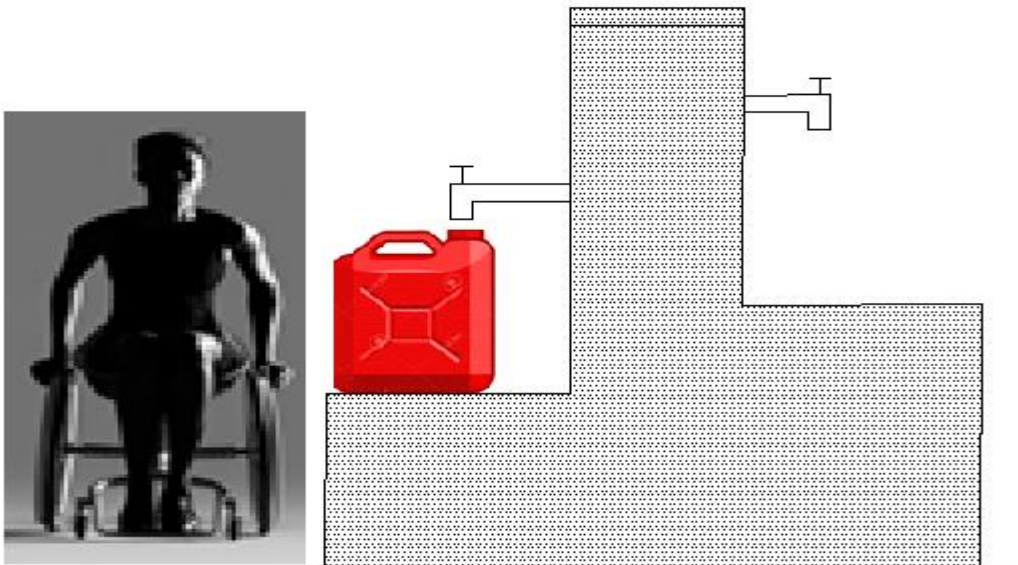


# COMMUNITY-LED ACCELERATED WASH (COWASH)



Effective and sustainable  
WaSH services



**INCLUSIVE 4 FAUCETS PUBLIC TAP/FOUNTAIN DESIGN**

FEBURARY 2020

ADDIS ABABA

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## 1. INTRODUCTION

One of the outcomes of the COWASH has III is “**increased women’s empowerment, leadership and inclusion of people with disabilities in the project regions**”. To contribute to the achievement of the outcome different efforts have been made by the project since the start of the phase. Out of these efforts preparation of inclusive designs for different water supply technologies is the one. An inclusive hand pump well head design for hand dug and shallow drilled well had been prepared by the FTAT and is being used in number of woredas and encouraging results have been observed. As there is also an increased number of piped schemes being implemented in many woredas, the FTAT realized the need also to prepare an inclusive design for a public tap to suit for persons with disability especially for those physically disable people who use crutch or wheel chair. As this is a design prepared for testing & improvement by regions, new inputs resulting from practical implementation of the design on the ground are welcome by the FTAT

## 2. FEATURES OF THE DESIGN OPTIONS

### 2.1 THE DESIGN

The major features of this design is having a ramp with a hand rail and enough space for the wheel chair users to turn around the tap stand for operating it and also carrying the jercans after taking the water from the tap. The ramp has a maximum slope of 6%. In order to avoid the flooding of rain if it happens the tap floor is proposed to be at least 10cm high from the ground and for keeping the slope maximum to 6%, the length of the ramp is made to be minimum 1.7 meters. But in case if the area is more exposed to flooding and the tap/fountain floor to be more than high 10cm from the ground, the length of the ramp can be proportionally calculated/increased to keep the slope of the ramp to maximum of 6%. The ramp has also handrail on its one side as shown in the drawing. As the main purpose of this inclusive design is to create easy access to wheel chair and crutch users, width of the door to the well head has to be kept to minimum of 1 meter and be in front of the ramp as shown in the drawing. Although the specific design attached in this document is for **four faucets public tap**, the same design concept can be used also for two and six faucet fountains by modifying to suit for these. One potential challenge in applying the design may be the need for more space as compared to the non-inclusive design in use so far. So for this purpose there is a strong need to convince communities to give more land or some site specific measures can be taken to minimize land need without compromising the inclusive nature of the design and one of such measures can be reducing the area to be fenced.

#### **How the wheelchair travels/reaches to use/operate the tap?**

The dimensions set in this design are based on the following assumptions of the wheelchair to travel to the wheelchair users’ tap point. First the wheelchair travels **forward** on the ramp to reach to the public tap floor after finishing the ramp. Then the wheelchair turns to the **right (clockwise) 180 degree** on the tap floor and stands in the position shown in the drawing to operate the tap point. The person operates the tap, fills and carries the jericans travel **forward** on the tap floor, then turns to the **left** and leaves the tap by traveling **forward** on the ramp floor.

### 3. CONTENTS OF THE DESIGN DOCUMENT

#### 3.1 DESIGN DRAWING

The first content of the document is the design drawings. There are three drawings in this document each has its own contribution for properly constructing the design. The designs are originally prepared in AutoCAD, scanned and included in this document as follows.

It. No.	Drawing Title	Drawing No.
1	Plan of inclusive public tap/fountain design	Dr. No. 1/4
2	Section A-A and B-B of inclusive public tap design	Dr. No. 2/4
3	Section C-C & fitting details of inclusive public tap design	Dr. No. 3/4
4	Details of public tap	Dr. No. 4/4

#### 3.2 BILL OF QUANTITIES

The other content of the design document is the bill of quantity and related materials for ease of planning, budgeting, and tendering for construction and payment preparation once the work is completed. The contents are prepared in the form of tables as follows and are attached in this document.

For ease of using by WASHCOs each region can translate the bill of quantity table to its working language.

Table No.	Title	No. of pages
Table 1	Takeoff sheet for inclusive four faucets public tap design	3
Table 2	Bill of quantity for inclusive four faucets public tap design	2
Table 3	Materials quantity calculation for inclusive four faucets Public tap design	2
Table 4	Construction materials quantity for inclusive four faucets public tap design	1

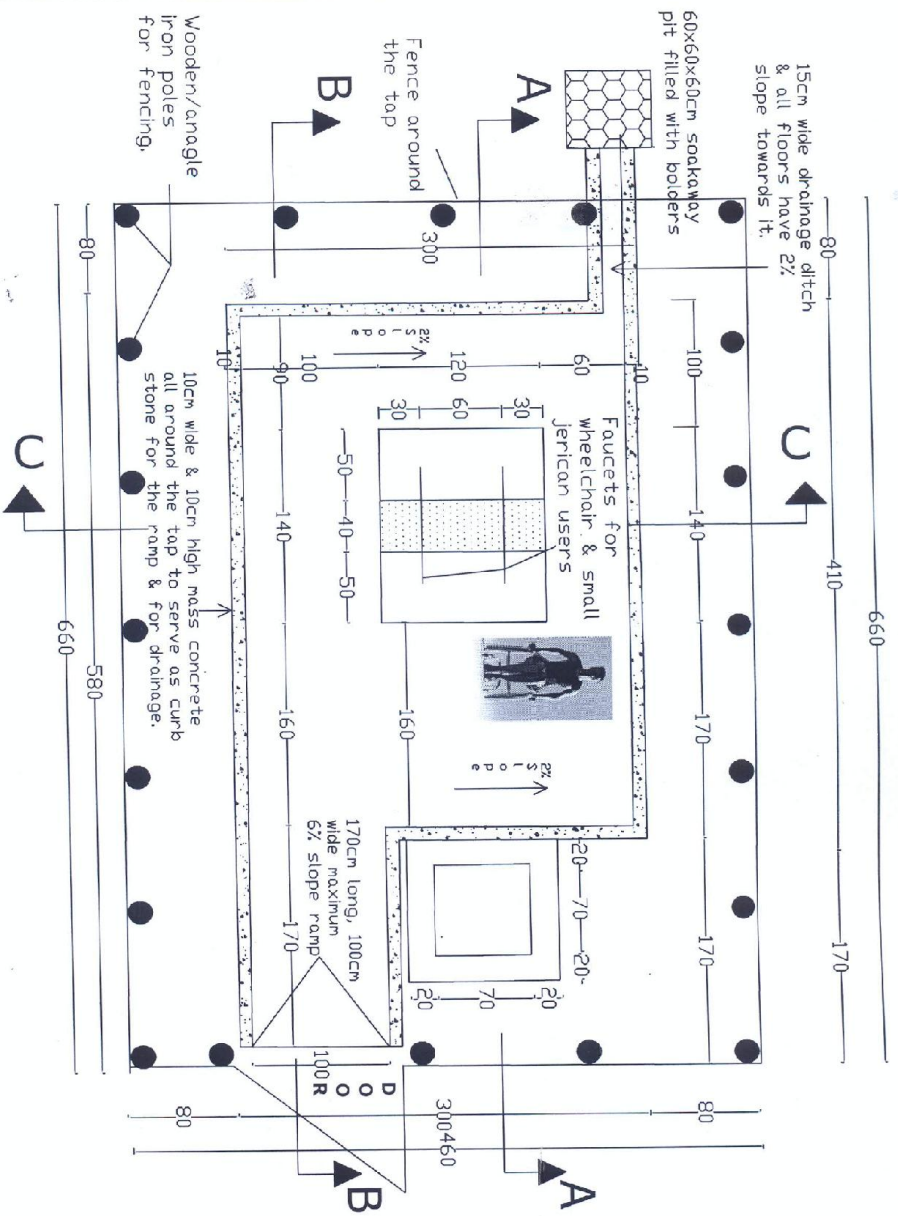
#### 3.3 COST ESTIMATE

As the FTAT observed that there is dynamic change in price from time to time and also there is wide variation in unit price from woreda to woreda. Hence unlike the other designs made so far the FTAT preferred not to estimate the cost so that each region or woreda can estimate based on its prevailing situation.

#### 3.4 PILOTING & IMPROVING THE DESIGNS

In order to have a more workable, practical, economical and quality inclusive public tap/fountain design & also to be a demonstration site to others, it is recommended that regions to choose some closer woredas and pilot/implement the design with strong follow-up from the RSU especially the CMP specialists. Once the piloting of the tap construction is completed the region shall see what improvements are required in the designs, revise the designs and apply in all public taps to be

constructed. In selecting the piloting site it is better to take in to consideration a site where there is at least one user with a disability, if possible also a site where there is a WASHCO member with a disability and a site where the access road to the well is easy to be crossed by a person with a disability so that the appropriateness of the design can be easily tested.



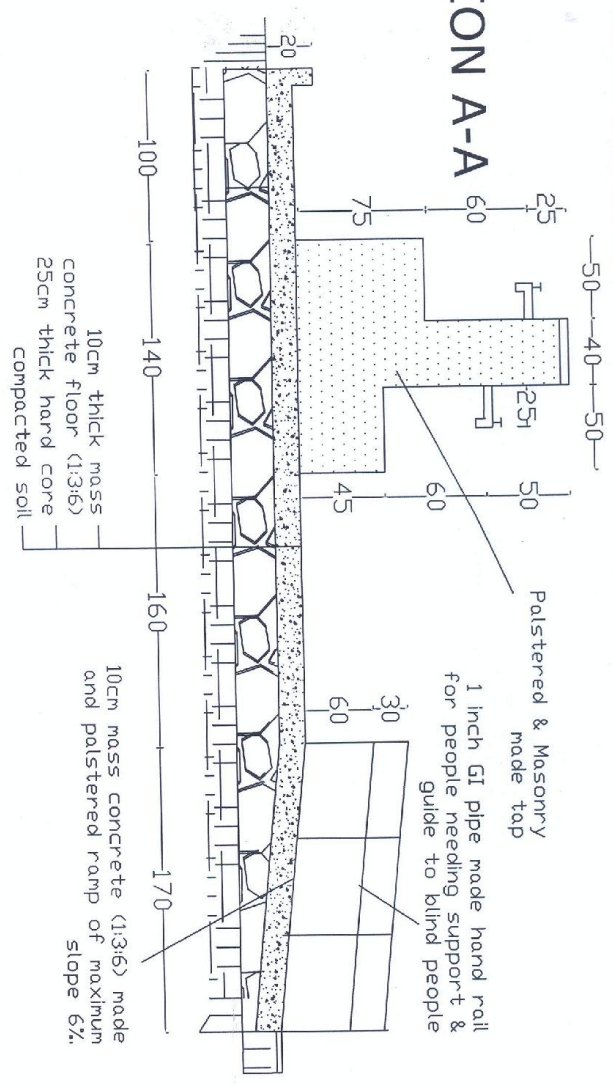
**PLAN OF 4 FAUCETS INCLUSIVE PUBLIC TAP**

NB. 1. Unless otherwise stated all dimensions are in centimeters.  
 2. The **DOOR** is to be minimum of 100cm wide and to be opened to outside.

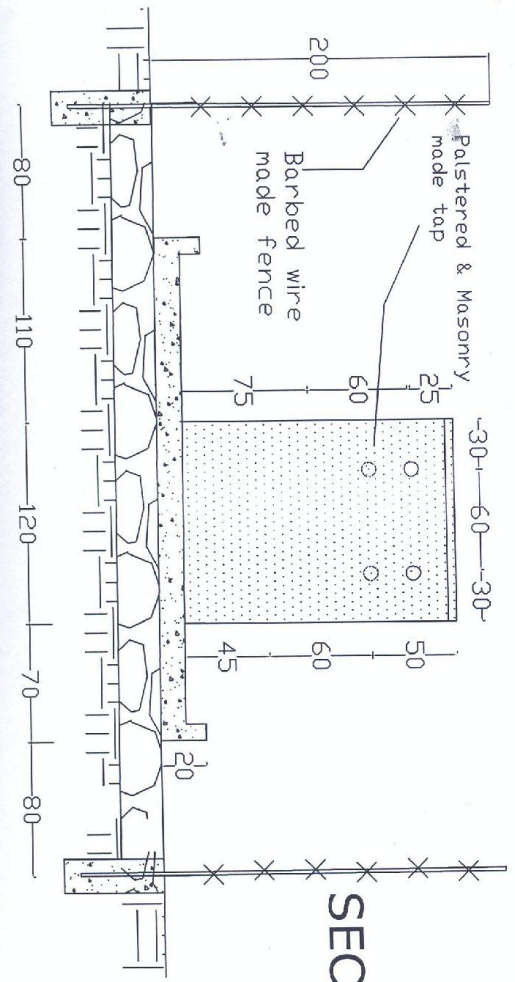
- NB. 1. Depending on the budget, the fence can be made of local materials (wood or stone) or barbed wire.
- 2. This design is prepared for 4 faucets tap but if there is a need to construct 6 faucets or 2 faucets, the design can be modified and used.
- 3. Depending on the site condition adjustment can be made to make more accessible for users.
- 4. In the 3 sides other than the ramp side the fence is proposed to be minimum of 80cm from the sides of the tap floor for ease of maintenance of the floor when needed but for the ramp side the fence is made just close to the start of the ramp.
- Depending on the land availability the fence can be made wider.
- 5. Depending on the slope of the ramp, ramp handle made of GI pipes, bamboo or wood can be constructed on one side of the ramp.
- 6. For draining of spill water, all the floor shall have 2% slope towards the drainage ditch.

**Dr.No.1/4**

# SECTION A-A



# SECTION B-B

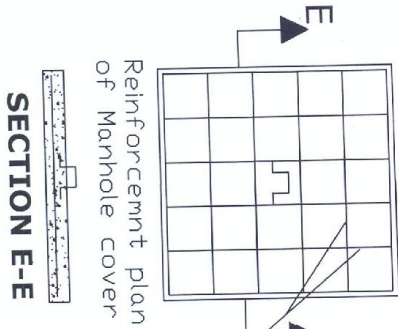
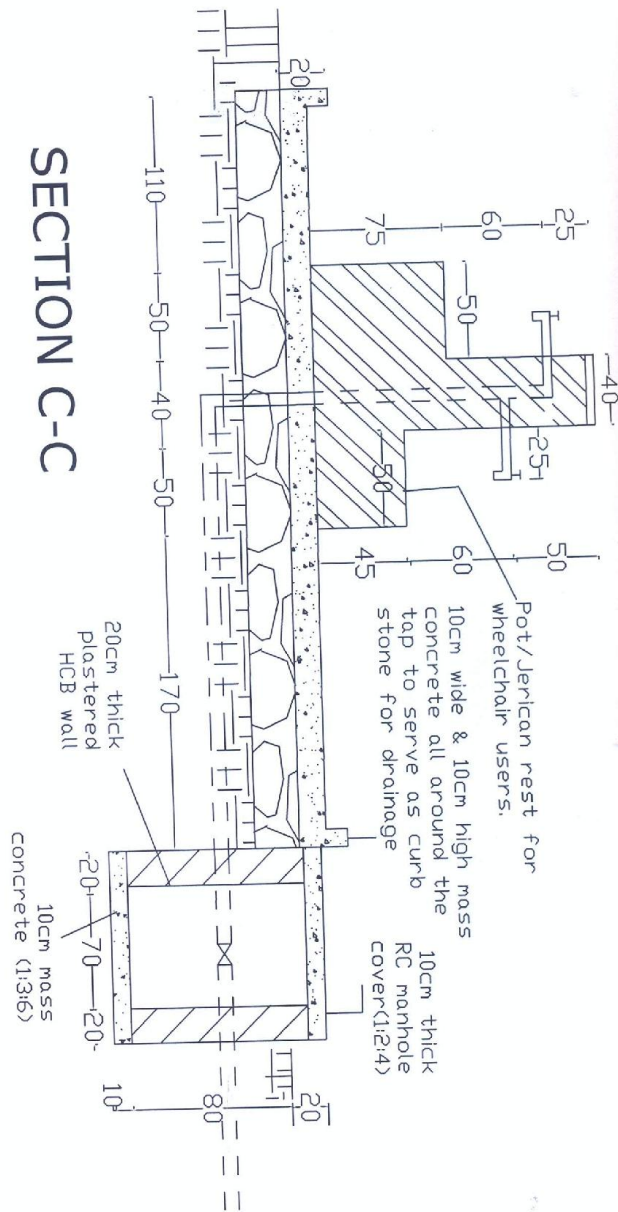


Dr.No. 2/4

List & quantity of fittings

Description	Unit	Qty.
1 1/2' GI Pipe	M	4
1' GI Pipe	M	1
1' GI pipe	Pcs	1.2
Reducer 1 1/2 to 1'	Pcs	1
Reducer 1' to 3/4'	Pcs	2
1' Tee	Pcs	1
3/4' Tee	Pcs	2
1 1/2' Gate valve	Pcs	1
1 1/2' Water meter	Pcs	1
90° 1 1/2' Elbow	Pcs	1
1 1/2' Union	Pcs	1
3/4' Coupling	Pcs	4
3/4' Faucet	Pcs	4
1' Nipples	Pcs	1
3/4' Nipples	Pcs	2
90° 3/4' Elbow	Pcs	2

SECTION C-C

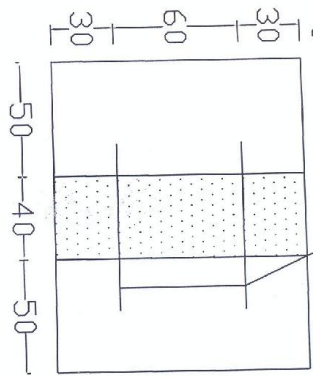
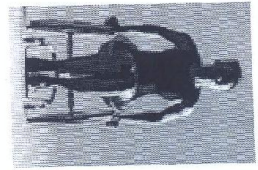


10mm dia. bars c/c 21cm bothways. Length of each bar=105cm

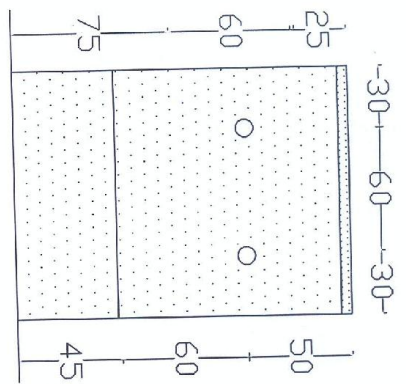
DR.No.3/4



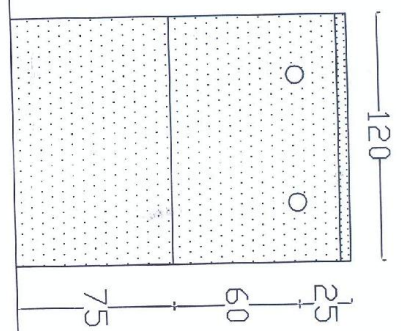
Faucets for wheelchair & small jerician users



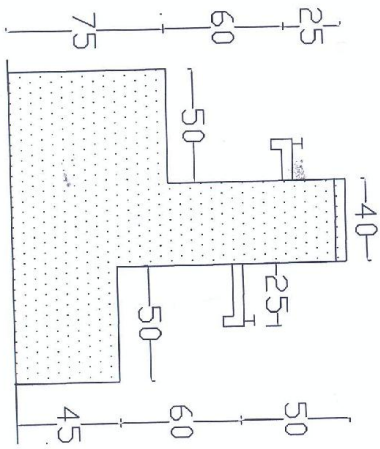
PLAN OF PUBLIC TAP



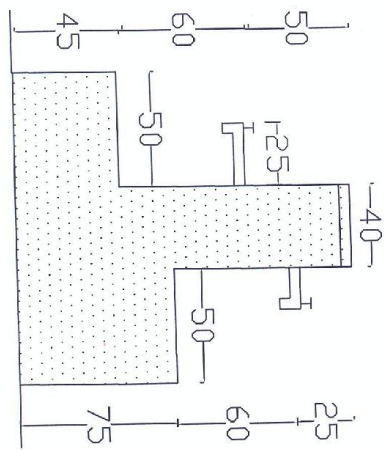
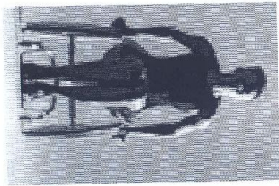
RIGHT SIDE ELEVATION



LEFT SIDE ELEVATION



FRONT ELEVATION



REAR ELEVATION

Dr.No.4/4

**Table 1. Takeoff Sheet for Inclusive Four Faucets Public Tap Design**

I.N.	Description	No	L (m)	W (m)	H (m)	Qty.	Remark
<b>1</b>	<b>EARTH WORK</b>						
1.1	Clearing and removal of top soil to average depth of 25cm (m <sup>2</sup> )		5.6	7.6		<b>42.56</b>	
1.2	Bulk excavation for foundation to a depth not exceeding 500mm						
	Public tap floor	1	4.1	3	0.5	6.15	
	Manhole	1	1.2	1.2	1	1.44	
	Ramp area	1	1.2	1.7	0.5	1.02	
	Soak away pit	1	0.6	0.6	0.6	0.22	
	<b>Total volume of excavation (m3)</b>					<b>8.83</b>	
1.3	Cartaway surplus excavated materials at a distance not less than 500 meters from the site						
	<b>Total amount of cart away (m3)</b>					<b>19.5</b>	
1.4	Supply and place 25cm thick trachitic hardcore blinded with crushed aggregate						
	Tap floor	1	4.1	3		12.3	
	Ramp area	1	1.2	1.7		2.04	
	<b>Total hard core (m2)</b>					<b>14.34</b>	
<b>2</b>	<b>CONCRETE WORK</b>						
2.1	10cm thick mass concrete (1:3:6) floor in water point base and on the surface of the hard core (m <sup>3</sup> )	1	4.1	3	0.1	<b>1.23</b>	
2.2	10cm thick concrete mass concrete (1:3:6) for the ramp (m <sup>3</sup> )	1	1.2	1.7	0.1	<b>0.2</b>	
2.3	10cm thick concrete mass concrete (1:3:6) around the tap are to be used as curb stone for the ramp and drainage (m <sup>3</sup> ). Length = 2x4.1m + 2x3m + 2x1.7m + 2 x 1.2m = 20	1	20	0.1	0.1	<b>0.2</b>	
2.4	10cm thick reinforced concrete (1:2:4) for the man hole cover (m <sup>3</sup> )	1	1.1	1.1	0.1	<b>0.12</b>	
2.5	Cut, bend and errecet 10mm diameter reinforcement bar for manhole cover (Kg).					<b>7.44</b>	12mx 0.62kg/m
2.6	Supply and fix timber formwork for the tap floor, manhole cover and ramp						
	Outer side of the floor	1	16.1		0.20	3.22	
	Inner side of the floor	1	16.1		0.1	1.61	
	For ramp (2x1.5m)	1	3		0.1	0.34	
	<b>Total formwork area (m<sup>2</sup>)</b>					<b>5.17</b>	

**Table 1. Takeoff Sheet for Inclusive Four Faucets Public Tap Design**

I.N.	Description	No	L (m)	W (m)	H (m)	Qty.	Remark
<b>3</b>	<b>MASONRY WORK</b>						
3.1	Hard trachytic or equivalent stone masonry water point wall grouted and filled with 1:4 mortar (m <sup>3</sup> )						
	For the tap base	1	1.4	1.2	0.75	1.26	
	For holding pipes	1	1.2	0.4	0.85	0.41	
	Minus wheel chair tap pot rest	1	1.2	0.5	0.3	-0.18	
	<b>Total masonry work (m<sup>3</sup>)</b>					<b>1.49</b>	
<b>4</b>	<b>HOLLOW CONCRETE BLOCK WORK</b>						
4.1	20cm thick hollow concrete block wall for the manhole wall grouted in 1:4 mortar						
	Long side	2	1.1	1		2.2	
	Short side	2	0.7	1		1.4	
	<b>Total area to be plastered (m2)</b>					<b>3.6</b>	
<b>5</b>	<b>FINISHING WORK</b>						
5.1	Apply two coats of plastering in 1:3 mortar mix to the exposed surface of the structure as follows (m2).						
	For the tap stand (2x1.2m + 2 x1.5m) = 5.4m	1	5.4	0.75		4.05	
	For the pipe support (2x1.2m + 2x0.4m) = 3.2	1	3.2	0.85		2.72	
	For the pot/jerican rest	2	1.2	0.5		1.2	
	Total area (m2)					7.97	
<b>6</b>	<b>RAMP HANDLE</b>						
6.1	Supply and fix 1" galvanized steel pipe or equivalent material hand rail spaced at 60 cm c/c. the pipes can be either welded or joined by fittings.						
	Vertical pipes	4	1			4	
	Horizontal pipes	2	1.7			3.4	
	<b>Total pipe length (m)</b>					<b>7.4</b>	

**Table 1. Takeoff Sheet for Inclusive Four Faucets Public Tap Design**

I.N.	Description	No	L (m)	W (m)	H (m)	Qty.	Remark
<b>7</b>	<b>FENCING WORK</b>						
7.1	MAKING minimum 4.6m x 6.6m wide & 2m high fence made of burbed wire						
	Front and back sides	2	6.6		2	26.4	
	Two sides	2	4.6		2	18.4	
	Minus door (1mx2m)	1	1		2	-2	
	<b>Total area to be fenced (m2)</b>					<b>42.8</b>	
7.2	Provide & install G-35 Corrugated Iron Sheet or Equivalent material made door size 100x200cm including lock and accessories.					<b>1 Pcs</b>	
<b>8</b>	<b>PIPES AND FITTINGS WORK</b>						
8.1	Supply medium class GI pipe and connect, embed in concrete and masonry and fix all pipes, fittings and accessories, water meter, valve, taps, etc. as shown on the drawing						<b>As shown in Drawing 3/3</b>

**Table 2. Bill of Quantity for Inclusive Four Faucets Public Tap Design**

I. N.	Description	Unit	Qty	Unit Price	Total price
<b>1</b>	<b>EARTH WORK</b>				
1.1	Clearing and removal of top soil to average depth of 250cm	M <sup>2</sup>	42.56		
1.2	Bulk excavation for foundation to a depth not exceeding 500mm	M <sup>3</sup>	8.83		
1.3	Cart away surplus excavated material to a distance not exceeding 1000m	M <sup>3</sup>	19.47		
1.4	Supply and place 250mm thick trachitic hardcore blinded with crushed aggregate	M <sup>2</sup>	14.34		
	<b>Sub Total</b>				
<b>2</b>	<b>CONCRETE WORK</b>				
2.1	10cm thick mass concrete (1:3:6) floor in water point base and on the surface of the hard core	M <sup>3</sup>	1.23		
2.2	10cm thick concrete mass concrete (1:3:6) for the ramp	M <sup>3</sup>	0.2		
2.3	10cm thick concrete mass concrete (1:3:6) around the tap are to be used as curb stone for the ramp and drainage.	M <sup>3</sup>	0.2		
2.4	10cm thick reinforced concrete (1:2:4) for the man hole cover	M <sup>3</sup>	0.12		
2.5	Supply, cut and fix mild steel reinforcement bars of dia.10mm for manhole cover, as shown in the drawing	Kg	7.44		
2.6	Supply and fix timber formwork for the tap floor, manhole cover and ramp	M <sup>2</sup>	5.17		
	<b>Sub Total</b>				
<b>3</b>	<b>MASONRY WORK</b>				
3.1	Hard trachytic or equivalent stone masonry water point wall grouted and filled with 1:4 mortar	M <sup>3</sup>	1.49		
	<b>Sub Total</b>				
<b>4</b>	<b>HOLLOW CONCRETE WORK</b>				
4.1	20cm thick hollow concrete block wall for the manhole wall grouted in 1:4 mortar	M <sup>2</sup>	3.6		
	<b>Sub Total</b>				
<b>5</b>	<b>FINISHING WORK</b>				
5.1	Three coats of plastering to the stone masonry wall of the tap and internal walls of manhole, using 1:3 mortar	M <sup>2</sup>	7.97		
	<b>Sub Total</b>				

**Table 2. Bill of Quantity for Inclusive Four Faucets Public Tap Design**

I. N.	Description	Unit	Qty	Unit Price	Total price
<b>6</b>	<b>RAMP HANDLE</b>				
6.1	Fix 1" galvanized steel pipe or equivalent material hand rail spaced at 50 cm c/c. the pipes can be either welded or joined by fittings.	M	7.4		
	<b>Sub Total</b>				
<b>7</b>	<b>FENCING WORK</b>				
7.1	MAKING 4.6m x 6.6m wide & 2m high fence with 3mm barbed wire of 6 rows and 2 diagonals, having angle iron poles (40mmx40mmx2mm of 2m high RHS) spaced at 1.2m c/c including excavation & concrete 0.3m diameter & 0.5m depth for the foundation of each pole.	M <sup>2</sup>	42.8		
7.2	Prepare & install Corrugated Iron Sheet or Equivalent material made door size 100 wide x200cm high including lock and accessories.	Pcs	1		
	<b>Sub Total</b>				
<b>8</b>	<b>PIPES AND FITTINGS WORK</b>				
	Supply medium class GI pipe and connect, embed in concrete and masonry and fix all pipes, fittings and accessories, water meter, valve, taps, etc. as shown on the drawing				
8.1	Dia.40mm (1 inch) pipe	MI	4		
8.2	Dia. 25mm (1 inch) pipe	MI	1		
8.3	Dia. 19mm (3/4 inch) pipe	MI	1.2		
8.4	Reducer dia. 1 ½ inch to 1 inch	No	1		
8.5	Reducer dia. 1 inch to 3/4 inch	No	2		
8.6	Dia.1 inch tee	No	1		
8.7	Dia.3/4 inch tee	No	1		
8.8	Dia. 1 ½ inch gate valve	No	1		
8.9	Dia. 1 ½ inch water meter	No	1		
8.10	Dia. 1/ ½ inch 90 degree elbow	No	1		
8.11	Dia. 1 ½ inch union	No	1		
8.12	Dia. ¾ inch coupling	No	4		
8.13	Dia. ¾ inch faucet	No	4		
8.14	Dia. 1 inch nipple	No	1		
8.15	Dia. ¾ inch nipple	No	2		
8.16	Dia. ¾ inch elbow	No	2		
	<b>Sub Total</b>				
	<b>Ground Total</b>				

**Table 3. Materials quantity calculation for inclusive four faucets public tap design**

I.N.	Description	Unit	Qty.	Remark
1.4	<b>25cm thick trachitic hardcore</b>	M <sup>2</sup>	14.34	
	• Stone = 0.35 x 14.34	m <sup>3</sup>	5	
2	<b>CONCRETE WORK</b>			
2.1 to 2.3	<b>10cm thick mass concrete (1:3:6) for tap floor, for ramp and for curb stone around the tap floor, ramp and drainage ditch</b> Quantity = 1.23+0.2+0.2 = 1.63m <sup>3</sup>	m <sup>3</sup>	1.63	
	• Cement = 2.73Ql x 1.63	Qtl.	4.5	
	• Sand = 0.43m <sup>3</sup> x 1.63	m <sup>3</sup>	0.7	
	• Aggregate = 0.86m <sup>3</sup> x 1.63	m <sup>3</sup>	1.4	
2.4	<b>10cm thick reinforced concrete (1:2:4) for the man hole cover (m<sup>3</sup>)</b>	1	0.12	
	• Cement = 2.73Ql x 0.12	Qtl.	0.4	
	• Sand = 0.43m <sup>3</sup> x 0.12	m <sup>3</sup>	0.06	
	• Aggregate = 0.86m <sup>3</sup> x 0.12	m <sup>3</sup>	0.12	
2.5	<b>Cut, bend and erect 10mm diameter reinforcement bar for manhole cover (Kg).</b>	Kg	7.44	
	• 10mm reinforcement bar	Pcs	1	
	• 1.5mm black wire = 0.01 x 7.44	Kg	0.1	
2.6	<b>Supply and fix timber formwork for the tap floor, manhole cover and ramp</b>	m <sup>2</sup>	5.17	
	• 2.5cm thick x 4m long x 25cm wide formwork timber	Pcs	4	Assuming the casting to be made twice
	• Nails = 0.3Kg x 5.17	Kg	1.5	
	• Eucalyptus poles (average 8cm dia) = 4mx 5.17 = 20.68m	Pcs	6	20.68m/4m = 6 pcs
3	<b>MASONRY WORK</b>			
3.1	<b>Stone masonry water point wall grouted and filled with 1:4 mortar (m<sup>3</sup>)</b>	m <sup>3</sup>	1.49	
	• Cement = 1.32Ql x 1.49	Qtl.	2	
	• Stone = 0.98m <sup>3</sup> x 1.49	m <sup>3</sup>	1.5	
	• Sand = 0.32m <sup>3</sup> x 1.49	m <sup>3</sup>	0.5	
4	<b>HOLLOW CONCRETE BLOCK WORK</b>			
4.1	<b>20cm thick hollow concrete block wall for the manhole wall grouted in 1:4 mortar</b>	m <sup>2</sup>	3.6	
	• Cement = 0.053Ql x 3.6	Qtl.	0.2	
	• 20cm HCB = 12.5Pcs x 3.6	Pcs	45	
	• Sand = 0.011m <sup>3</sup> x 3.6	m <sup>3</sup>	0.04	

**Table 3. Materials quantity calculation for inclusive four faucets public tap design**

I.N.	Description	Unit	Qty.	Remark
<b>5</b>	<b>FINISHING WORK</b>			
<b>5.1</b>	<b>Apply two coats of plastering in 1:3 mortar mix to the exposed surface of the structure</b>	<b>m<sup>2</sup></b>	<b>7.97</b>	
	• Cement = 0.14Ql x 7.97 =	Qtl.	<b>1.2</b>	
	• Sand = 0.03m <sup>3</sup> x 7.97 =	<b>m<sup>3</sup></b>	<b>0.25</b>	
<b>6</b>	<b>RAMP HANDLE</b>			
<b>6.1</b>	<b>Supply and fix 1" galvanized steel pipe or equivalent material hand rail spaced at 60 cm c/c. the pipes can be either welded or joined by fittings.</b>	<b>M</b>	<b>7.4</b>	
	1 " GI pipe (each 6m long)	Pcs	<b>2</b>	
	1 " GI elbow	Pcs	<b>2</b>	<b>If the pipes are to be connected by fittings</b>
	1 " GI Tee	Pcs	<b>6</b>	
	1 " GI Cross tee	Pcs	<b>4</b>	
<b>7</b>	<b>FENCING WORK</b>			
<b>7.1</b>	<b>MAKING minimum 4.6m x 6.6m wide &amp; 2m high fence made of burbed wire</b>	<b>m<sup>2</sup></b>	<b>42.8</b>	
	• Barbed wire = 8 rows x (2x6.6m + 2x4.6m) = 1.05m <sup>2</sup> x 42.8 = 8 rows x 22.4 = 180	<b>MI</b>	200	
	• 6 meters long 40x40x2mm RHS = 1/2RHS/pole x 20 poles	Pcs	10	
	• Nails	Kg	3	
<b>7.2</b>	<b>Provide &amp; install G-32 CIS or Equivalent material made door size 100x200cm including lock and accessories.</b>	Pcs	<b>1</b>	
	• G-32 CIS	Pcs	<b>1</b>	
	• 8 cm eucalyptus for framing the door	Pcs	<b>2</b>	
	• Different sized nails	Kg	<b>1</b>	
	• Hinges	Pcs	<b>2</b>	
	• Lock	Pcs	<b>1</b>	
<b>8</b>	<b>PIPES AND FITTINGS WORK</b>			
<b>8.1</b>	<b>Supply medium class GI pipe and connect, embed in concrete and masonry and fix all pipes, fittings and accessories, water meter, valve, taps, etc. as shown on the drawing</b>			<b>As shown in Drawing 3/3</b>



**Table 4. Construction materials quantity for inclusive four faucets public tap design**

I. N.	Description	Unit	Qty	Remark
<b>1</b>	<b>COMMON CONSTRUCTION MATERIALS</b>			
1.1	Cement = $4.5 + 0.4 + 2 + 0.2 + 1.2 = 8.3$	Qtl.	9	
1.2	Sand = $0.7 + 0.06 + 0.5 + 0.04 + 0.25 = 1.55$	M <sup>3</sup>	2	
1.3	Stone = $5 + 1.5 = 6.5$	M <sup>3</sup>	7	
1.4	Aggregate = $1.4 + 0.12 = 1.52$	M <sup>3</sup>	2	
1.5	10mm diameter reinforcement bar	No	1	
1.6	1.5mm black wire	Kg	0.1	
1.7	2.5cm x 4m long x 25cm wide timber for formwork	No	4	
1.8	Eucalyptus poles = $6 + 2$	No	8	
1.9	3mm barbed wire	MI	200	
1.10	6 meters long 40x40x2mm RHS	No	10	
<b>2</b>	<b>PIPES AND FITTINGS FOR HAND RAIL</b>			
<b>2.1</b>	Dia. 40mm (1 inch) GI pipe	No	<b>2</b>	
<b>2.2</b>	Dia. 40mm (1 inch) GI elbow	No	<b>2</b>	
<b>2.3</b>	Dia. 40mm (1inch) GI Tee	No	<b>6</b>	
<b>2.4</b>	Dia.40mm (1inch) GI Cross tee	No	<b>4</b>	
<b>3</b>	<b>GI PIPES AND FITTINGS FOR TAP</b>			
3.1	Dia.40mm (1 inch) pipe	MI	4	
3.2	Dia. 25mm (1 inch) pipe	MI	1	
3.3	Dia. 19mm (3/4 inch) pipe	MI	1.2	
3.4	Reducer dia. 1 ½ inch to 1 inch	No	1	
3.5	Reducer dia. 1 inch to 3/4 inch	No	2	
3.6	Dia.1 inch tee	No	1	
3.7	Dia.3/4 inch tee	No	1	
3.8	Dia. 1 ½ inch gate valve	No	1	
3.9	Dia. 1 ½ inch water meter	No	1	
3.10	Dia. 1/ ½ inch 90 degree elbow	No	1	
3.11	Dia. 1 ½ inch union	No	1	
3.12	Dia. ¾ inch coupling	No	4	
3.13	Dia. ¾ inch faucet	No	4	
3.14	Dia. 1 inch nipple	No	1	
3.15	Dia. ¾ inch nipple	No	2	
<b>3.16</b>	Dia. ¾ inch elbow	No	2	