

**GOVERNMENT OF CHHATTISGARH**  
**PUBLIC HEALTH ENGINEERING DEPARTMENT**



**UNIFIED SCHEDULE OF RATES [PART - III]  
FOR  
CONSTRUCTION OF TUBE WELLS  
&  
ALLIED WORKS**



**IN FORCE FROM 07/02/2013**

**Issued  
By  
Engineer in Chief  
Public Health Engineering Department  
Raipur, Chhattisgarh**

## PREFACE

It is a matter of great pleasure to announce that Public Health Engineering Department of C.G. Govt is going to issue/launch its own Unified scheduled of rates for the civil, mechanical and electrical works related to the department. The USOR has prepared in two volumes. The first volume is meant for works of water supply and sewerage and second volume for the works related to Tube well drilling. The USOR will facilitate the preparation of realistic estimates and will bring the uniformity among the rates and specifications of various water supply and sewerage schemes to be implemented by the Public Health Engineering Department in Chhattisgarh state.

Since year 2000, the formation of new state of Chhattisgarh, the department was using the USOR of Madhya Pradesh State. It was felt essential to frame a new USOR pertaining to the various aspects and conditions like labour, markets, approaches etc. in the Chhattisgarh State. In order to materialize the task, a high level committee, chaired by the Chief Engineer, with team of two Superintending Engineers of civil and E&M wing of the Department, one Executive Engineer and two Assistant Engineer's from civil was formed. After high level scrutiny, M/s khaira associates, Bhopal was selected as the out sourcing agency to complete the preparation of USOR based on ground realities and exhaustive market survey for collection of base rates of various items. The specifications for various items prepared in conformation with the latest versions of IS codes, CPHEEO Manuals and as per the prevailing best practices. The rate analysis conforms to the CPWD norms.

Twenty new chapters on survey, UPVC, HDPE, PVC-U, GRP, M.S., BWSC, PCCP, PSCP, PE-AL-PE, smooth flow pipes, intake well, water treatment plants, sewerage treatment plants, outdoor transformers, ground service reservoir, elevated reservoirs, water meters and submersible pumps etc are included in this USOR. This step will open the doors to welcome and encourage the use of new pipes and new technology in the field of Public Health Engineering Department.

I extend My thanks to the New USOR preparation Committee headed by Shri H.S.Dhingra, Chief Engineer, Members Shri R.K. Choubey, Shri A.K. Sahu and Shri F.L. Mandloi, Superintending Engineers, Member Secretary Shri S.B.Bapat Executive Engineer, Shri R.R. Vishwakarma and Ms. Ashalata Gupta Assistant Engineers, Shri N.L. Suman, Shri N.K.Chouhan & Shri K.K. Dewangan, Shri Virendra Vaishnav and Shri P.N. Chitnawis Sub Engineers & Shri Kamlesh Kumar Sahu typist for their Commendable efforts in preparing this Unified Schedule of Rates.

All possible efforts have been exercised and cautions have been taken to make the USOR foolproof and useful in all respect. Even though if any discrepancy, deviations are observed may kindly be intimated to the undersigned for the consideration.



**T.G. KOSARIA**

Engineer-in-Chief

Public Health Engineering Department  
Chhattisgarh State

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## GENERAL NOTES AND DIRECTIONS

- 1 Tube well construction shall be as per IS 2800 (Pt-1) - 2001
- 2 Tube well testing shall be as per IS 2800 (Pt-2) - 1999
- 3 Specification for Gravel for use as pack in tube wells shall be as per IS 4097 - 1999 (Reaffirmed 1999)
- 4 Methods of tube well development shall be as per IS 11189 - 1999
- 5 Unplasticized PVC screen and casing pipes for bore/tube well shall be as per IS 12818-1992.
- 6 Mild Steel tubes, tubular & other wrought steel fittings specification IS 1239 (Part-1&2)-1990.
- 7 Deep well hand pumps, components and special tools shall be as per IS 15500 (Pt- 1 to 8)
- 8 Specification for un-plasticized PVC pipes for potable water supply IS 4985-2000.
- 9 A complete tube well shall mean :-
  - (a) A borehole vertical within the prescribed non-vertical limits drilled upto designed depth in alluviums or rocky areas.
  - (b) Installation of requisite well assembly i.e., housing pipe, blind pipe, slotted pipe or strainers, bail plug and other accessories.
  - (c) Placing of suitable gravel pack (in case of gravel packed tube-wells). Placing of suitable sand pack (in case of sand packed tube-wells)
  - (d) Development of tube-well with object of :-
    - (i) Producing effect of natural gravel pack (in case of naturally packed design).
    - (ii) Producing maximum sand free yield of water for the specified standard draw down in alluvium and rocky areas.
  - (e) Conducting yield test by over pumping of the tube well.
  - (F) The tube well shall be disinfected after completion of the yield test.
- 10 Tube wells drilled shall be perfectly vertical. The rates for drilling are inclusive of the verticality test required to be conducted. All the relevant Indian Standards specifications of the B.I.S. shall also be applicable.
- 11 For locating the proper site for tube well construction within the selected habitation, if resistivity survey is required then the resistivity survey shall be carried out by a well qualified and experienced geohydrologist using his own suitable resistivity meter.
- 12 Yield test shall be done as per para 5.3 of IS - 2800 (Pt-2)



- 13 In all types of tube wells the casing pipe of specified diameter shall be lowered up to a minimum depth of 9 meters below ground level. If the collapsible strata in overburden continue beyond 9 meters depth then the casing pipe shall be lowered up to rock level and embedded in rock in a depth of 0.15 meter. The casing pipe shall also be extended above ground level in a height of about 0.3 meter.
- 14 The diameter of ordinary tube wells shall be 125 mm up to bottom level of the casing pipe and 115 mm in the rock below the casing. Such tube wells shall be designated as 125/115 mm dia ordinary tube wells.
- 15 The telescopic tube wells in the basaltic rock area where intertrappean formation (collapsible strata between the rocks) is present. The nominal diameter of the tube well upto the level of intertrappean formation shall be 150 mm. The intertrappean formation shall be encased by 125 mm dia G.I. casing pipe. Therefore, the finished nominal diameter of tube well in the intertrappean formation shall be 125 mm but in the rock below the intertrappean formation, the nominal diameter of tube well shall be 115 mm. Such tube wells shall be designated as 150/125/115 mm dia (telescopic) ordinary tube wells.
- 16 The nominal diameter of ordinary tube well constructed for installation of power pumps shall be 150 mm or 200 mm for the entire depth depending upon the type of size of pump to be installed in the tube well. Such tube wells shall be designated as 150 mm dia ordinary tube well & 200 mm dia ordinary tube wells.
- 17 The gravel packed tube wells shall be constructed in alluvial formations, suitable for such tube wells, in which the fine and uniform sand is present in the water bearing aquifer. The gravel packed tube wells should be constructed after obtaining necessary clearance from the competent authority.
- 18 The Lowering and fixing of casing pipe in ordinary tube well and lowering of casing assembly in the gravel packed tube wells shall be done in the presence of authorised representative of the Engineer in Charge of work. The G.I. casing pipe to be lowered and fixed in intertrappean formation shall be jointed by welding only. In the case of gravel packed tube well it shall be ensured by the contractor that the slotted pipes or screened pipes shall be lowered in the tube well at the locations of water bearing aquifers as per design. The contractor shall also ensure that joints of the pipes in casing assembly are rigid and water tight and a bail plug is properly fixed in the bottom of casing assembly.
- 19 All the gravel to be used, as pack in gravel packed tube wells shall be as specified in IS 4097 : 1988 (Reaffirmed-1993).
- 20 Precautions should be taken to prevent damage to the tube well during the drilling. Precautions should also be taken to avoid any accident during drilling.
- 21 Precautions should be taken to prevent damage to the pipes and other assembly during lowering in to the well.
- 22 Development of tube well :-

22.1 The well shall be developed either by surging and agitating or by over pumping and back washing with an air lift and velocity jetting etc. Any other acceptable method may also be adopted. This development process shall be continued until the stabilization of sand and gravel pack has taken place.

22.2 The development of the tube well by over pumping should be done at 15 percent to 25 percent higher discharge than the expected discharge from the tube well. The final discharge should be free from sand with a maximum tolerance of 20 parts of sand in one million parts of water by volume after 20 minutes of starting the pump.

23 Testing of yield and draw down :

23.1 The drawing off of water through a tube well results in a lowering of water level. This drawdown creates a hydraulic gradient in the water bearing material with the result that under ground flow into the tube well takes place. The rate of inflow depends upon the hydraulic gradient, permeability and saturated thickness of water bearing material and of tube well construction.

23.2 After the well has been completely constructed and cleaned out and the depth of the well accurately measured, this test should be carried out.

23.3 This test is conducted by installing a test pump in the tube well temporarily and pumping out water. At each rate of discharge, pumping is carried out at least for 30 minutes. If the water level and discharge are found to fluctuating, development is carried out for some more hours, until the discharge becomes steady and sand content is within tolerable limits. The specific capacities of the well for various pumping rates are computed based on drawdown test data. Discharge may be measured by any method detailed in 13.7 of IS : 5120-1977 "Technical requirements for roto dynamic special purpose pumps (first revision).

23.4 Since the yield is influenced by a number of factors such as geological formation, rainfall. Neighboring tube wells, etc. the pumping rate shall, in general, not exceed 60 percent of the yield determined by test.

24 It shall be the responsibility of the contractor to collect the water sample from completed tube well and send it to departmental laboratory for chemical and bacteriological analysis. The water sample for chemical analysis shall be collected in 2 liters plastic bottle and samples for bacteriological analysis shall be collected in 300 ml sterilized bottle as per the direction of Engineer in charge. Only testing charges will be borne by the PHE Department.

25 All care and precautions shall be taken and it shall be ensured that there shall be no accidents while drilling the borehole. Proper dress and equipments like gumboots, helmets etc. shall be provided by the contractor to the workmen at site. Contractor shall also make arrangements of first aid facilities for any accident.

26 During any operation carried out for construction of tube well, if any tool, pipe etc. falls down in the tube well then the contractor shall carry out the necessary fishing operation at his own cost. The contractor shall use his own equipment for such operation. If the tube well becomes useless due to any reason, it shall be treated as abandoned tube well and no payment shall be made for such abandoned tube well.

**Abandoned / dry tube wells**

- 27 The contractor shall be fully responsible to fill up the abandoned bore hole with hard soil including compaction and watering so as to make top surface as good as original soil immediately and before shifting the drilling machine to prevent any accident. No payment would be made to the contractor on account of this.
- 28 If a tube well is found dry or with less yield and if it is not to be used for water supply due to any reason, the tube well shall be fitted with MS cap securely and a concrete block of 0.45m X 0.45m X 0.45m with M15 cement concrete would be constructed on it to prevent any accident or damage to the tube well and also to use the bore at any later stage for recharging or for any other purpose.
- 29 The installation of hand pump over the tube well shall be carried out as per IS specifications (IS 15500 PART 1 to 8 - 2004). All the exterior parts of pump coming in contact with the water shall be thoroughly cleaned and dusted with bleaching powder. The hand pump after installation shall be tested for its proper installation by operating it continuously at least four hour and measuring the rate of discharge from hand pump. The rates for the item for installation of hand pump and yield test by hand pump given in this unified schedule of rates shall be applicable.
- 30 For construction of platform and drain for the hand pump, the contractor shall use only steel plate frame shuttering designed as per the dimensional requirement of platform and drain. This shuttering shall be got approved from the Engineer-in-Charge. In case of construction of platforms in areas having black cotton soil, the top thirty centimeters of the black cotton soil shall be excavated and replaced with morrum boulder, duly rammed and watered in layers, prior to the construction of such platforms including drain, pedestal and washing platform. Rates for these works have been provided for in the USOR.
- 31.1 The rates of all material are inclusive of excise duty.
- 31.2 The rates of all material are also inclusive of central sales tax, VAT, entry tax, loading - unloading & transportation FOR destination.
- 32 Measurement :-  
Depth of the bore & length of the pipes shall be measured in Rmt. Depth of the tubewell shall be measured after completion of the drilling work and development of the tubewell at the time of removal of drilling rods. Cap shall be measured in number. Gravel shall be measured in cum after deducting the voids.
- 33 Rates :-  
The rate shall include the cost of the material and labour involved in all the operation described in the items.

## **CHAPTER 1 - RESISTIVITY SURVEY**

<b>S.No.</b>	<b>Particulars of Items</b>	<b>Unit</b>	<b>Rate (In Rs.)</b>
1	Carrying out the resistivity survey by VES method using Schlumberger configuration for locating the proper spot for drilling of tube well with in the selected habitation, including Photography, interpretation of resistivity data and submission of report in the desired format along with resistivity necessary graph, photographs and readings.	Per Successful point	1509.00



S.No.	Particulars of Items	Unit	Rate (In Rs.)
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S.No.	Particulars of Items	Unit	Rate (In Rs.)
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S.No.	Particulars of Items	Unit	Rate (In Rs.)
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## CHAPTER 2 - CONSTRUCTION OF ORDINARY TUBEWELL

S.No.	Particulars of Items	Unit	Rate (In Rs.)
1	Drilling of perfectly vertical bore hole of a diameter suitable to receive 125mm nominal diameter casing pipe upto desired depth below ground level inclusive of the labour charges for transporting, lowering and fixing of 125mm nominal diameter M.S./G.I./U.P.V.C. casing pipe inside the bore hole including all works pertaining to drilling such as transportation, installation and removal of drilling machine etc. complete.		
(a)	in all types of collapsible strata consisting of soils, clays, sand, murum, gravel, boulders etc.	RM	486.00
(b)	in all types of rocks.	RM	545.00
2	Drilling of perfectly vertical bore hole of 115 mm diameter up to desired depth below ground level in all types of rocks including all works pertaining to drilling such as transportation, installation and removal of drilling machine etc. complete.	RM	530.00
3	Drilling of perfectly vertical bore hole of a diameter suitable to receive 150mm nominal diameter casing pipe upto desired depth below ground level inclusive of the labour charges for transporting, lowering and fixing of 150mm nominal diameter M.S./G.I./U.P.V.C. casing pipe inside the bore hole including all works pertaining to drilling such as transportation, installation and removal of drilling machine etc. complete.		
(a)	in all types of collapsible strata consisting of soils, clays, sand, murum, gravel, boulders etc.	RM	528.00
(b)	in all types of rocks.	RM	629.00
4	Drilling of perfectly vertical bore hole of 150mm diameter upto desired depth below ground level in all types of rock including all works pertaining to drilling such as transportation, installation and removal of drilling machine etc. complete	RM	628.00
5	Drilling of perfectly vertical bore hole of a diameter suitable to receive 200mm nominal diameter casing pipe upto desired depth below ground level inclusive of the labour charges for transporting, lowering and fixing of 200mm nominal diameter M.S./G.I./U.P.V.C. casing pipe inside the bore hole including all works pertaining to drilling such as transportation, installation and removal of drilling machine etc. complete.		
(a)	in all types of collapsible strata consisting of soils, clays, sand, murum, gravel, boulders etc.	RM	540.00
(b)	in all types of rocks.	RM	677.00

S.No.	Particulars of Items	Unit	Rate (In Rs.)
6	Drilling of perfectly vertical bore hole of 200mm diameter upto desired depth below ground level including all works pertaining to drilling such as transportation, installation and removal of drilling machine etc. complete.		
(a)	In all types of collapsible strata (intertrappean formation) including charges for transportation, lowering and fixing of 150mm nominal diameter GI casing pipe, welded joints only.	RM	631.00
(b)	in all types of rocks.	RM	779.00
7	Drilling of perfectly vertical bore hole of 150mm diameter up to desired depth below ground level in all types of strata including all works pertaining to drilling such as transportation, installation and removal of drilling machine etc. complete. In intertrappean formations (collapsible strata between rocks) including charges for transportation and making all necessary arrangements etc. including lowering and fixing of 125mm nominal diameter (gig. or U.P.V.C.) Casing pipe.	RM	584.00
8	Providing and fixing of well cap on top of the tube well for protection		
	M.S. Caps		
	100mm dia	Each	171.00
	125mm dia	Each	194.00
	150mm dia	Each	229.00
	200mm dia	Each	273.00

S.No.	Particulars of Items	Unit	Rate (In Rs.)
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S.No.	Particulars of Items	Unit	Rate (In Rs.)
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S.No.	Particulars of Items	Unit	Rate (In Rs.)
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### **CHAPTER 3 - CONSTRUCTION OF GRAVEL PACKED TUBEWELL**

<b>S.No.</b>	<b>Particulars of Items</b>	<b>Unit</b>	<b>Rate (In Rs.)</b>
1	Drilling of perfectly vertical bore hole of following diameters for construction of Gravel Packed tube well up to desired depth in alluvial formation consisting of Soils, Clays, Sand, Gravel, murum, Boulders etc. and retaining the bore hole by using suitable drilling mud or foam or temporary housing pipe including all works pertaining to drilling such as transportation, installation and removal of drilling machine etc. complete.		
(a)	300mm diameter	RM	751.00
(b)	350mm diameter	RM	857.00
(c)	400mm diameter	RM	881.00
2	Labour charges for assembling, centering and lowering of properly designed casing pipe assembly inside the bore hole drilled for construction of Gravel Packed tube well including the cost of providing and fixing of centraliser, and transportation of casing assembly etc. complete.		
(a)	Casing assembly composed of 100mm diameter blank and slotted G.I. Casing pipes	RM	39.00
(b)	Casing assembly composed of 150mm diameter blank and slotted G.I. Casing pipes	RM	54.00
(c)	Casing assembly composed of 200mm diameter blank and slotted G.I. Casing pipes	RM	67.00
(d)	Casing assembly composed of 100mm dia. UPVC blank and screened pipes.	RM	23.00
(e)	Casing assembly composed of 150mm dia UPVC blank and screened pipes.	RM	30.00
(f)	Casing assembly composed of 200mm dia UPVC blank and screened pipes.	RM	43.00
3	Providing and fixing of M.S. bail plug as per I.S. 2800 (PART-I) 2001 in the bottom of casing assembly		
(a)	100mm dia	Each	275.00
(b)	150mm dia	Each	358.00
(c)	200mm dia	Each	441.00
4	Providing gravel packing with uniformly graded gravel as per I.S. 4097 of 1999 (revised up to date) in the annular space between outer wall of casing pipe assembly and inner wall of bore hole including cost of gravel, transportation, stacking, washing and packing in layers of suitable thickness including all lead and lifts complete.	Cum	1471.00

<b>S.No.</b>	<b>Particulars of Items</b>	<b>Unit</b>	<b>Rate (In Rs.)</b>
5	Providing and fixing of well cap on top of the tube well for protection		
	M.S. Caps		
	100mm dia	Each	171.00
	125mm dia	Each	194.00
	150mm dia	Each	229.00
	200mm dia	Each	273.00
6	Construction of concrete block over dry tube wells for protection of size 0.45m x 0.45m x 0.45m in M-15 cement concrete mix.	Each	356.00

## **CHAPTER 4 - INSTALLATION OF HAND PUMP AND CONSTRUCTION OF PLATFORM, DRAIN AND SOKAGE PIT**

<b>S.No.</b>	<b>Particulars of Items</b>	<b>Unit</b>	<b>Rate (In Rs.)</b>
1	Labour charges for installation of India Mark II Hand Pump with 30 metre long 32mm dia riser pipe assembly and all other accessories including transportation of Hand Pump from specified departmental stores to site.	Each	545.00
2	Add to Item No.-1, above for fixing the extra length of riser pipe assembly beyond 30 metre.	RM	14.00
3	Construction of platforms in different strata and as per site conditions.		
(i)	Construction of 76 cm x 76 cm x 40 cm foundation block in M-15 cement concrete for fixing the pedestal of Hand Pump including excavation, cost of material and labour etc. complete	Each	987.00
(ii)	Construction of cement concrete platform as per design around the hand pump in M-15 cement concrete including excavation, centering, shuttering, cost of all the materials and labour and curing etc. complete.	Each	3442.00
(iii)	Construction of cement concrete platform as per unicef type design around the hand pump in M-15 cement concrete including excavation, centering, shuttering, cost of all the materials and labour and curing etc. complete. Including filling in 30 cm depth sand/stone dust after removing Black cotton soil including ramming, watering etc. complete in areas of Black cotton soils.	Each	3872.00
(iv)	Construction of cement concrete drain as per design in M-15 cement concrete including excavation, centering, shuttering, cost of all the materials and labour and curing etc. complete.	RM	377.00
(v)	Construction of cement concrete drain as per design in M-15 cement concrete including excavation, centering, shuttering, cost of all the materials and labour and curing etc. complete. Including filling in 30 cm depth sand/stone dust after removing Black cotton soil including ramming, watering etc. complete in areas of Black cotton soils.	RM	458.00

<b>S.No.</b>	<b>Particulars of Items</b>	<b>Unit</b>	<b>Rate (In Rs.)</b>
4	Construction of 1.20 m x 1.20 m x 0.20 m cement concrete washing platform in cement concrete 1:2:4 including excavation, centering, shuttering, cost of all the materials and labour and curing etc. complete.	Each	2207.00
5	Construction of 1.20 m x 1.20 m x 0.20 m cement concrete washing platform in cement concrete 1:2:4 including excavation, centering, shuttering, cost of all the materials and labour and curing etc. complete. Including filling in 30 cm depth after removing Black cotton soil including ramming, watering etc. complete in areas of Black cotton soils	Each	1774.00
6	Construction of sokage pit of 70 cm dia. and 1.0 m deep including excavation, brick lining at top in 1:4 cement mortar, filling of broken bricks etc. and cost of all the materials and labour and curing etc complete.	Each	482.00
7	Labour only for cutting and threading the G.I. pipe of following sizes.		
(i)	125mm dia	Each	291.00
(ii)	150mm dia	Each	333.00



## **CHAPTER 5 - DEVELOPMENT, YIELD TEST AND DISINFECTION OF TUBEWELL**

<b>S.No.</b>	<b>Particulars of Items</b>	<b>Unit</b>	<b>Rate (In Rs.)</b>
1	Labour charges for installation of submersible pumping sets at 50m or more depth temporarily in the tubewell for a maximum of eight hours for the purpose of conducting yield test for tube well. (Any one of the below depending on the approximate yield observed during drilling operations).		
(a)	Submersible pumping sets upto 2.2 kW.	Each	993.00
(b)	Submersible pumping set upto 2.2 kW to 7.5 kW.	Each	1091.00
(c)	Submersible pumping set above 7.5 kW	Each	1199.00
2	Conducting the yield test of tube well by operating the pumping set continuously for a desired time period and measuring the discharge and drawdown of tube well at a suitable time interval as per the direction of Engineer in Charge including cost of energy, cost of installation of suitable measuring device and hire charges of pumping set etc. complete.		
(a)	Submersible pumping sets upto 2.2 kW.	Per Hour	382.00
(b)	Submersible pumping set upto 2.2 kW to 7.5 kW.	Per Hour	415.00
(c)	Submersible pumping set above 7.5 kW	Per Hour	497.00
3	Labour charges for taking out the submersible pumping set from tube well after completion of yield test or development of tube well.		
(a)	Submersible pumping sets upto 2.2 kW.	Each	784.00
(b)	Submersible pumping set upto 2.2 kW to 7.5 kW.	Each	993.00
(c)	Submersible pumping set above 7.5 kW	Each	1050.00
4	Development of gravel packed tube well by Air compressor of suitable capacity including hire charges for all the required tools and plants etc. complete, for maximum duration of eight hours.	Per Hour	582.00
5	Measurement of yield of tube well by operating hand pump continuously for four hours manually.	Each	501.00
6	Disinfection of tube well by using bleaching powder solution as per direction of Engineer-in-Charge including cost of all material & labour.	Each tube well	38.00

## CHAPTER 6 - SUPPLY OF ISI MARK HAND PUMPS: G.I. RISER, G.I. CASING & UPVC CASING PIPES

S.No.	Particulars of Items	Unit	Rate (In Rs.)
<b>F</b>	<b>Supply of ISI mark Hand Pumps : G.I. Riser, G.I. Casing &amp; UPVC Casing Pipes</b>		
1	ISI mark India mark-II deep well hand pump complete with 10 Nos. MS connecting rods, (12mm x 3M long) Normal stand assembly.	Each	7999.00
2	ISI mark India mark -II deep well hand pump complete with 10 Nos. MS connecting rods, (12mm x 3M long) telescopic stand assembly.	Each	8068.00
3	ISI mark India Mark-II extra deep well hand pump complete with 20 Nos. MS connecting rods (12mm x 3M)2 counter weight electro galvanized & passivated normal stand assembly.	Each	11878.00
4	ISI mark India mark-II extra deep well hand pump complete with 20 Nos. MS connecting rods (12mm x 3m)2 counter weight electro galvanized & passivated telescopic stand assembly.	Each	12020.00
5	ISI Mark 32mm dia G.I. riser pipe in 3 meter length socketed on one end as per I.S. 1239 (Part-I) 1990 up-to-date amendments and socket as per I.S. 2062/1990 up-to-date amendment.	RM	199.00
6	Supply of I.S.I. marked G.I. casing pipe (Plain) medium class in 4 to 7 meters length one end fitted with socket as per I.S. 1239 (Part-1 & Part-2) 1992 with IVth revision (Up-to-date amendments)		
	100mm dia	RM	853.00
	125mm dia	RM	1137.00
	150mm dia	RM	1353.00
7	I.S.I. marked UPVC casing pipe Conforming to IS 4985/1988 (with up-to-date amendments)		
	Screen pipes with ribs 100mm dia	RM	354.00
	Screen pipes with ribs 125mm dia	RM	559.00
	Screen pipes with ribs 150mm dia	RM	739.00
	Screen pipes with ribs 200mm dia	RM	1300.00
	CM casing pipes 100mm dia	RM	320.00
	CM casing pipes 125mm dia	RM	507.00
	CM casing pipes 150mm dia	RM	634.00
	CM casing pipes 200mm dia	RM	1293.00
	CS casing pipes 150mm dia	RM	551.00
	CS casing pipes 200mm dia	RM	1046.00

## RESISTIVITY SURVEY REPORT

Name of Village .....District .....

Ward Number ..... Mohalla/Basti.....

Name of Contractor ..... Registration no. of machine .....

Work Order No..... Date .....

Date of Survey .....

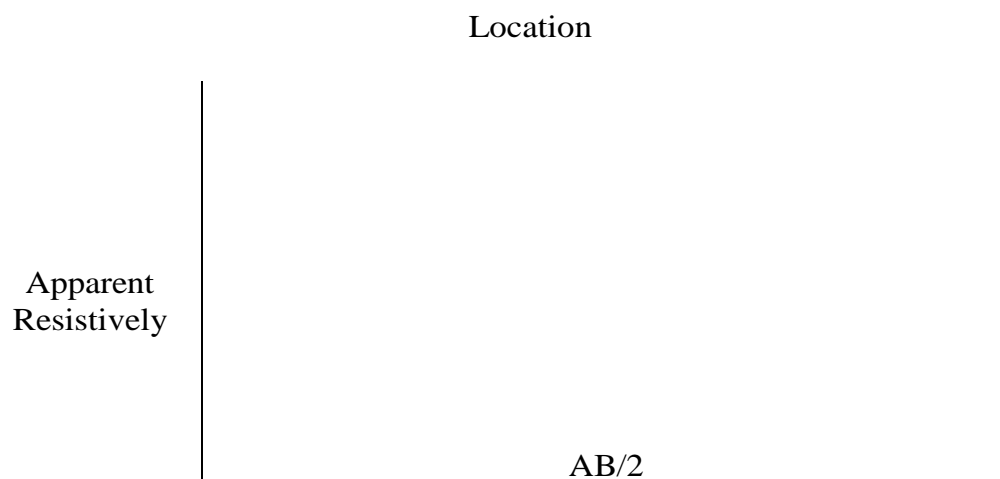
Name of Geohydrologist .....

Model No. & Make of Resistivity meter used for sounding .....

Maps (Not to scale) Showing the location of survey point (To be attached separately in A-4 size sheet).

## DATA SHEET OF FIELD MEASUREMENTS

S.No.	AB/2 Meters	MN/2 Meters	Spacing Factor K $K = 3.14$ (AM/AN)/MN	Measured resistance (OHMS)	Resistivity OHM-M



### Interpretation Report

Possible Strata expected at the spot

S.No.	Possible Strata Form	Depth below Ground Level to		Remark

Recommendation :-

Signature of Geohydrologist

**STRATA - CHART**

Name of Village .....District .....

Ward Number ..... Mohalla/Basti .....

Name of Contractor ..... Registration No. of Machine .....

Work Order No. .... Date .....

Date of Starting of Tube well construction .....

Date of completion of tube well construction .....

Name of Sub-Engineer in charge of work .....

Measurement Book Number .....

Exact location of drilling .....

G	L	Details
Depth	Strata	1. Type of tube well .....
		2. Diameter of tube well .....
		3. Total depth of tube well .....
		4. Details of casing pipe
		Type (G.I./UPVC/BLANK/SLOTTED)
		Diameter ..... mm
		Length ..... meter
		5. Static water level in the tube well .....
		6. Type of pump installed .....
		7. Length of riser pipe installed
		Type (G.I./UPVC) .....
		8. Yield of tube well .....
		9. Draw down at above yield

Signature of Contractor

Signature of  
Sub Engineer  
Office .....Signature of  
Assistant Engineer  
Office .....

**YIELD TEST OF TUBE WELLS**

Name of Village ..... District .....

Ward Number ..... Mohalla/Basti.....

Name of Contractor ..... Registration no. of machine .....

Work Order No..... Date .....

Date of yield test .....

Diameter of tube well ..... Depth of tube well .....

Static water level in tube well .....

Type and K.W. of pumping set used for yield test .....

Type of measuring device used for measurement of discharge .....

Depth at which the pumping set installed .....

Time at which the yield test started .....

**Data Sheet of field measurement**

S.No.	Time	Water level in the tube well measured from top of casing pipe	Discharge of tube well
1			
2			
3			

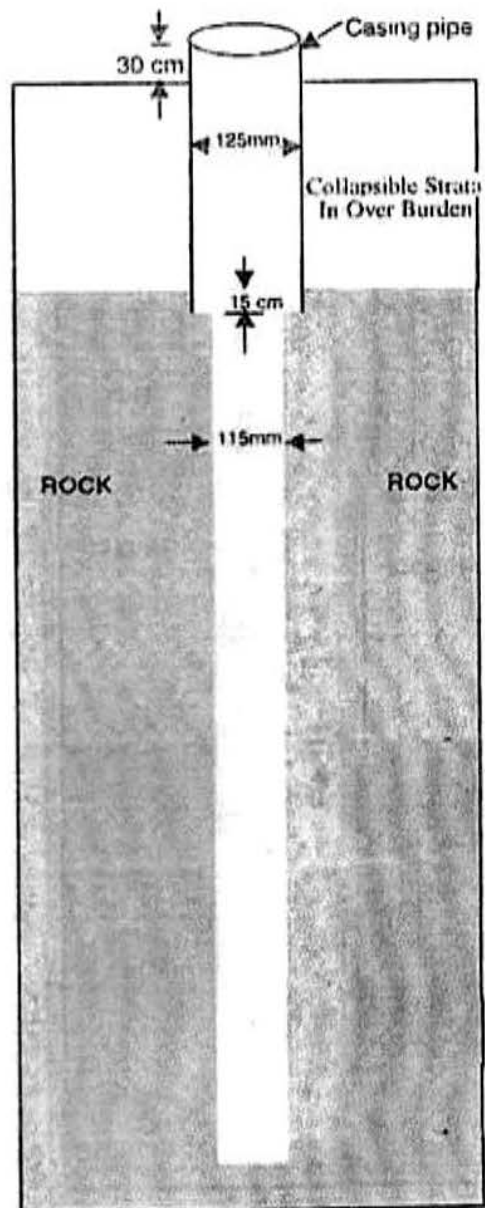
Signature of  
Contractor

Signature of  
Assistant  
Engineer



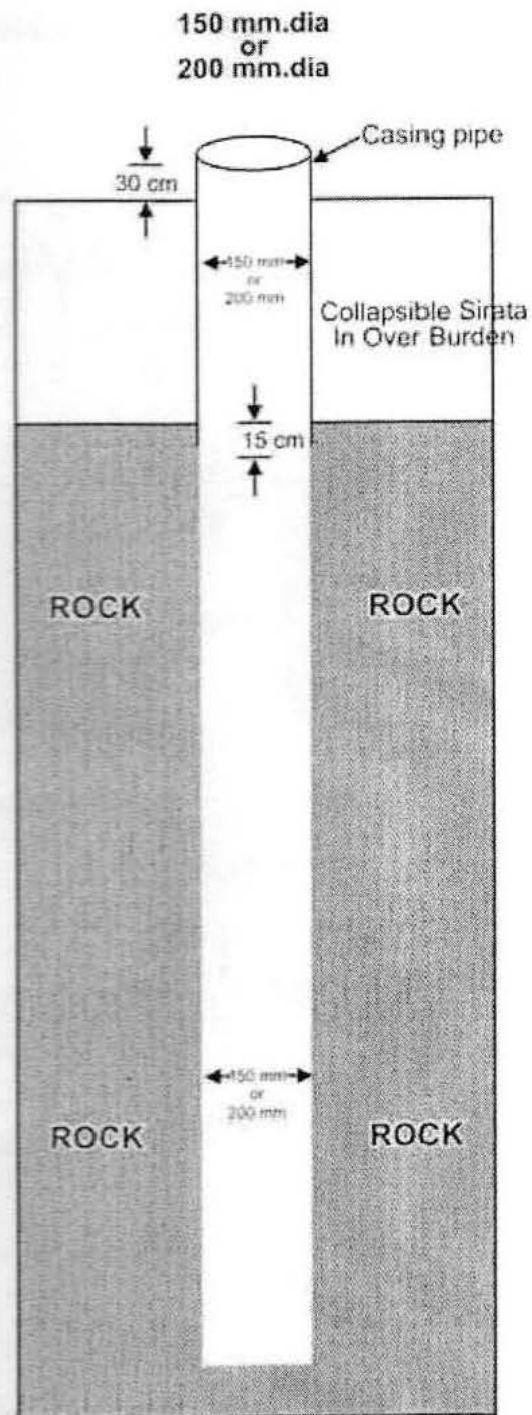
## ORDINARY TUBEWELL

125 /115 mm.dia



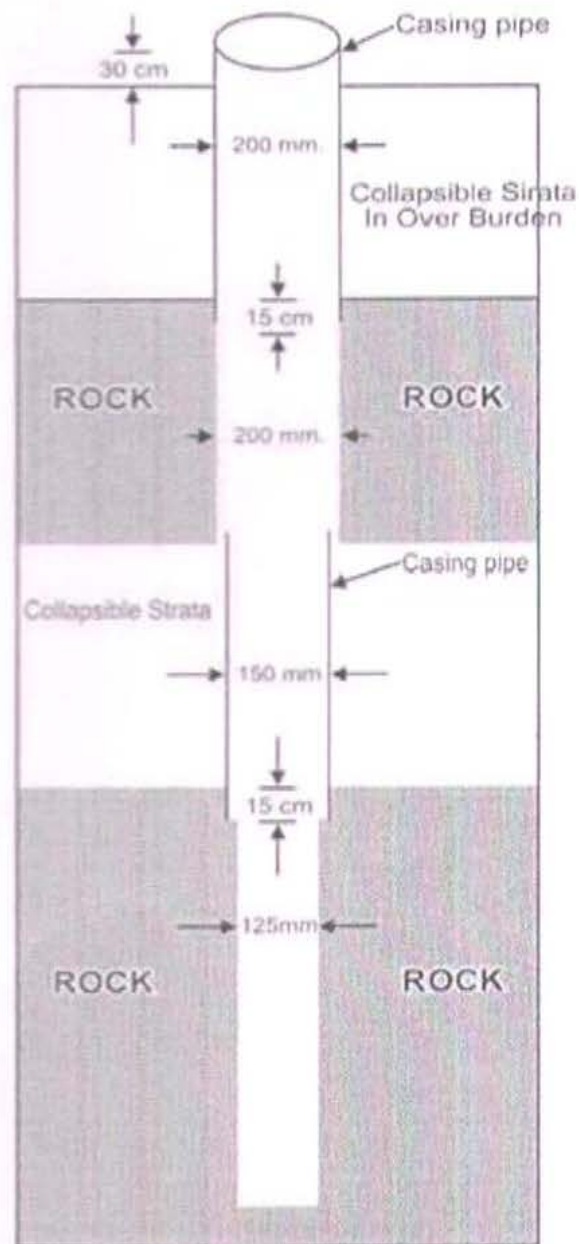
Minimum length of Casing shall be 9 meter

## ORDINARY TUBEWELL



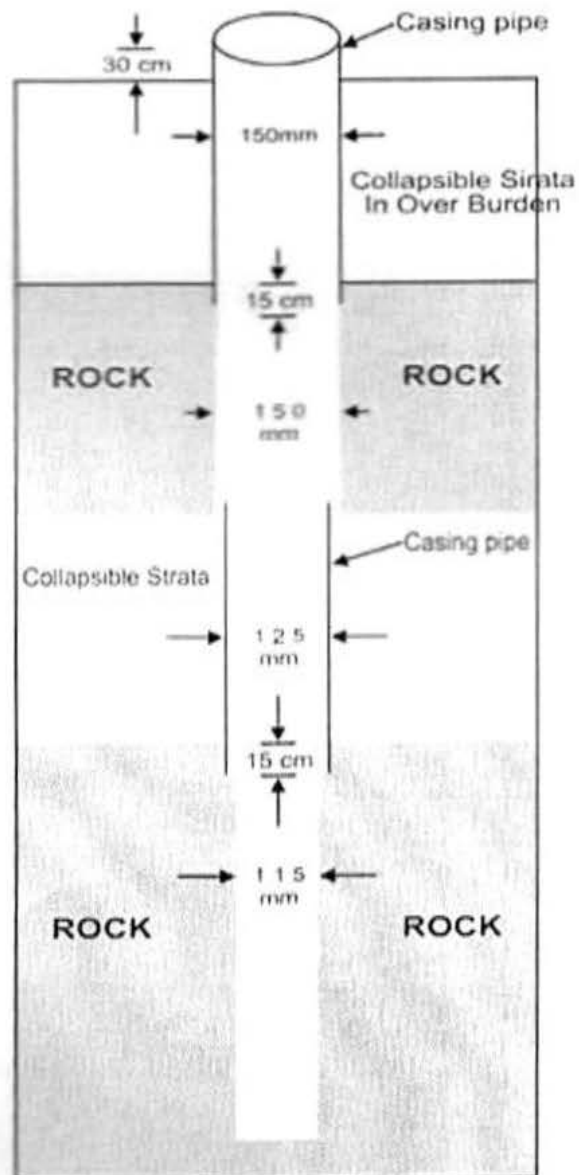
Minimum length of Casing shall be 9 meter

### 200/150/125 mm dia. TUBEWELL



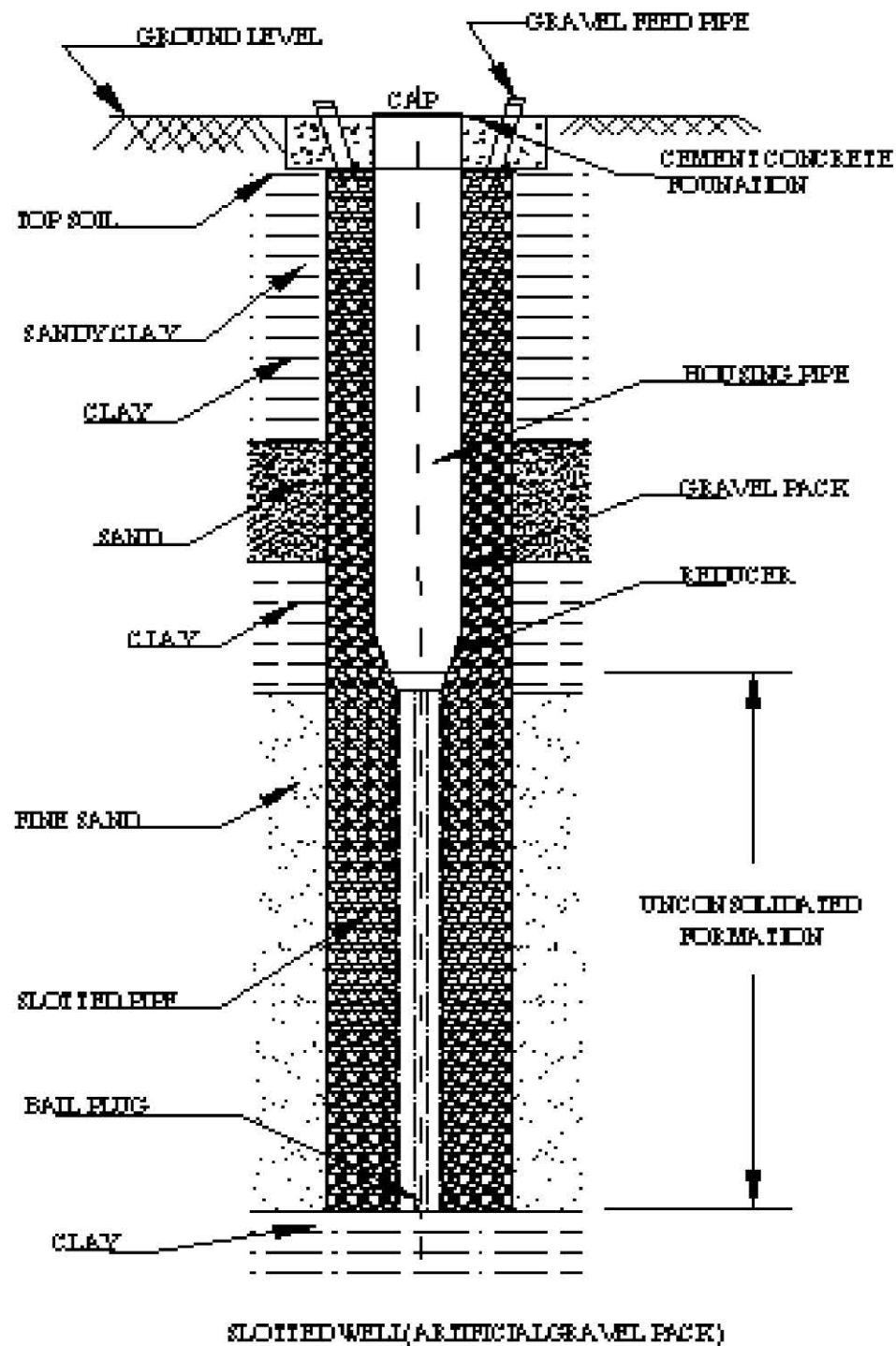
Minimum length of Casing shall be 9 meter

**150 / 125 115 mm dia. TUBEWELL**



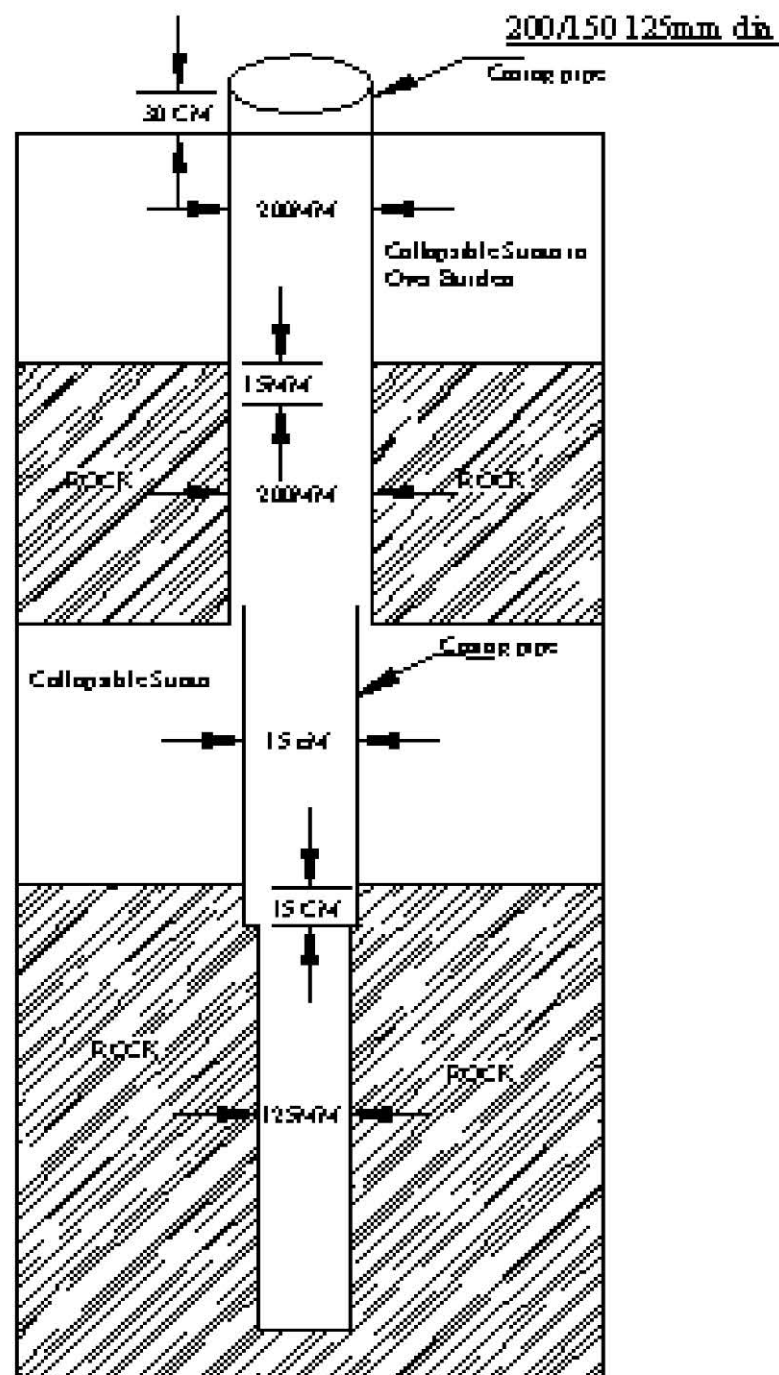
Minimum length of Casing shall be 9 meter

# GRAVEL PACKED TUBE WELL

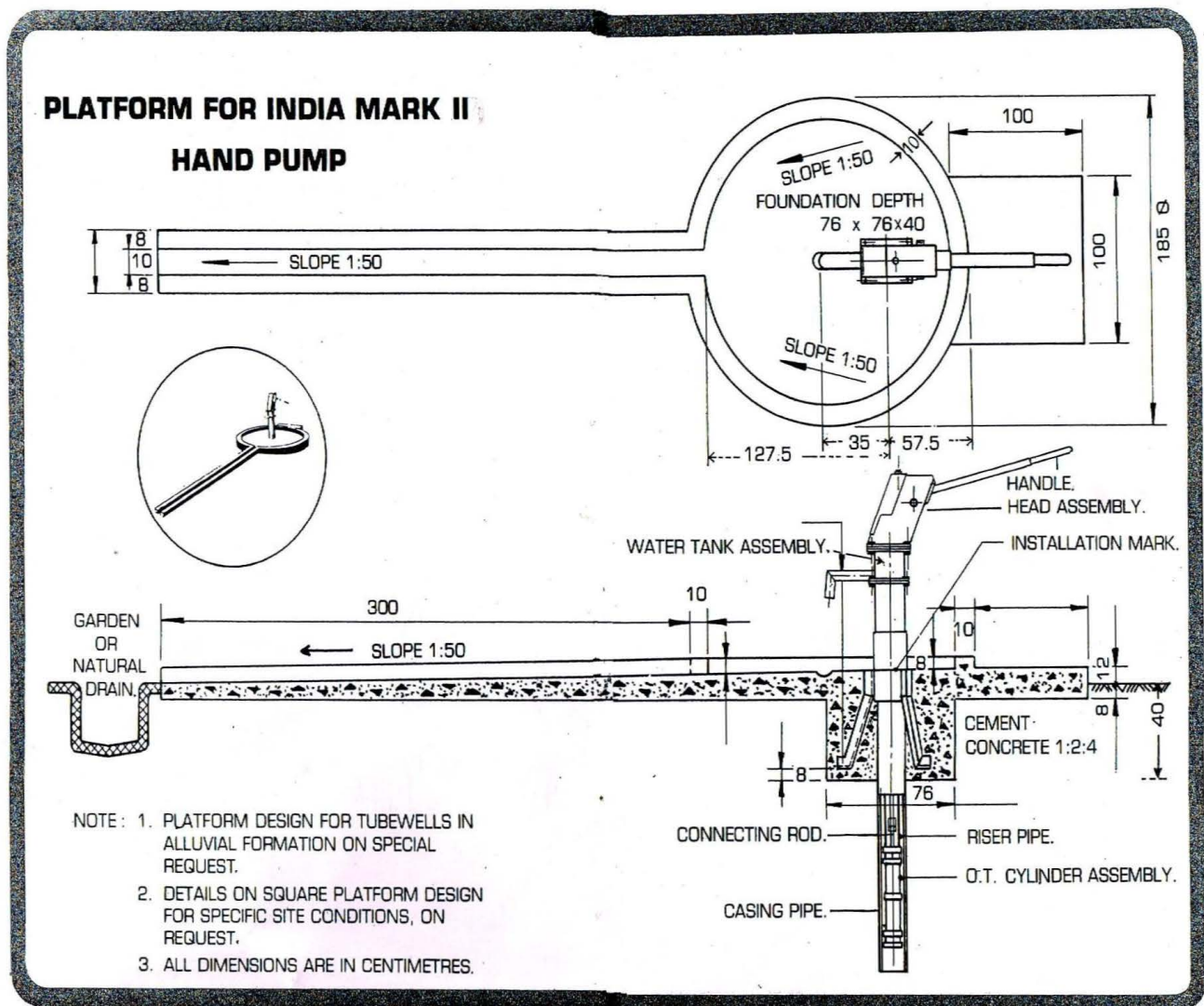


Minimum length of Casing shall be 9 meter

## 200/150/125 mm dia. TELESCOPIC TUBE WELL

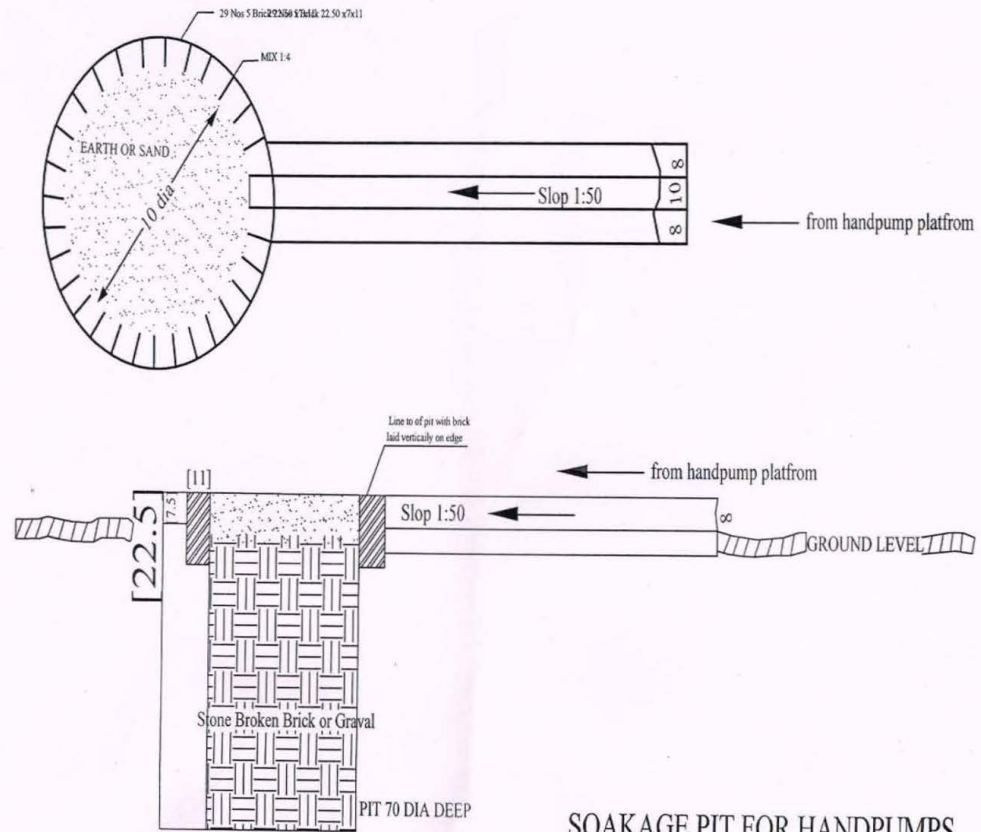


Minimum length of Casing shall be 9 meter



Note :

- 1 All dimensions in mm
- 2 The free end of casing pipe shall be above in installation mark.
- 3 The casing pipe is not required when the bore pipe passes through rocks.
- 4 Separate platform for washing cloths / utensils and cattle trough may be provided if required.



**SOAKAGE PIT FOR HANDPUMPS**  
All units in Centimeters