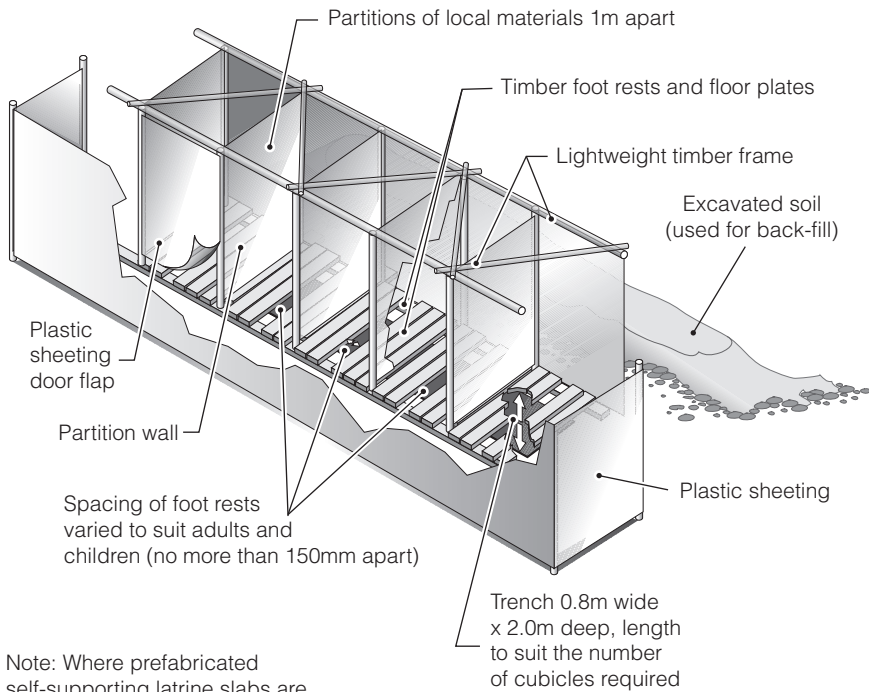


Appendix 4.

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

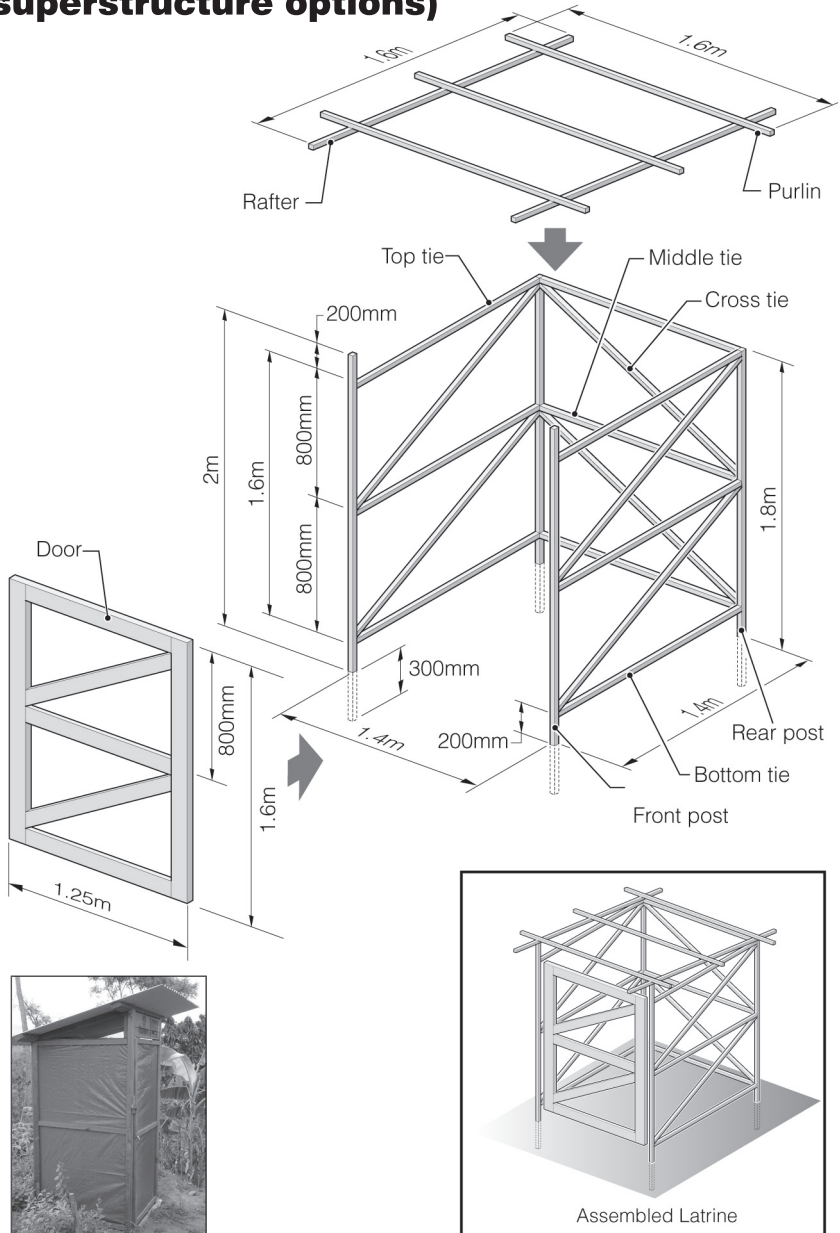
Table A4.1. BoQ: Deep trench latrine (4-unit block)

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

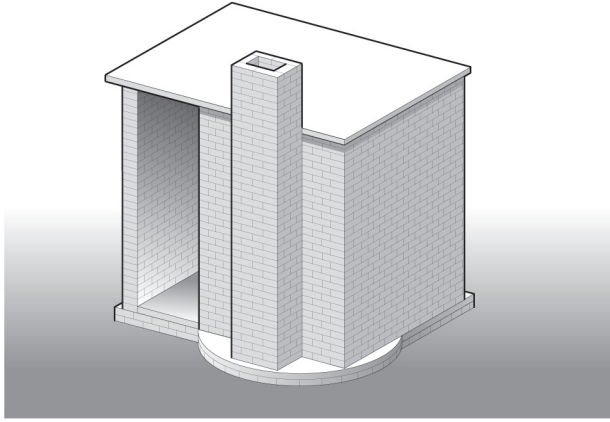
Slab			
Domed-concrete slab (1.2m diameter)	slab	1	
OR Reinforced-concrete slab: 1m x 1.2m			
OR Self-supporting plastic (Oxfam) slab: 0.8m x 1.2m			
Superstructure: CORRUGATED IRON			
Corrugated-iron sheeting (1.6m x 1.4m wide)	walls	3	
Corrugated-iron sheeting (1.6m x 1.2m wide)	door	1	
Galvanized-roofing 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)

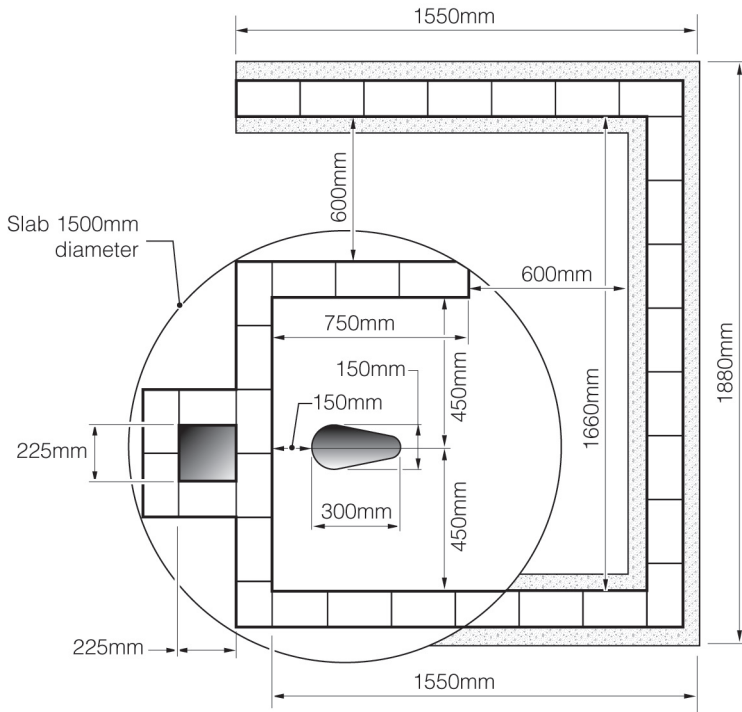
Table A4.3. BoQ: Concrete-block-lined single pit

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



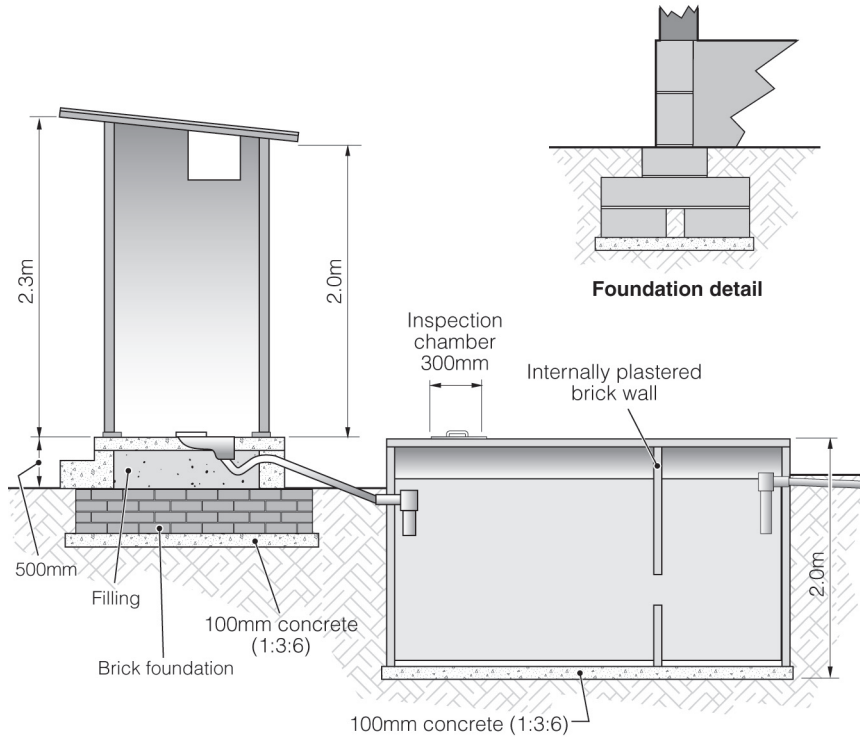
Plan view of slab and structure

Table A4.4. BoQ: VIP latrine*

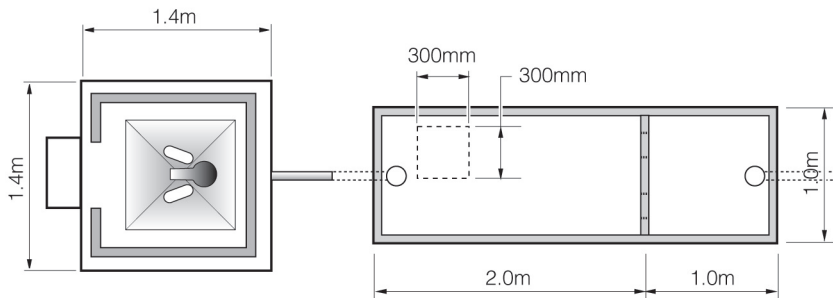
Dimensions	Depth (m)	Diameter (m)
Excavation of pit	4.00	1.0
Superstructure and pit-lining	Unit	Quantity
Cement	25kg bag	4
Building bricks	No.	~1000
River sand	m ³	0.5
Pit sand	m ³	1.5
Gravel	m ³	0.125
Roof		
Cement	25kg bag	1
Chicken wire (1.7m x 2.0m)	m ²	3.4
Latrine slab		
Cement	25kg bag	1
Domed-concrete 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

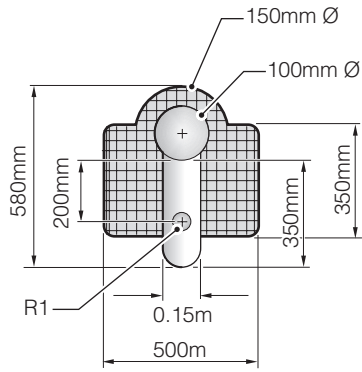


Plan view

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'

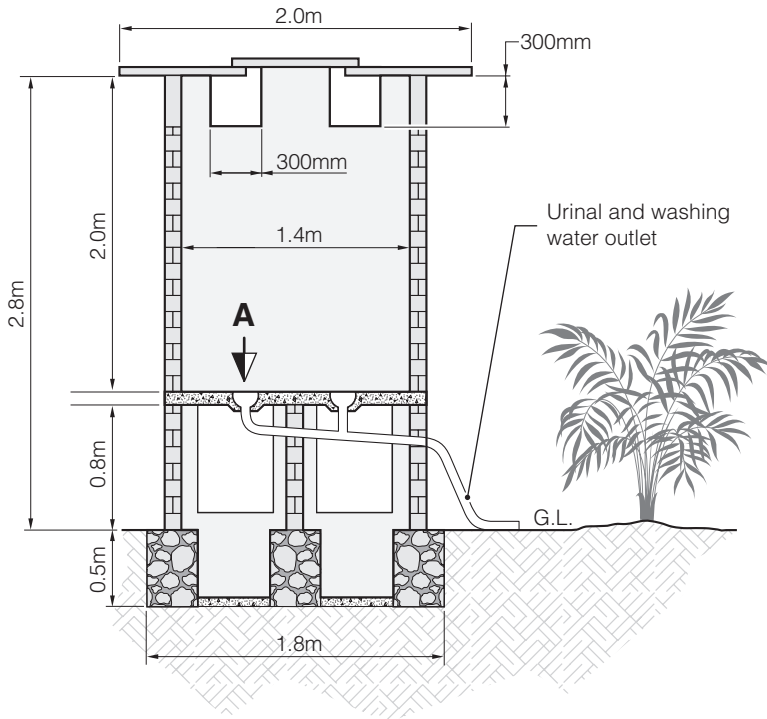


Table A4.6. BoQ: Double-vault, urine-diverting latrine

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	m ³	53	
Rubble (approx. 150mm x 300mm)	m ³	42	
Aggregate 20mm (3/4")	m ³	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

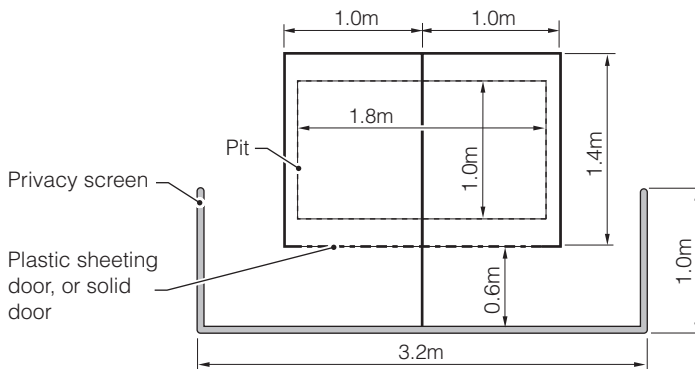
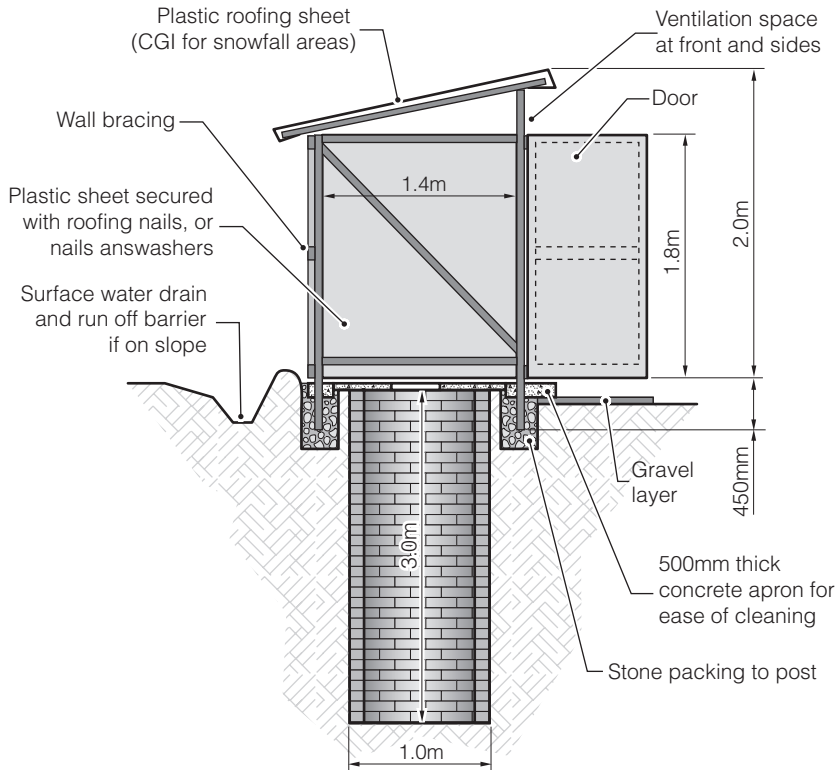
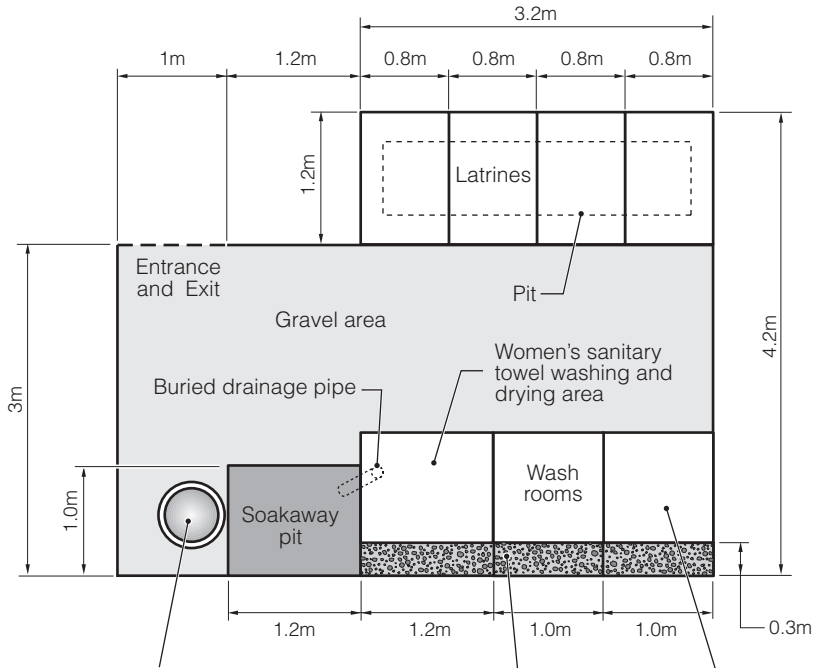


Table A4.7. BoQ: Double-unit pit latrine

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

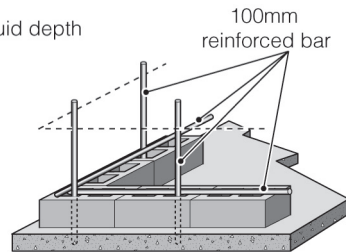
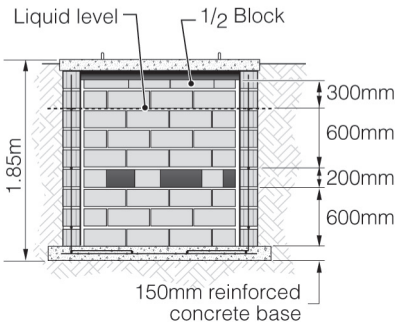
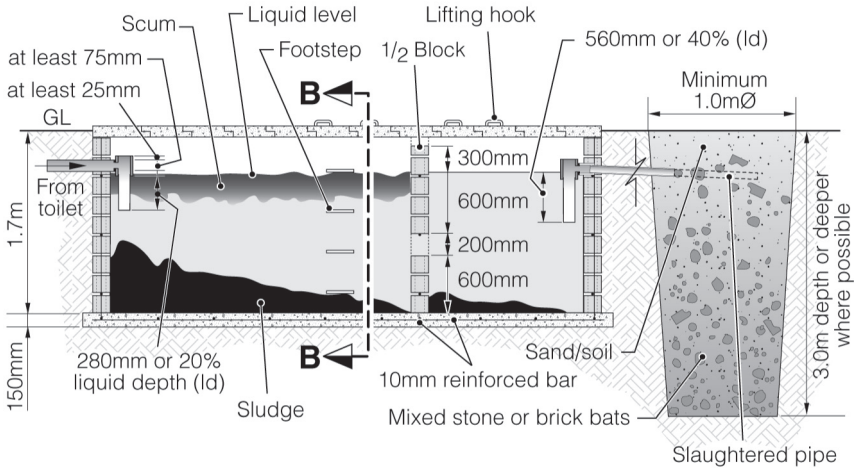
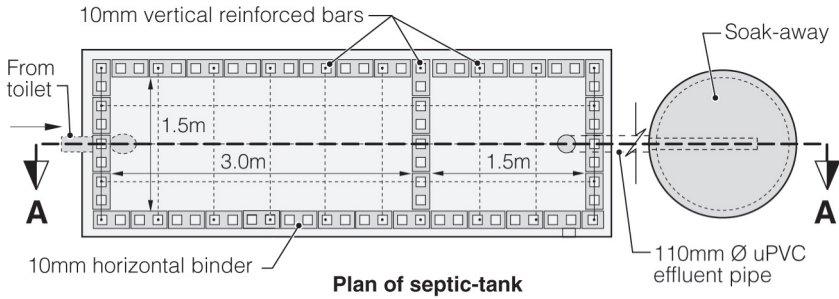


Table A4.9. BoQ: Reinforced-concrete septic-tank

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

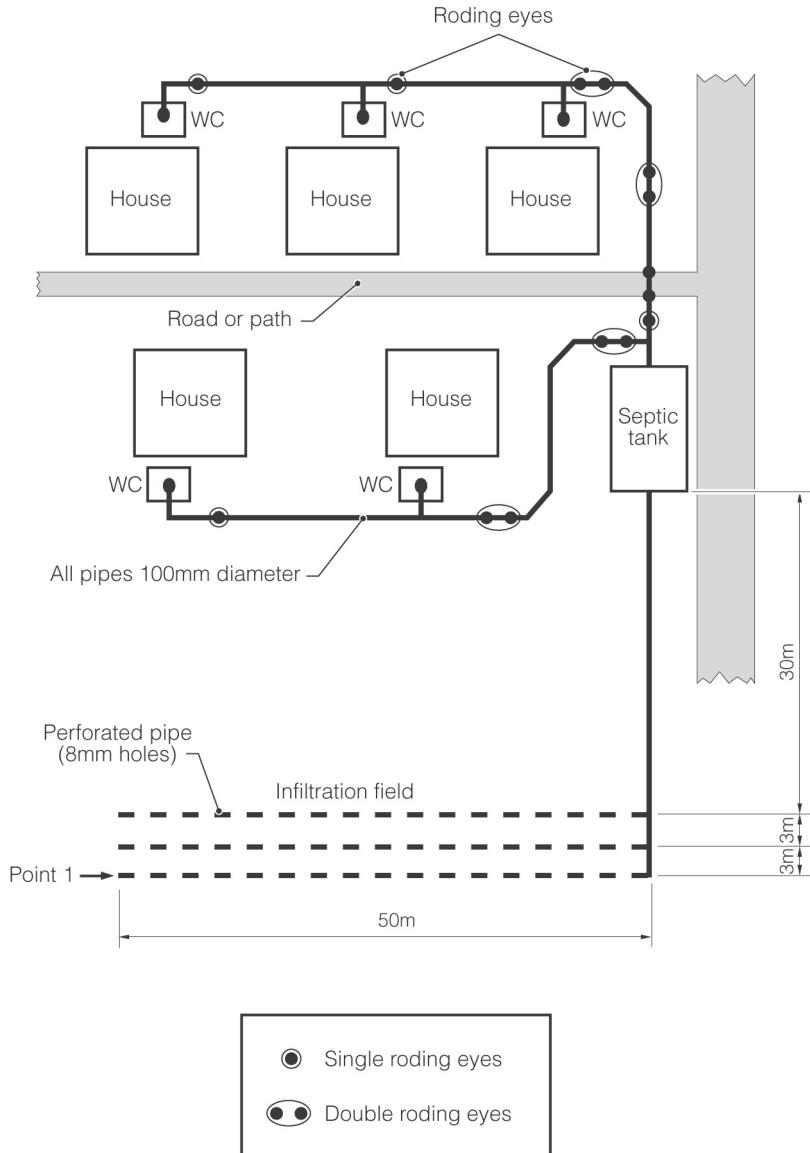


Table A4.10. BoQ: Sewerage network and infiltration system for five houses

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