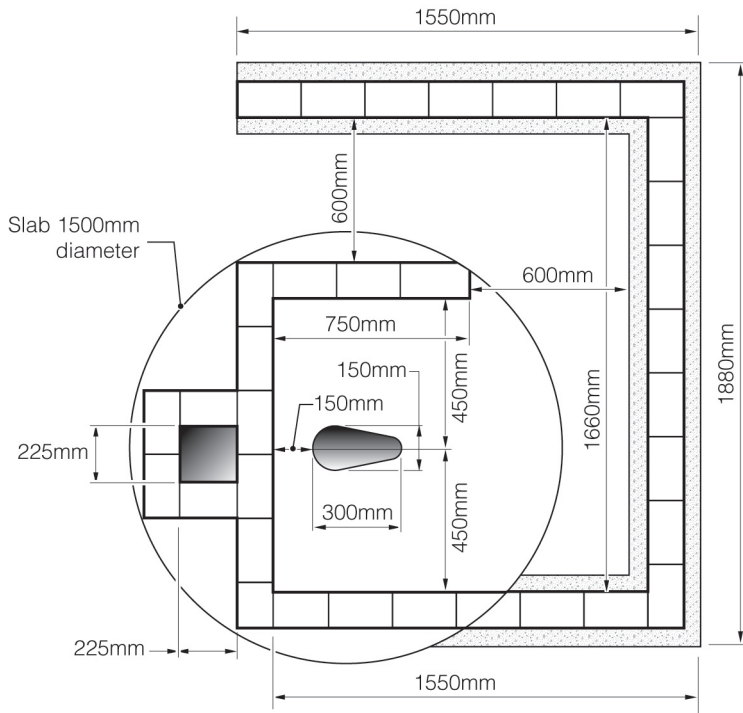
Table A4.3. BoQ: Concrete-block-lined single pit

| Designation | Depth (m) | Diameter (m) |
|---|-----------------------|-----------------|
| Excavation of pit | 3.00 | 0.8 |
| Concrete blocks (pit internal diameter 0.8m) | Unit | Quantity |
| <i>Blocks: 400 x 200 x 100mm</i> | <i>blocks per row</i> | <i>6.28 (7)</i> |
| <i>Blocks: 400 x 200 x 100mm</i> | <i>no. rows</i> | <i>15</i> |
| Blocks: 400 x 200 x 100mm | No. | 105 |
| Cement | 25kg bag | 1 |
| Building sand | m ³ | 0.25 |
| Latrine slab (SanPlat 1.0m diameter) | | |
| Cement | 25kg bag | 1 |
| Building sand | m ³ | 0.25 |
| Gravel | m ³ | 0.50 |

A4.4 Blair VIP latrine



Isometric view of slab and structure



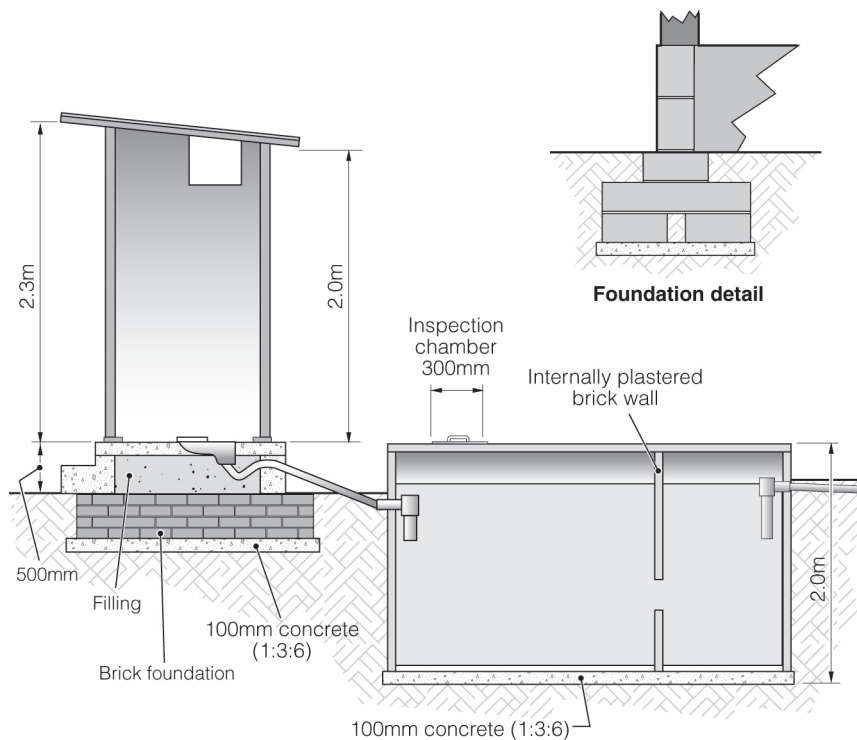
Plan view of slab and structure

Table A4.4. BoQ: VIP latrine*

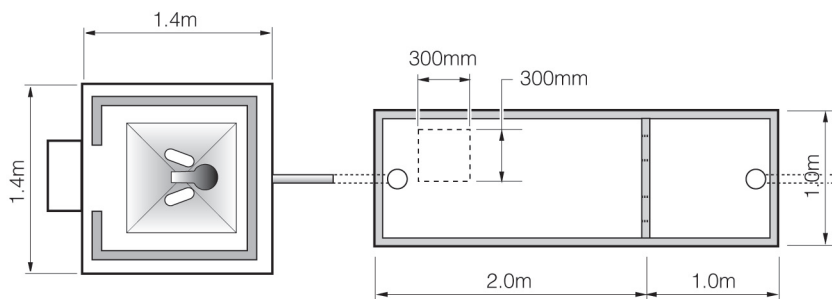
| Dimensions | Depth (m) | Diameter (m) |
|--|----------------|--------------|
| Excavation of pit | 4.00 | 1.0 |
| Superstructure and pit-lining | Unit | Quantity |
| Cement | 25kg bag | 4 |
| Building bricks | No. | ~1000 |
| River sand | m ³ | 0.5 |
| Pit sand | m ³ | 1.5 |
| Gravel | m ³ | 0.125 |
| Roof | | |
| Cement | 25kg bag | 1 |
| Chicken wire (1.7m x 2.0m) | m ² | 3.4 |
| Latrine slab | | |
| Cement | 25kg bag | 1 |
| Domed-concrete slab (1.2m diameter) <i>including 150mm-diameter hole for vent pipe</i> | No. | 1 |
| OR Reinforcement wire (3mm) <i>for reinforced, flat circular slab</i> | metre | 25 |
| Vent Pipe | | |
| PVC pipe (150mm diameter) <i>or use building bricks</i> | metre | 2.5 |
| Stainless steel or aluminium fly screen: 180mm diameter | screen | 1 |

* Adapted from Morgan (1990)

A4.5 Pour-flush latrine, septic-tank and soakaway



Side elevation

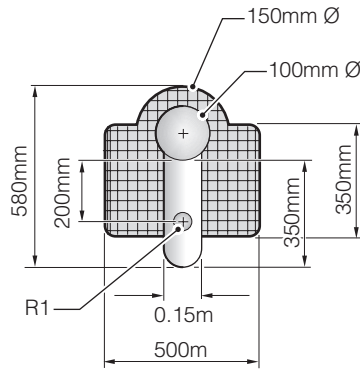


Plan view

Table A4.5. BoQ: Pour-flush latrine and septic-tank

| Foundation and superstructure | Unit | Quantity |
|------------------------------------|----------------|----------|
| 100 x 200 x 400mm cement block | No. | 170 |
| 20mm (3/4") aggregate | No. | 0.15 |
| Silicon gun | tube | 0.2 |
| River sand | m ³ | 0.6 |
| Cement | 25kg bag | 5 |
| Squatting pan with foot-rest | No. | 1 |
| Roof | | |
| 1.8m corrugated-tin sheet 18 gauge | No. | 3 |
| 50 x 75mm timber | metre | 7 |
| Wire nail | kg | 0.3 |
| Cap nail | kg | 0.3 |
| Door | | |
| 1.8m corrugated-tin sheet 18 gauge | No. | 1 |
| 150mm (6") tail hinge | No. | 2 |
| 100mm (4") towel bolt | No. | 1 |
| Screw nail 20mm (3/4") | No. | 16 |
| Wire nail | kg | 0.2 |
| Cap nail | kg | 0.3 |
| 50 x 75mm timber | metre | 6 |
| 50 x 50mm timber | metre | 7 |
| Septic-tank and soakage pit | | |
| Building bricks | No. | 1500 |
| River sand | m ³ | 0.5 |
| Cement | 25kg bag | 6 |
| 20mm (3/4") aggregate | m ³ | 0.3 |
| 110mm PVC T | No. | 1 |
| 110mm PVC pipe | metre | 4.5 |
| Rebar (10mm) | metre | 32.0 |

A4.6 Double-vault, urine-diverting latrine



View on arrow 'A'

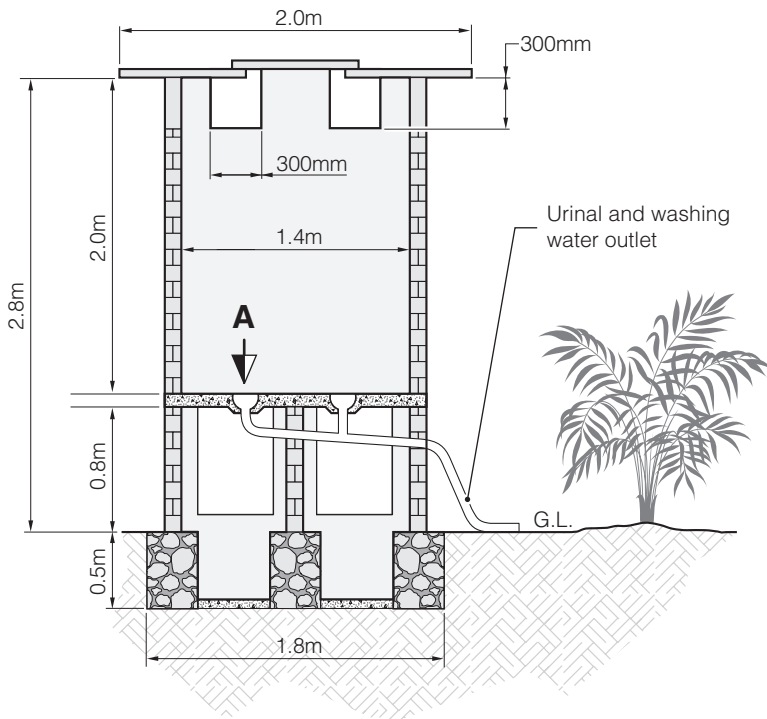


Table A4.6. BoQ: Double-vault, urine-diverting latrine

| Dimensions | Depth (m) | Length (m) | Width (m) |
|---|-----------|------------|-----------|
| Excavation of foundations | 0.50 | 2.5 | 2.5 |
| Superstructure, Chamber & Roof (Complete) | Unit | Quantity | |
| Cement | 25kg bag | 8.8 | |
| Red-cement powder | kg | 0.5 | |
| Sand | m³ | 53 | |
| Rubble (approx. 150mm x 300mm) | m³ | 42 | |
| Aggregate 20mm (3/4") | m³ | 12 | |
| Blocks (400mm x 200mm x 100mm) | No. | 314 | |
| Rebar 10mm diameter | metre | 36 | |
| Binding wire | kg | 0.3 | |
| Door | | | |
| Door – complete with frame | unit | 1 | |
| Hinges | No. | 3 | |
| Bolt (internal) | No. | 1 | |
| Padlock + padlock hinge | No. | 1 | |
| Wood screws (1.5 inch) | No. | 24 | |
| Squat-plate | unit | 2 | |
| Urine Separation Plumbing | | | |
| PVC pipe 50 mm (2") diameter | metre | 3 | |
| PVC "T" socket 50 mm (2") | No. | 1 | |
| PVC 50 mm (2") x 90° bend | No. | 1 | |
| PVC pipe 110 mm (4") diameter | metre | 4 | |
| PVC "T" socket | No. | 1 | |
| PVC 110 mm (4") x 90° bend | No. | 2 | |

A4.7 Double-unit pit latrine

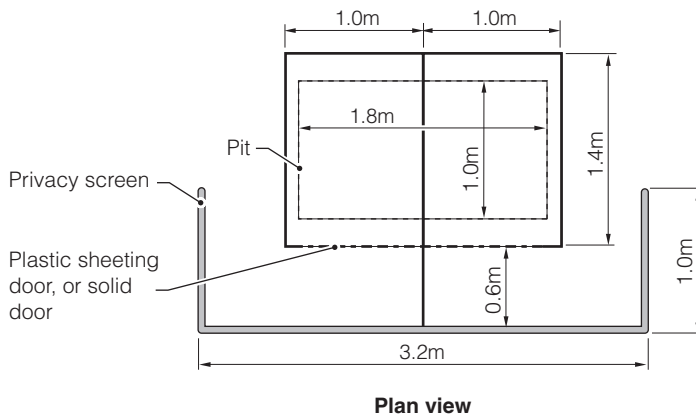
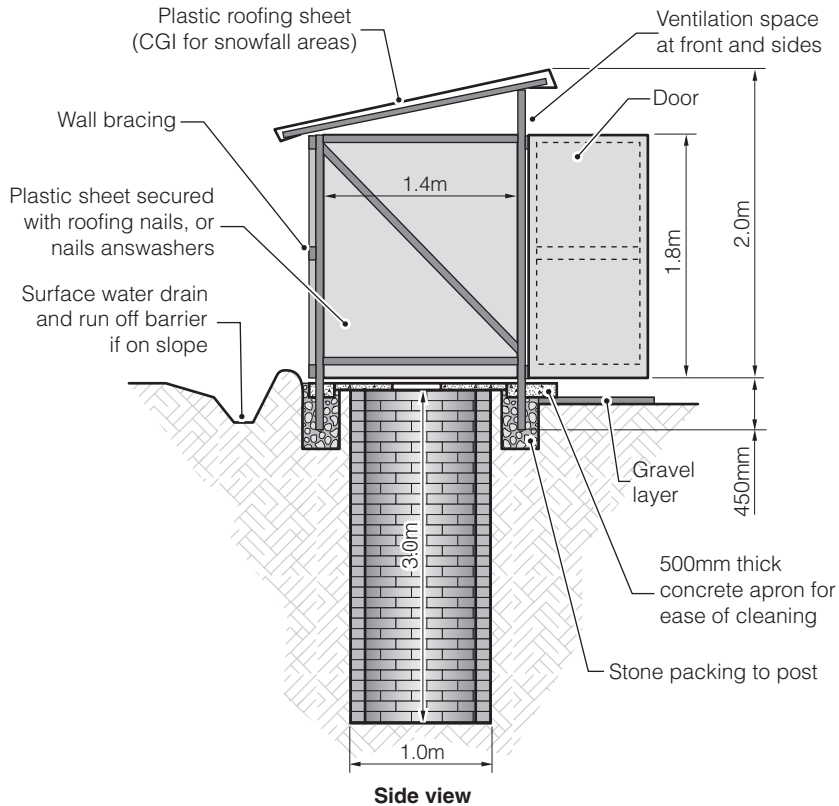
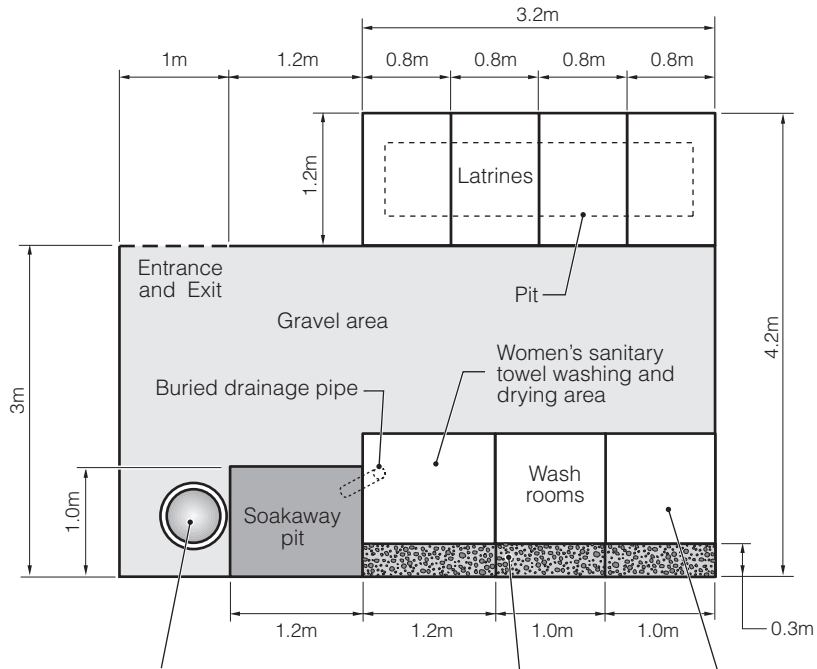


Table A4.7. BoQ: Double-unit pit latrine

| Dimensions | Depth (m) | <i>Length (m)</i> |
|----------------------------------|-----------|-------------------|
| Excavation of Pit | 3.00 | 2.00 |
| Detail of Items | Unit | Quantity |
| Wooden posts 50 x 50 x 2400mm | piece | 6 |
| Wooden posts 50 x 50 x 2100mm | piece | 2 |
| Wooden plank 75 x 15 x 2400mm | piece | 3 |
| Plastic latrine slab: 0.8 x 1.2m | No. | 2 |
| CGI sheet | No. | 2 |
| Steel twisting (10mm diameter) | metre | 6 |
| Plastic sheeting (2.0m width) | metre | 8 |
| Wooden posts 50 x 75 x 2800mm | No. | 6 |
| Nails 1", 3" and 4" (200gm each) | kg | 0.6 |

A4.8 Women's hygiene unit



Hand-washing barrel with tap and soap (broken into pieces to try and prevent it being stolen, and hung in a sock or small sack tied to the hand washing barrel).

The barrel should ideally be standing on the soak-pit and near to the exit door of the screened areas (as a reminder for people to wash their hands).

Stone filled drainage channel which should be within the wash room units and under the covered roof area.

Sloping concrete or marble slabs placed on a bed of sand, with smooth finish for easy cleaning.

Table A4.8. BoQ: Women's hygiene unit

| Detail | Unit | Quantity |
|--|----------------|----------|
| Wooden posts 50 x 50 x 2400mm | No. | 14 |
| Wooden posts 50 x 50 x 2100mm | No. | 9 |
| Wood 50 x 25 x 2400mm – used for cross bars and bracings for latrines, bath units and screens | No. | 36 |
| Wood 150 x 50 x 1600mm – wooden frame for supporting the latrine slabs at the top of the pit | No. | 9 |
| Small gravel chippings – no fines – for the ground surface, the stone drain for bath units and the top of the soakpits | m ³ | 0.6 |
| Large stones / rocks for filling soakpit | m ³ | 1.2 |
| Tarpaulin / plastic sheeting (thick, ideally coloured / not white, with fabric weave where possible) | m ² | 100 |
| 'Washels' (washers to use with standard 2" nails – could be replaced with roofing nails, or rubber washers) | kg | 3 |
| Nails 3" | kg | 1 |
| Nails 2" | kg | 5 |
| Nails 1" | kg | 1 |
| Binding wire – for door locks and additional bracing for screen if required | kg | 2 |
| Sand – for bedding to form the slope for the marble bathing slabs and for constructing the edging for the hygiene unit | m ³ | 0.5 |
| 0.8m x 1.2m Oxfam slabs (produced in India) | No. | 4 |
| 1.0m x 1.2m x 20mm (¾") marble sheets – with rough surface – for bath units and base of hygiene unit | No. | 3 |
| Cement – for plastering brick edges to hygiene unit and forming connection to uPVC pipe outlet | 25kg bag | 0.5 |
| Burnt bricks – for constructing edging for the hygiene unit to direct water into the pipe | No. | 30 |
| 90mm (3") UPVC pipe | metre | 0.5 |

A4.9 Septic-tank

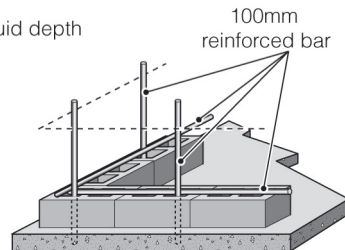
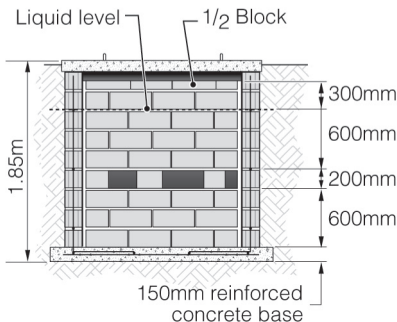
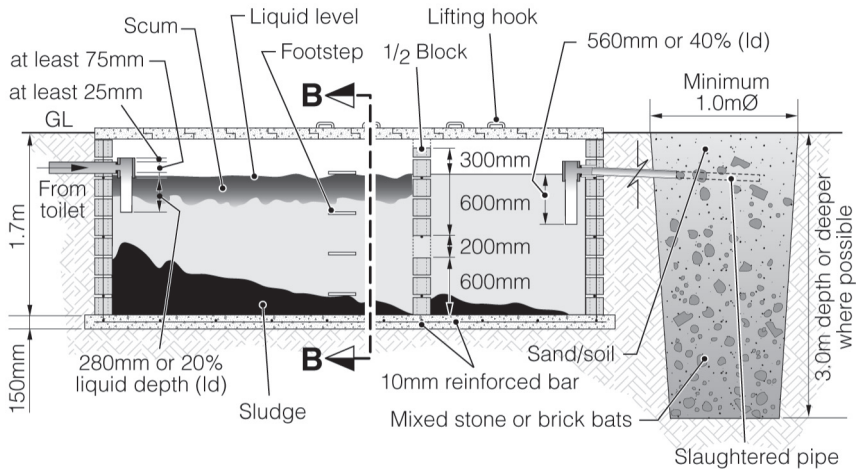
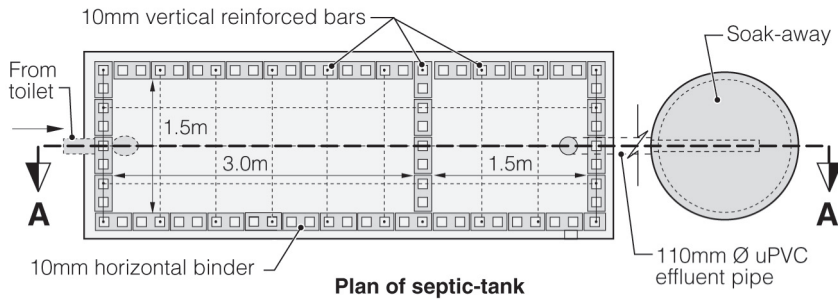


Table A4.9. BoQ: Reinforced-concrete septic-tank

| Tank structure | Unit | Quantity |
|-----------------------------------|----------------|----------|
| Cement (casting and plastering) | 25kg bag | 12 |
| Sand | m ³ | 0.5 |
| Gravel (20mm) | m ³ | 0.3 |
| 10mm reinforcing steel bar | metre | 100 |
| 400 x 200 x 100mm concrete blocks | No. | 350 |
| Lifting hooks | No. | 4 |
| Pipe and fittings | | |
| 100mm-diameter PVC pipe | m | 24 |
| 100mm PVC flexible coupling | No. | 6 |
| 100mm PVC screw-end caps | No. | 2 |
| 100mm PVC tee | No. | 4 |
| 100mm PVC puddle flanges | No. | 7 |
| Vent valves | No. | 2 |
| PVC glue | tube | 6 |

A4.10 Sewerage network and infiltration system for five houses

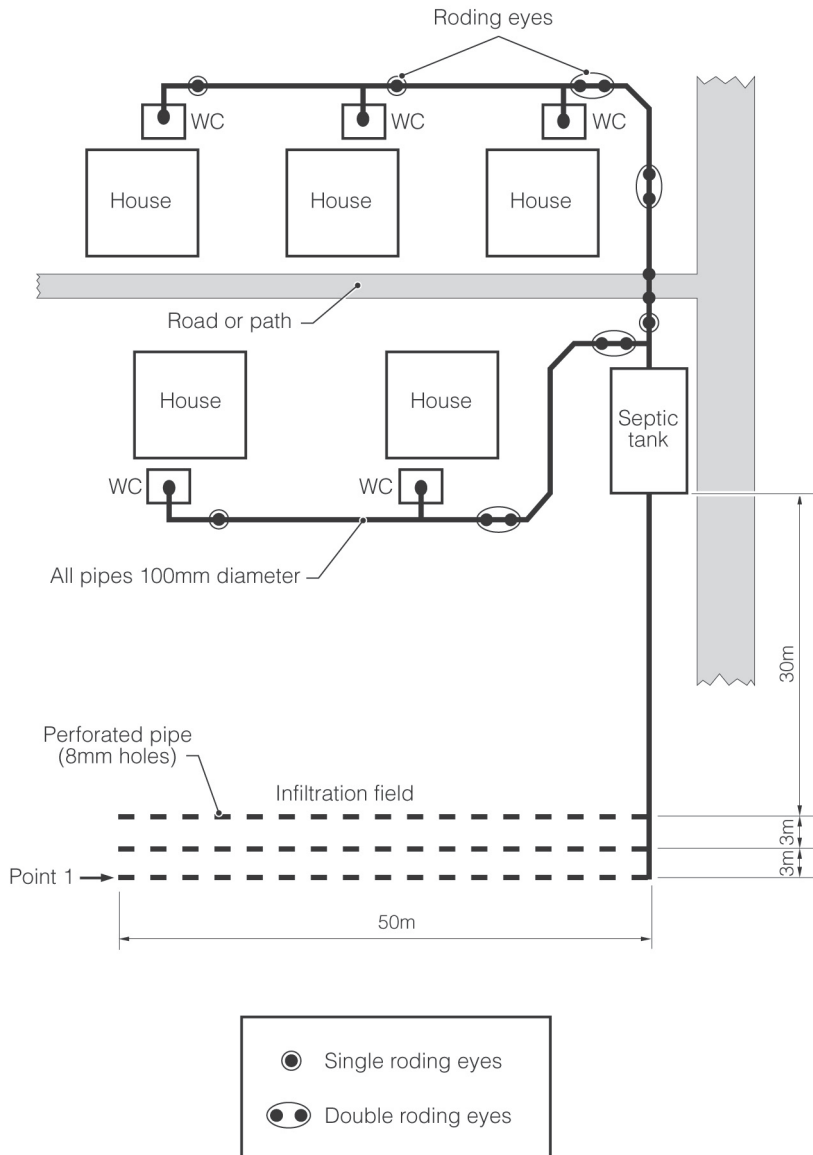


Table A4.10. BoQ: Sewerage network and infiltration system for five houses

| Sewerage-pipe network | Unit | Quantity |
|--|----------------|----------|
| 100mm-diameter PVC pipe | m | 120 |
| 100mm PVC 90° elbow | No. | 5 |
| 100mm PVC 45° elbow | No. | 25 |
| Flow junction (67°) | No. | 13 |
| 100mm PVC screw-end caps | No. | 12 |
| 100mm PVC Tee | No. | 1 |
| Cement | 25kg bag | 6 |
| Sand | m ³ | 0.35 |
| Gravel | m ³ | 0.7 |
| Plywood (9mm x 1.3m x 2.4m) | No. | 1 |
| Timber (75mm x 50mm x 2.0m) | piece | 5 |
| 6m lengths of twisted, 12mm reinforcing-steel bar | No. | 3 |
| 16 gauge tie wire | kg | 0.5 |
| 3" nails | kg | 0.5 |
| 1" nails | kg | 0.25 |
| Infiltration system | | |
| 100mm PVC screw-end caps | No. | 9 |
| 100mm diameter PVC pipe <i>150m of pipe will be perforated with 8mm holes</i> | m | 186 |
| 100mm PVC 90° elbow | No. | 1 |
| 100mm PVC Tee | No. | 2 |
| Round gravel (30mm diameter) | m ³ | 90 |
| Sand | m ³ | 8 |
| Palm fibre (for dividing layer between topsoil and infiltration gravel) | kg | 200 |