

**INTERNSHIP REPORT
ON
“RURAL WATER SUPPLY SCHEME (JAL JEEVAN
MISSION)”**

Submitted to-

**MADHAV INSTITUTE OF TECHNOLOGY AND SCIENCE GWALIOR
(A govt. Aided Autonomous Institute under RGPV, Bhopal (M.P) Established in 1957)**

**IN PARTIAL FULFILLMENT FOR REQUIREMENT FOR THE AWARD OF THE DEGREE
OF**

**BACHELOR of TECHNOLOGY
In
CIVIL ENGINEERING**



2018-2022

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(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to R.G.P.V. Bhopal)



CERTIFICATE



PUBLIC HEALTH ENGINEERING DEPARTMENT
THIRD PARTY INSPECTION AGENCY THATIPUR, DIVISION-GWALIOR (M.P)

CERTIFICATE

This is to certify that MANAS GUPTA Enrollment No-0901CE181058 Has completed internship program in RURAL WATER SUPPLY SCHEME (JAL JEEVAN MISSION)

FROM-16-01-2022 TO-16-05-2022

Conducted by PUBLIC HEALTH ENGINEERING DEPARTMENT (TPI) Thatipur division-Gwalior, (M.P)

as a part of his institute grading, we would like to grade his excellence during the internship we wish all the best for his future.

DATE:

AUTHORIZED SIGNATURE
Team Leader (TPI)
Fortress Infracon Ltd.
Gwalior (M.P)

Date: - 14-March-2022

To,
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Sub: Offer Letter

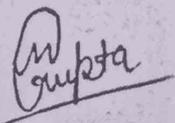
Dear Manas,

With reference to the interview, and based on subsequent discussions we had with you, we are pleased to offer you the position of "Software engineer" in our Company. We would expect you to join our company on or before 21-March-2022. This offer must be accepted within three (3) days from date of issuance beyond which it would stand withdrawn, your offer acceptance is subject to the following terms and conditions. Annexure "A" & "B" & are integral part of this offer letter.

1. You will be appointed as "Trainee" for a period of 6 months tenure. Your training period will be part of your probation period. Training period dates vary based on leaves taken for final semester examination break.
2. During internship/training period you will be paid a stipend of Rs.10,000 /- per month. Your services will be converted in a fulltime role, only post successful completion of training program.
3. You will work as a "Trainee" for a period of six months.
4. Your services will be regularized & you will be appointed as a "Software engineer" with salary revision after successful completion of the probation & training period.
5. After regularization of service & on appointment as full-time employee your Annual CTC will be of Rs. 4,00,000/- which include Ten (10) % of Annual variable amount. For each Fiscal Year during the employment tenure, the company will pay to the employee a profit-sharing bonus (PSB), based on Fiscal year Performance. PSB will be determined for each fiscal year by the company. Above CTC & PSB will be subject to deductions for PF contributions, Group Insurance, Professional Tax, I.T. etc. This includes all allowances for Accommodation, Conveyance, Leave Travel, Medical Reimbursement & required for Work from home infrastructure etc.
6. You shall keep your salary details strictly confidential & with you only.
7. You shall submit the following self-attested copies of documents on or before the time of joining.
 - Proof of Date of Birth certificate (10th Marksheets/Passport/Voter card)
 - All qualification certificates mentioned in resume.
 - All experience certificates (N/A for freshers & intern)
 - Scanned Passport size photograph.
 - Copy of both PAN & Aadhar card
 - Address Proof (Voter Card/Passport) any one or both.
 - Local Address proof (Rental agreement/Gas bill not more than a month old/ Recent PG receipt)
 - Bank account details. (Cancelled Cheque leaf /Front page of Passbook)
8. Company has the right to do background check for you, post joining the organization.
9. In the event of any information given in your application/C.V/Resume & during interview being found incorrect in any respect, this offer will be held void and stands cancelled. If, any dispute arises, it will be handled legally if required.
10. The detailed appointment letter will be issued to you from our office on or after the date of joining & on submission of above said documents.

Wishing you all the best,
for NexTurn India Private Limited,

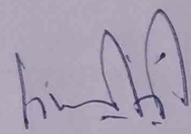

Bhaskar Vadlamani
Founder, COO & MD India



Signature & Name

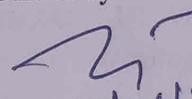
RECOMMENDATION

It is hereby recommended that the internship report entitled — Design and Construction of Retrofitting piped water supply scheme under Jal Jeevan Mission which is being submitted by Manas Gupta completed under the guidance of Dr. Chayan Gupta may be accepted in the partial fulfillment of the award of the degree of Bachelor of Engineering in Civil Engineering.


for **Head of department**
Civil Engineering Department
MITS, Gwalior

HEAD
Civil Engg. Deptt.
M.I.T.S. Gwalior

Guided by


13/06/2022
Dr. Chayan Gupta
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MITS, Gwalior

ACKNOWLEDGEMENT

When it comes to properly acknowledging someone's support and assistance, it may be a challenging undertaking, chiefly when the support offered is so wholehearted and unwavering.

I am eternally grateful to my renowned guide, **Dr. Chayan Gupta**, Assistant Professor of Civil Engineering Department, MITS Gwalior.

Also, I would like to thank **Head of Civil Engineering Department**, MITS Gwalior, and all other academics and staff members of MITS Gwalior's Civil Engineering Department for their unwavering support throughout the project.

I am really grateful to **Dr. R. K. Pandit**, Director of MITS Gwalior, for establishing an outstanding institutional environment and for giving all facilities and assistance in the preparation of my dissertation. I also acknowledge with gratitude to our supporting **Mr. VIKRAM** for providing the facilities needed for the accomplishment of this project.

I take great pleasure for my institute **PUBLIC HEALTH ENGINEERING DEPARTMENT(TPI) Thatipur division-Gwalior, (M.P)** for providing the opportunities.

The environment of company has been valuable experience for me. It has provided an opportunity to learn at our own pace in discipline of interest. I would like to thank all those who helped me during different stages of completion of this project.

MANAS GUPTA

(0901CE181058)

DEPARTMENT OF CIVIL ENGINEERING

MITG GWALIOR (M.P.)

ABSTRACT

The real scenario in which how to conduct the survey of any location take all the appropriate measurement and the reading taken from the ground. The main work of this internship is to work on Jal Jeevan mission to provide safe and adequate drinking water through individual household tap connections by 2024 to all households in rural India.

The programme will also implement source sustainability measures as mandatory elements, such as recharge and reuse through grey water management, water conservation, rain water harvesting. Currently in Gwalior there are 2 No. of Har Ghar Jal Panchayat, 10 No. of Har Ghar Jal Village and 52 No. of Har Ghar Jal Habitation.

In our Tender that is going on the Design and Construction of Retrofitting Piped Water Supply Scheme under Jal Jeevan Mission at Village 1.DHAI 2.HATHNORA 3.TEKANPUR and 4.JORASI Block DABRA, Dist. Gwalior based on T.W. including installation of electric submersible water motor pump, laying & jointing of rising main, feeder main and distribution pipe line system, household tap connections, construction of pump house, CONSTRUCTION OF RCC OHT(As Per BOQ) and construction of RCC sump well (As Per BOQ) electric power connections at tube well including cost of all material & labour with 90 Days After completion of construction/ Execution of work with Successful testing and commissioning period of entire scheme.

ABSTRACT IN HINDI

वास्तविक परिदृश्य जिसमें किसी भी स्थान का सर्वेक्षण कैसे किया जाता है, सभी उचित माप और जमीन से ली गई रीडिंग लेते हैं। इस इंटरनशिप का मुख्य कार्य ग्रामीण भारत के सभी घरों में 2024 तक व्यक्तिगत घरेलू नल कनेक्शन के माध्यम से सुरक्षित और पर्याप्त पेयजल उपलब्ध कराने के लिए जल जीवन मिशन पर काम करना है।

कार्यक्रम अनिवार्य तत्वों के रूप में स्रोत स्थिरता उपायों को भी लागू करेगा, जैसे कि भूजल प्रबंधन, जल संरक्षण, वर्षा जल संचयन के माध्यम से पुनर्भरण और पुनः उपयोग। वर्तमान में ग्वालियर में हर घर जल पंचायत के 2, हर घर जल गांव के 10 और हर घर जल बस्ती के 52 नंबर हैं।

जल जीवन मिशन के अंतर्गत ग्राम 1.धाई 2.हथनोरा 3.टेकनपुर एवं 4.जोरासी प्रखंड डबरा, जिला में रिट्रोफिटिंग पाइप जलापूर्ति योजना के डिजाइन एवं निर्माण पर चल रही हमारी निविदा में। ग्वालियर पर आधारित T.W. जिसमें इलेक्ट्रिक सबमर्सिबल वॉटर मोटर पंप की स्थापना, राइजिंग मेन, फीडर मेन और डिस्ट्रीब्यूशन पाइप लाइन सिस्टम, घरेलू नल कनेक्शन, पंप हाउस का निर्माण, आरसीसी ओएचटी का निर्माण (बीओक्यू के अनुसार) और आरसीसी सम्प वेल का निर्माण शामिल है। प्रति बीओक्यू नलकूपों पर बिजली कनेक्शन, जिसमें सभी सामग्री और श्रम की लागत शामिल है, 90 दिनों के साथ निर्माण / कार्य के निष्पादन के बाद पूरी योजना के सफल परीक्षण औरकमीशनअवधिकमीशन के साथ।

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1. INTRODUCTION

1.1 General

There have been several positive changes in the socio-economic structure of the country in the last few years which have improved the living standards of people. The basic amenities in a home in rural India now include toilet and clean cooking fuel. Due to continuous improvement in the standard of living, people's expectations have increased. Getting water at home through taps in villages is one such aspiration, and work is being done on a war footing to ensure that.

Storage reservoirs and overhead tank are used to store water, liquid petroleum, petroleum products and similar liquids. The force analysis of the reservoirs or tanks is about the same irrespective of the chemical nature of the product. All tanks are designed as crack free structures to eliminate any leakage. Water or raw petroleum retaining slab and walls can be of reinforced concrete with adequate cover to the reinforcement. Water and petroleum can react with concrete and, therefore, no special treatment to the surface is required. Industrial wastes can also be collected and processed in concrete tanks with few exceptions. The petroleum product such as petrol, diesel oil, etc. are likely to leak through the concrete walls, therefore such tanks need special membranes to prevent leakage. Reservoir is a common term applied to liquid storage structure and it can be below or above the ground level. Reservoirs below the ground level are normally built to store large quantities of water whereas those of overhead type are built for direct distribution by gravity flow and are usually of smaller capacity.

2. OBJECTIVE'S

1. To make a study about the analysis and design of water tanks.
2. To make a study about the guidelines for the design of liquid retaining structure according to IS Code.
3. To know about the design philosophy for the safe and economical design of water tank.
4. To develop programs for the design of water tank of flexible base and rigid base and the underground tank to avoid the tedious calculations.

3. TECHNICAL SPECIFICATION FOR PIPE LINE WORK

3.1 D.I. Pipe

- 1) (a) Centrifugally cast (spun) Ductile Iron pressure pipes shall conform pressure pipes shall conform to IS 8329-2000 duly inspected and tested and having BIS certification mark.
(b) The Cement Mortar lining in the pipe shall be as IS - 11906 - 1986
- 2) Ductile Iron fittings for pressure pipes shall conform to IS 9523-2000 dully inspected and tested and having BIS certification mark.
- 3) Rubber sealing rings shall conform to IS 5382-2000 duly inspected and tested having BIS certificate mark.
- 4) The laying of D.I. Pipe shall conform to IS 1288-1987.

5) Marking on Pipes:

Each pipe shall have as cast of stamped or legibly and indelibly painted on it with the following appropriate marks.

- Indication of the source of manufacture.
- The nominal diameter
- Class reference
- The last two digit of the year of manufacture
- The non-standard length of the pipe of specially ordered
- Where applicable, an indication of length over which the pipe is suitable for cutting on site.
- A short white line at the spigot end of the Pipe with push-on joint in sizes DN 700 and above, to indicate the major axis of the spigot.
- On the socket faces of pipe centrifugally cast in metal mould,
- On the outside of the socket or on the barrel of pipe centrifugally cast in sand mould.

3.2 Marking on Fittings

Each fitting shall have as cast, stamped or indelibly painted on it with the following appropriate marks.

- Indication of the source of manufacture
- The nominal diameter
- Class reference

- PN rating of flanges when applicable, and
- Any other mark required by the purchaser.
- Marking may be done on the barrel of casting or on the outside of the sockets.
- The fitting may also be marked with the Standard Mark.

3.3 Laying of DI Pipes

Laying of pipes and fitting/specials i/c all precautions to guard against possible damage to the existing structure /pipes lines, cable etc, taking precautions to prevent dirt from entering the pipe ends, lowering and laying pipes and specials in the trenches with specials arrangement such as cranes, tripods with chain pulley block , use of slings of canvas etc. to fit the ends of pipes and fittings / specials to lift and lower the same. Inspection of pipes & fittings for defect by striking with a light hammer while suspended. Laying of pipes perfectly true in alignment and to gradient etc.

3.4 Tolerance of Length

The Tolerance on length of pipes shall be as follows.

Table 1 : Tolerance limit

Type of Casting	Tolerance (mm)
Socket and spigot and plain ended pipes	±100
Flanged pipes	± 10

3.5 Rubber Gasket

1. The material of rubber gasket for use with mechanical joints and push-on joints shall conform to IS: 5382, Unless otherwise agreed between the manufacturer and the purchaser.
2. In the case of push-on-joints for sizes "DN 600" and above the sockets may be with or without cantering rings.
3. Marking – Each sealing ring or packing or both shall be marked indelibly with:
 - The manufactures name or trade-mark, if any
 - The month and year of manufacture
 - The type followed by a word, "Water".

3.6 Tyton Joints (Rubber Ring Joints)

Tyton Joint is sturdy push on type joint. The sockets of the pipes to receive tyton joints are specially designed to contain elongated grooved gasket. The inside contour of the socket bell provides a seat for the circular rubber ring in modified bulb shaped gasket. An internal ridge in the socket fits in to the groove of the gasket. A slight taper on the plain end (chamfer) of the pipe facilitates assembly.

3.7 Flange Joints

Flanged cast iron pipes, screwed / welded flanged cast iron pipes and flanged specials are joint by means of flanges. The jointing material used between flanges shall be rubber insertion 3 mm thick. Each bolt should be tyton a little at a time taking care to tighten diametrically opposite bolts alternatively. The practice of fully tightening the bolts one after another is highly undesirable.

3.8 G.I. Pipes

1. The G.I. pipes shall be confirming to IS - 1239:2004 (Part II)
2. The hot dip Zinc coating on M.S. tubes shall be confirming to IS - 4736: 1986
3. The Copper alloy Gate valves, Globe wheel valves, Check valves shall be confirming to IS - 778: 1984 (Reaffirmed 2005)
4. All measurement shall be of the finished work.
5. Work shall be executed in accordance with the Indian Standards

3.9 HDPE Pipe:

This specification covers the requirements for successfully designing, manufacturing, supplying, laying, jointing and testing at works and site of Hight Density Polyethylene Pipes used for water supply.

4. LAYING AND JOINTING OF PIPE LINE

4.1 Lowering of Pipes and Fittings

All pipes, fittings, and valves shall be lowered into the trench, by means of derricks, ropes or other suitable tools and equipment to prevent damage to pipe materials and protective coatings and lining.

The pipe should be lowered progressively with the help of shear legs or cranes using wide belts or sling. In case of coated pipes, extra care shall be taken to preserve the coating while lowering. Slings may be removed progressively without the necessity of digging under the pipe. Where the trench is sheeted, the pipes shall be lowered into the trench by removing at a time, one or two struts only, care being taken to see that no Part of the shoring is disturbed or damaged. If necessary, additional struts may be fixed during lowering. After the pipe is lowered, it shall be laid in correct line and level by use of levelling instruments, sight rails, the theodolites etc.

4.2 Cleaning of Pipes And fittings

All lump, blisters and excess coating material shall be removed from socket and spigot end of each pipe and outside of the spigot and inside of the socket shall be wirebrushed and wiped clean and dry and free from oil and grease before the pipe is laid.

After placing a length of pipe in the trench, the spigot end shall be cantered in the socket and the pipe forced home and aligned to gradient.

The pipe shall be secured in place with approved back fill material packed on both sides except at socket.

The socket end should face the upstream while laying the pipeline on level ground, when the pipeline runs uphill, the socket ends should face the up gradient. When the pipes run beneath the heavy loads, suitable, size of casing pipes or culverts may be provided to protect the casing of the pipe. High pressure mains need anchorage at dead ends and bends as appreciable thrust occurs which tend to cause draw and even blow out joints. Where thrust is appreciable concrete blocks should be installed at all points where movement may occur. Anchorages are necessary to resist the tendency of the pipes to pull apart at bends or other joints of unbalanced pressure, or when they are laid on steep gradients and the resistance of their joints to longitudinal or shear stresses is either exceeded or inadequate. Anchor or thrust blocks shall be designed in accordance with IS: 5330 – 1984.

4.3 Backfilling

Backfilling should closely follow jointing of the pipe so that the protective coating will not be subsequently damaged. Material harmful to the pipeline shall not be used for backfilling. Refilling shall be done in layers not exceeding 30 cm. Each layer shall be consolidated by watering, ramming, care being taken to prevent damage to the pipeline. The filling on the two sides of the pipeline shall be carried out simultaneously. Where timbers are placed under the pipeline to aid alignment, these timbers shall be removed before backfilling. For further precautions and use of material in backfilling, reference should be made to IS: 3114-1994.

4.4 Laying of Pipe above Ground

The procedure for handling the pipes as described in and for lowering and assembling the pipes underground as described above should be followed for lifting and laying the pipes on supports or on ground. The pipeline may be allowed as to rest on ground if the soil is non-aggressive. The ground, however, be dressed to match the curvature of the pipe.

4.5 Road, rail and river crossings

The mode of laying the pipeline, crossing road, railway or river shall be determined so as to satisfy the requirement of the authority concerned.

4.6 Blank Flanges

Blank flanges shall be used at all ends left unattended at the temporary closure of work. Blank flanges may also be necessary for commissioning a section of pipeline or for testing the pipeline laid. For temporary closures, non-pressure blank flanges at the pipe ends may be used. For pipes subject to pressures at the blank flanges should be suitably designed.

5. INSPECTION OF PIPE BEFORE LAYING

The pipes shall be inspected visually at the site before laying of pipe in the trench and the defects noticed any shall be repaired or rectified if in the opinion of Engineer-in-charge the defect is repairable. If the defect or damage is not repairable then the contractor shall replace the entire pipe with the new pipe. The pipes and fitting shall be inspected for defects and be rung with a light hammer preferably while suspended, to detect cracks. Smearing the outside with chalk dust helps in the location of cracks. If doubt persists further confirmation may be obtained by pouring a little kerosene on the inside of the pipe at the suspected spot. If a crack is present the kerosene seeps through and appears on the outer surface. Any pipe found unsuitable after inspection before laying shall be rejected.

6. CONSTRUCTION of RCC SUMP WELL

R.C.C underground sump well :- Design, construction, testing and commissioning of R.C.C underground/ground sump well of capacity of KL(As Per BOQ) at Village **1.DHAI2.HATHNORA3.TEKANPUR** and **4.JORASI** Block **DABRA** dist.**Gwalior** of Madhya Pradesh including providing and fixing of G.I. pipes for connecting Scour and delivery pipe line and providing and fixing of all accessories such as Aluminium ladder from inspection chamber to floor of the sump well, manhole covers.

- The sump well shall be designed and constructed in M-30 grade of concrete.
- The bottom slab of sump well shall not be placed on BC soil, soil stabilization shall be done in such case . the minimum free board shall be 200 mm.

- The sump well shall be 500 mm above GL.
- The minimum thickness of RCC wall and base of sump shall be 150 mm.
- Two opening of 200 mm diameter for suction pipe of pump and delivery pipe shall be provided and one opening of 750X750 mm with suitable MS Angle frame and MS gate of minimum 3mm thickness GI sheet for inspection shall also be provided on the floor slab.



Fig. 1: RCC sump well

7. TECHNICAL SPECIFICATION FOR PUMP HOUSE

7.1 Specifications for Framed Structure Pump House:-The pump house shall be RCC framed brick masonry structures. The pump house shall be constructed over the sump. The minimum clear height of the pump house shall be 3.60 m. The columns, Beams, Lintels, Chajjas, and Slabs shall be constructed in RCC M - 25 grade of concrete and walls shall be constructed in brick masonry with 1:6 cement mortar duly plastered with 1:6 cement mortar. The specifications of all the materials have already given earlier, however brief description of different components of pump house shall be as under :-

- Flooring – Vitrified tiles of 600 mm X 600 mm flooring shall be done as per standard specification.
- Walls - The brick masonry walls shall be constructed as per specifications given earlier. The minimum thickness of the outer walls shall be 0.20 m.
- Doors/Windows - 30 % of floor area shall be provided for door and windows. MS door of size 1.0 m x 2.10 m shall be provided. The door and windows shall be of 1mm thick M.S. sheet door with frame of 40x40x5 mm angle iron and 3mm M.S. gusset plates at the junctions and corners, all necessary fittings complete, using M.S. angels 40x40x5 mm for diagonal braces, including applying a priming coat of approved steel primer.
- Electrification - Concealed electric fitting shall be done as per standard IE rules. Each room shall be provided with sufficient number of points for lights, fans, power points, sockets and etc. All fixtures like energy efficient tube lights, CFL, Fans, Exhaust Fans, etc as required of ISI mark and of standard make shall be provided.
- The specification for painting shall be as mentioned earlier.

7.2 Specifications for Mini Pump House Near Source:-Supply & erection of readymade mini pump house (control panel box) GI sheet of 18 gauge of size 90cmx90cmx60cm with 40x40x5mm angle Iron frame to fix it 200 mm below ground level with hold fasts grouted in foundation and 300mm above ground level for clearance suitable for fixing of control panel, fuse unit, main switch etc

8. DETAILS OF OHT

- 1) The overhead tank shall be supported on circular columns only and the top water container should be preferably cylindrical.
- 2) Shaft for support shall not be permitted.

- 3) The foundation, columns, bearings etc. shall be so designed and constructed so as to have a provision for the construction of a single-story building between the G.L. bracing and first bracing with R.C.C. Roof and brick walls for store accommodation.
- 4) The position of the bracing shall be so fixed, that the height of floor is approximately 3.5 M. and the top of ground level bracing is 0.6 M above general ground level to provide for plinth.
- 5) The construction of room on the plinth of OHT is not included in the turn-key job but the foundation and all other members shall be designed and constructed taking into consideration this room load, so that this room may be constructed in future whenever required.

8.1 Detailed Specification for Item of OHT:-

- 1) A cast iron, suitably designed and painted grate of 20mm×20mm with frame shall be fixed in concrete over the supply outlet and scour outlet inside the water container to cover the entire opening when diameter of pipe is more than 200 mm.
- 2) The overflow outlet shall not be connected to any other pipe of the distribution system.
- 3) The specification issued by the E-in-C PHED vide tech. Circular no. 236 Dt. 21.5.97 from s.no. 2.0 to 5.0 (2.0 to 2.8, 3.0, 4.0 to 4.4 and 5.5) shall be followed strictly for this work. All the specifications shall be rigidly followed.
- 4) Protection work for drainage shall be carried out as Part of this turnkey work. At G.L. cement concrete pavement shall be provided for the entire GL area which shall be extended 1.50 mts. beyond the outer edge of the columns of the tank on all side. The area shall be prepared by filling and compacting hard moorum in a depth of at least 20 cm for making sub base. If BC or other soil is there it shall be removed and replaced by hard moorum. A base course of minimum 10 cm thick M-10 concrete shall be given over this moorum base in a slope of 1:60 from the centre and a minimum of 75 mm thick M-15 concrete with nominal reinforcement to the outside edge all around. A drain of 30 cm×25 cm section shall be details given shall also be done and a gate shall also be fixed as per specifications

8.2 GENERAL:-

- 1) The work of construction of R.C.C. Over Head/Ground Service Reservoir involves specialized workmanship, hence requirements of higher standard than general concrete work is essential. The height of staging will be reckoned from an assumed ground level nearest to the site, i.e., the ground level at the site or road level whichever is higher shall be treated as the base level for determination of staging height.

- 2) The bidders submitting their offer for this item on turnkey basis. They will be required to submit detailed design, drawing and calculation within 15 days of agreement for approval by the Department. The responsibility for design, construction structural stability and water tightness will, however rest solely with contractor and he shall have to make good, any damage or loss to the Government due to defect if any, of the above-mentioned work. The contractor shall have to make the tank chlorine resistant as heavy dose of chlorination is expected to be given in water. Any change/modification in the submitted drawing or design suggested by the dept. shall have to be carried out by the contractor without any change in the lump sum cost.
- 3) The offer shall include provision for 1.0 meter wide R.C.C. balcony at bottom slab level and railing to balcony, lightening conductor, water level indicator, 1.0 meter wide R.C.C. stairs from ground level to tank floor with railing, ladders and all pipes and fitting (including puddle collars up to and including duck foot bends and form duck foot bend up to 2.50 meters outside the supporting structures i.e. R.C.C. column including C.I. valves etc. including their painting and architectural treatment protection and drainage work and all as mentioned in this tender document.
- 4) A tentative trial pit section taken at site of construction is attached for guidance. The tenderer should himself verify this before submitting tender for the design of foundation of R.C.C. Over-Head/ground Service Reservoir. The contractor shall be required to conduct proper investigations with full field tests for finding bearing capacity & other details at his own cost. The investigation reports shall be furnished to the engineer-in-charge for verification and record. No payment shall be made to contractor for carrying out the test or on account of any variation in the soil bearing capacity that is indicated and change in design due to strata variation.
- 5) The contractor shall have to arrange himself the entire quantity of steel required for the completion of the work under contract, no steel shall be supplied by the Department. No extension of time will be granted by the Department for non-availability or non-procurement of steel or any other material in time or late supply of steel or for any other reasons what-so-ever.
- 6) The R.C.C. stairs of a 1.0 metre width from ground level to the gallery shall be provided.
- 7) G.I. pipe railing of 20 mm diameter, medium class, in three rows both side of staircase shall be provided from GL to balcony , for R.C.C. stairs, all around the gallery.
- 8) The Railing shall be provided as per point No. 11 as given below .
- 9) An Aluminium ladder shall be provided from the manhole to the inside floor of the tank as per norms of the Department.
- 10) M.S. ladder, 600 mm wide, from gallery to the top of roof shall comprise of two stringers of size 50×50×5 mm and foot rests of two M.S. bars of 16 mm diameter each at 300 mm c/c. the railing

Parallel to stringers shall be of 20 mm G.I. pipe medium class, in three rows connected to stringers by 50×50×5 mm angles at 1.50 metre c/c. This ladder shall start from the end of the entry, cut out on gallery. All iron works railing shall be applied with 2 coats of approved quality and make enamel paint over a primer red oxide paint coat.

- 11) To avoid any unauthorized person climbing the overhead tank, the entry at the bottom of the stair case shall be closed with suitable arrangements consisting of one gate with locking arrangement of size 0.90m×2.0 m to overfull width of stairs made of MS angle and plates with suitable MS angle iron posts for fixing the gate. The design of the gate shall be got approved by the PHED.
- 12) R.C.C. chamber cover shall be provided.
- 13) To avoid any accident at the time of cleaning or maintenance of the tank the opening of the out let and scour pipes shall be covered with CI grate as mentioned in this NIT, when diameter of pipe is more than 200 mm .

9. WORKMANSHIP

- 1) The depth of excavation will generally be guided by the underground strata the safe bearing capacity of the inspiration soil and as directed by the Engineer In-Charge. Strata chart of trial pit section is formed available only for guidance for the purpose of preliminary design consideration only. Safe B.C. shall need to be verified by contractor by actual site investigation at his own cost. Test results of soils, foundation shall be submitted to the PHED for approval, before start of work together with the detailed structural design. No payment shall be made to contractor for winding up these tests or on account of any variation within the soil bearing capacity and style change thanks to strata. No dewatering shall be payable under any circumstances whether natural, artificial or manmade.
- 2) **Filling Foundation with Bed Concrete:-**(Levelling course) The foundation shall be laid over bed concrete (i.e., levelling course) of a minimum of 75 mm thick or more, with a minimum of 1:3:6 (M-10) concrete with 40 mm gauge grade or the prescribed mix as per instruction of Engineer-In-Charge and as per relevant I.S. Code.
- 3) **Reinforced Concrete Work:-**It shall be strictly as per IS 456-2000 and other relevant IS codes. The concrete mix and minimum Cement specified shall be rigidly followed. Where the concrete has not fully hardened all laitance shall be removed by scrubbing the wet surface with wire or bristle brushes, care being taken to avoid dislodgement of Particle of aggregate. The surface shall be thoroughly wetted and every one free water removed. The surface shall then be coated with

neat cement grout. the primary layer of concrete to be placed on this surface shall not exceed 15 cm in thickness, and shall be rammed against old work Particular attention to be paid to corners and shut spots. Concrete shall be thoroughly compacted and fully worked round the reinforcement around embedded fixtures and into corner of the shape work.

- 4) **Measuring:-**(Concrete Mix Proportioning) the number of cements shall be determined by weight. Ordinary hydraulic cement conforming to IS:8112-1989 shall weigh 50 Kg/bag. The quantities of fine and coarse aggregates shall be determined either by volume or by weight. The proportion of fine and coarse aggregate shall be in accordance to IS:456-2000.
- 5) **Mixing:-** Concrete shall always be mixed in an exceedingly mechanical mixer. Mixing shall be continued till there's the same distribution of the ingredients the mass is uniform in colour and consistency, but in no case the blending shall be in deep trouble less than two minutes.
- 6) **Transportation:-** Concrete shall be handled from the place of blending to the place of ultimate deposit as rapidly as practicable by methods which can prevent segregation or loss of any ingredients and maintaining the specified workability.
- 7) **Placing and Compacting:-**The concrete shall be placed and compacted before setting commence and may not be subsequently disturbed. Methods of placing shall be specified there's no segregation concreting shall be applied continuously up to construction joints, the position and arrangement of which shall be determined by the designer. When the work must be resumed on swept clean, then roughly wetted and covered with a 12 mm layer of mortar which shall be freshly mixed and placed immediately before the placing of the concrete.
- 8) **Mechanical Vibration:-**Mechanical vibration for compacting concrete shall always be used and reduced water content should be adopted. Over vibration is harmful, and will be avoided, when – ever vibration must be applied externally the look of form work and also the disposition of vibrators should receive special consideration to confirm efficient compaction and to avoid surface blemishing.
- 9) **Curing:-**The concrete shall be covered with a layer of old gunny or canvas or similar absorbent and kept constantly wet for at-least twenty-eight days from the times of placing of concrete.
- 10) All the iron duck foot bends puddle collars, bell mouths and other specials, shall be of sophistication medium and as per I.S.S. pipes required for inlet, outlet, overflow and scour shall be of C.I.D.F. and shall be supplied and glued in position by the contractor from desired inside level of the tank to duck foot bend, one meter below G.L and further providing and fixing all double flanged C.I. pipes and specials from duck foot bend on-ward up to 2.50 M outside the supporting structure of the tank (i.e. R.C.C. Column) shall even be supplied and stuck to the

contractor including testing of the fittings and joints with cost of the materials and joints. All the fittings shall be as per I.S. Specifications.

- 11) The arrangements for inlet, outlet, overflow and scour pipes shall be such all these pipes are independent of every other and every of those shall have bellmouths at their ends to be supplied by the contractor. the highest of bell mouths of inlet shall be 15 above FTL of the tank. the highest of bell mouth of the outlet pipe shall be 15 cm above floor of the tank. The bell mouth of scour pipe shall be flushed with floor level. of these vertical CI Double Flanged pipes shall terminate with flanged duck foot bends bottom fixed one meter below ground level. Further C.I D.F. pipe shall be provided up to 2.50 M away the structure of the tank. of these duck foot bends shall all be fixed with heavy class ISI marked sluice valves. The contract also includes providing and fixing of sluice valves, construction of valve chambers and providing R.C.C. Chamber covers. All the pipe and specials required for above shall be fixed during concreting. Specials which are to be embedded in concrete shall have collars at the centre of concrete thickness.
- 12) The tank shall will must be tested for the water tightness as per IS: 3370 and it shall be the responsibility of the contractor to create it water tight. Any defects shrinkage or other faults which can appear within 12 months from the completion of the tank arising out of defective or improper materials of workmanship are upon the direction of the chief Engineer to be amended and made good by the contractor (s) at his/ their own cost and just in case of default, the governor of M.P may get over the contactor (s) the price of constructing good the works. The arrangements of water for construction and testing shall be done by the contractor at his own cost. For testing purposes, the contractor shall must provides a test of water tightness of reservoir to the complete satisfaction of the Department. The responsibility of structural stability shall also rest solemnly with the contractor. The refund of earnest and deposit contemplated within the agreement shall be refunded only after expiry of twelve months after the satisfactory completion of the work.
- 13) Aluminium/copper Lightning conductor shall be provided & fixed with proper earthing arrangements as per relevant I.S. specifications. The earthing plate shall be of copper.
- 14) Lightning conductor should be provided as per clause No. 17 of this item .
- 15) Supplying and fixing copper earth plate 600×600mm×3mm size with copper nuts and bolts complete including digging pit of required size and filling it 10 kg of salt and 15 kg of charcoal etc. (For lightning conductor)—one no. including testing. Supplying and laying earth connection for the earthing with 25×3 mm Aluminium tape, jointing materials all complete for railing where ever necessary.

- 16) Water level indicator shall comprise of copper float, guide, pulleys with a pointer on the enamel painted indicator plate which shall be calibrated to read the depth of water within the tank in meters.
- 17) Painting by exterior water proof emulsion paint like Ace, Apex etc. on the tank shall be done only after the tank is successfully tested for water tightness. After a base coat, two coats of colour paint, to be approved by the PHED, shall be applied to the complete satisfaction of the dept.
- 18) No charges for the plastering if required for correct finishing of the surface of structures shall be paid under any circumstances. Amount shall be deducted from the L.S. cost for improper finishing.
- 19) **Construction Joints:** Construction joints be treated in accordance with IS:456. The surface of already laid concrete be cleaned be water jet and cement slurry be applied. Cement mortar 10 mm. thick of the identical proportion as in concrete be applied so fresh concrete of the lift be laid. The form work must overlay 100 mm on the already laid concrete.
- 20) If a Dome is provided at the highest, the thickness will be limited to 100 mm after proper designing. Rectangular / Square columns aren't allowed. Circular shafts are also not allowed. In respect of horizontal braces, corners shall be chamfered by 40×40 mm.
- 21) The depth of footing on the face of column shall not be less than 1/3rd of the spread of footing from the face.

Table 2: Minimum Steel Required

Minimum steel : Design requirement as set out in relevant codes in respect of steel shall be fully satisfied. However, following minimum steel shall be provided.	
1) Vertical steel in columns	0.8% of cross-sectional area actually required and 0.3% when section than actually required is provided.
2) Horizontal link on columns	Not less than 8 mm. diameter at 200 mm c/c or 10 mm diameter not more than 300 mm c/c
3) Exposed R.C.C. surface	On both faces when thickness is 150 mm or more. 2 kg/sqm in perpendicular direction . The above requirement is satisfied if. 8 mm bars @ 200 mm /c/ or 10 mm bars @ 300 mm c/c are provided. Even if

	design steel is less than above, the above minimum shall be provided.
4) Steel in tank	As per provision steel is I.S. 3370 subject to minimum as set out in (c) above.

9.1 Maximum Spacing of Reinforcement:-Maximum spacing of main reinforcement in slab or walls shall not be more than 150 mm centre to centre. The spacing of secondary bars, such as distribution steel or vertical bars in columns.

10. SPECIFICATION OF MATERIALS FOR CONSTRUCTION

The material used for construction shall be governed by the provision of Part-IV of National Building Code of India and relevant-IS Codes of specifications with up-to-date amendments.

- 1) **Bricks:-**The bricks should be Chimney brick crushing strength not less than 25 kg/cm² and water absorption shall not be more than 15% Bricks shall conform to IS 1077 with up-to-date amendments.
- 2) **Sand:-** The sand should be as per IS 383/1970 (latest edition). The preferable sand shall be Narmada River sand. The sand for plaster shall be confirming IS 1542 (Latest edition).
- 3) **Steel for Reinforcement:-**Steel for reinforcement shall be confirming to BIS specification 1786/2008 with up-to-date amendments and BIS 1130/1966. All the steel 8 mm diameter and above shall be cold steel twisted deformed bars Fe-415 or TMT steel. The contractor shall be required to produce the test certificate from manufacturer to the Department before use of steel for the work. No untested steel will be allowed to be used in any circumstances. The Department however reserves the rights to get the steel tested at the cost of contractor.
- 4) **Cement:-** The cement to be used in work shall be 43/53 grade ordinary Portland or cement PPC confirming to BIS 8112/1989, 12269/1987 or IS:1489 or relevant IS code Ordinary Portland cement, PPC shall be tested for following test at contractor's cost. For under water concreting, rapid hardening cement shall be used.

Table 3 : Type of test

S.No.	Type of test	Frequency
1)	Test for initial and final setting time as per I.S. 3536-1966	One test for 50 Tonnes or Part thereof and every change of make

2)	Test for determination of Compressive strength of cement as per IS 3536/1966.	One test for 50 Tonnes or Part thereof and every change of make.
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- 5) **Water:-** Water for construction shall be as per IS 456 : 2000.
- 6) **Concrete:-** In general concrete shall be designed as per IS 456:2000 latest addition and water-retaining structures shall be designed as per IS 3370 latest editions. All the components, which are in contact with water, shall be of minimum Grade M-30,. All other components not in contact with water shall be of minimum M-25 grade except otherwise mentioned. The cement content per cubic meter of concrete shall not be less than the provisions of IS 456:2000. In general, the clear cover to reinforcement shall be as per IS 456:2000 provisions, but additional clear cover shall be provided on all water retaining faces of the structural members, as per the provisions of IS 3370. The concrete shall be prepared as per mix design. All ingredients of concrete shall be weighed and mixed as per the mix design. Weigh batching may be converted into corresponding volume batching, if desired. All concrete shall be mixed by concrete mixer and compacted with concrete vibrator only. All tests shall be carried- out by contractor at his own cost. During concreting, sample test cube shall be prepared as per the frequency prescribed in IS 456:2000. To assess the strength of cube immediately, accelerated curing testing may also be conducted as required by the Engineer-in-Charge. If the results of the tests are not conforming with the required standard and if the Engineer-in-Charge considers that the structural test is necessary, the same shall be carried-out by the contractor at this own cost. If the result of this comes again unsatisfactory then the contractor will be bound to dismantle and reconstruct the Particular portion of work The formwork shall be of steel or fresh ply to get the smooth finish.

11. DESIGN CRITERIA

- 1) Foundation shall be designed as per S.B.C. of soil as ascertained by plate load test or any other standard test and other soil Parameters.
- 2) The following load and forces should be considered
 - Dead Load
 - Live Load – static and dynamic load due to flow and falling of water
 - Load due to water
 - Wind pressure as per IS 875-1987
 - Pressure due to earthquake i.e., seismic force
 - Any other forces as required in the relevant I.S. Code.

- 3) **Construction Joints:-** It should be as per clause No. 13.4 of IS 456:2000. Previously laid concrete layer should be first cleaned by water jet and then 10mm thick layer of cement mortar of same proportion should be laid before casting of next layer of concrete. Formwork should be 100mm below the previously laid concrete layer.
- 4) **Steel:-** The minimum steel for design purpose shall be as per IS 456:2000 and 3370 (Part I to IV) with up-to-date amendments.
- 5) **Type of Steel:-** It is desirable to use reinforcement cold twisted steel conforming to IS 1786-2008. TMT may also be used

12. DESIGN of CONCRETE MIX

It shall be done by the contractor at his own cost and the mix so designed shall be approved by Engineer-in-Charge within the limitations of Parameters. and other stipulation. Design mix shall be done as per standard code in practice and assumptions mentioned in clause No. 9.2 of IS.456-2000.

12.1 Production of Concrete:-

- 1) **Batching** – Batching shall be done as per clause No. 10.2 of IS 456-2000. The cement shall be mixed by weight and other constituent shall be preferably mixed by weight.
- 2) **Mixing** – Concrete shall be mixed in a mechanical mixer as per clause No. 10.3 of IS 456-2000. The mixer should be complied with IS 1791 and IS 12119.
- 3) **Form Work** –The form work should be conforming clause No. 11 of IS 456- 2000. The form work shall conform to the shape, lines and dimensions as shown on the drawings and so construction to remain sufficiently rigid during the placing and compaction of concrete and shall be sufficiently tight to prevent loss of liquid from concrete. Design, detailing etc as per IS 14687 shall be referred.
 - The form work shall be cleaned off. All rubbish Particularly chippings, shaving and saw dust shall be removed from the interior of the forms before the concrete is placed and the form work in contact with the concrete shall be cleaned and thoroughly wetted or tested with an approved composition.
 - Stripping Time – In no circumstances form work should be struck off until the concrete reaches the strength of at least twice the stress to which the concrete may be subjected at the time of stripping.
 - In normal circumstances i.e., ambient temperature above 15°C, form work may be struck after expiry of the following periods as per clause No. 11.3 of IS 456- 2000. Vertical form

of walls beams and columns 24 hours to 48 hours as may be decided by the Engineer-in-Charge.

Bottom of slabs up to 4.5m span - 7 days

Bottom of slabs over 4.5m span - 14 days

Bottom of beam up to 6m span - 14 days

Bottom of beam over 6m span - 21 days

The formwork should be left longer, as it would assist the curing. The number of props, their sizes and position shall be such as to be able to safely carry the full dead load of the slab, beam or arch as the case may be together with any live load likely to occur during further constructions.

12.2 Assembly of Reinforcement:-

It shall be as per clause No. 12 of IS 456-2000.

- Reinforcement shall be bent and fixed in accordance with procedure specified in IS 2502. The high strength deformed steel bars should not be rebent or straightened without the approval of Engineer-in-Charge. Bar bending schedule shall be prepared for all reinforcing work.
- Placing of reinforcement shall be done as per clause No. 12.3 of IS 456-2000. Spacers, cover blocks should be of concrete of same strength.
- Welded joints or mechanical connection in reinforcement shall be used but in all cases of important connections, tests shall be made to prove that the joints are of the full strength of the bars connected. Welding of reinforcement shall be done in accordance with the recommendations of IS 2751 and IS 9417. It shall be done as per clause No. 12.4 of IS 456-2000.
- **Transport:** After mixing concrete shall be transported to the form work as rapidly as possible by methods which prevent segregation on loss of any ingredients and maintaining the required workability. It shall be done as per clause No. 13 of 456-2000.

12.3 Placing and Compacting:-

The concrete shall be placed and compacted before initial setting of concrete commences and should not be subsequently disturbed. The method of placing should be such that there should be no segregation and concreting shall be carried out continuously upto construction joints, the position

and arrangement of which shall be determined by the designer and construction joints should comply with relevant IS 11817. When the work has to be resumed on surface, which has hardened, such surface shall be roughened. It shall be taken swept clean, then roughly wetted and covered with a 10 mm layer of mortar of same proportion which shall be freshly mixed and placed immediately before the placing of the concrete.

Where the concrete has not hardened, all loose material shall be removed by scrubbing the wet surface with wire of bristle brushes, care being taken to avoid dislodgement Particle of aggregate. The surface shall be thoroughly wetted and all free water removed. The surface shall then be coated with neat cement grout. The first layer of concrete to be placed on this surface shall not exceed 15cm in thickness and shall be rammed against old work, Particulars attention being paid to corners and close spots. Concrete should be thoroughly compacted and fully worked around the reinforcement, around embedded fixtures and into corners of the formwork.

12.4 Mechanical Vibration:-

Concrete shall be compacted by mechanical vibrators complying with, over vibration and under vibration are harmful and should be avoided and vibration of very wet mixes should be avoided. It shall also comply the clause No. 13.3 of IS 456-2000.

12.5 Curing:-

The concrete shall be covered with a layer of old gunny bags of canvass or similar absorbent material and kept constantly wet for the atleast seven days from the date of placing of concrete in case of O.P.C. Curing should be done with the help of pump. Curing shall be completed as per the provision under clause No. 13.5 of IS 456-2000.



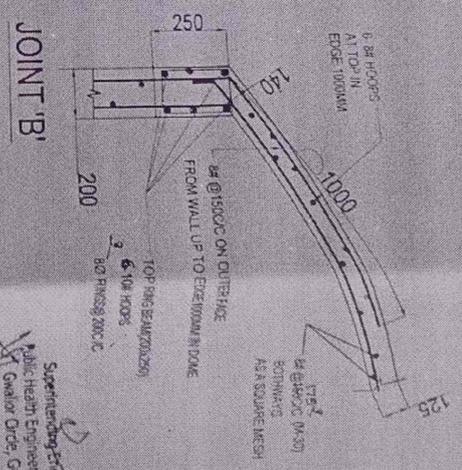
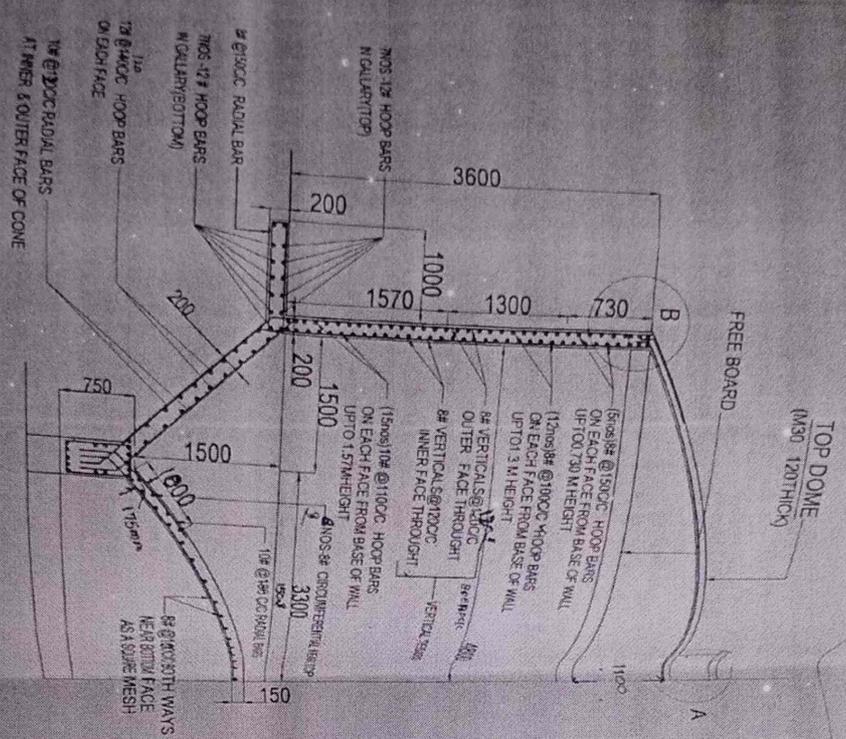
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Fig.2: HandPump



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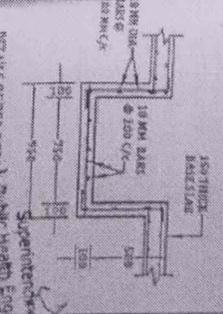
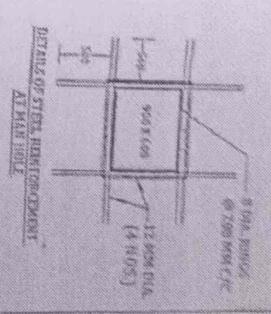
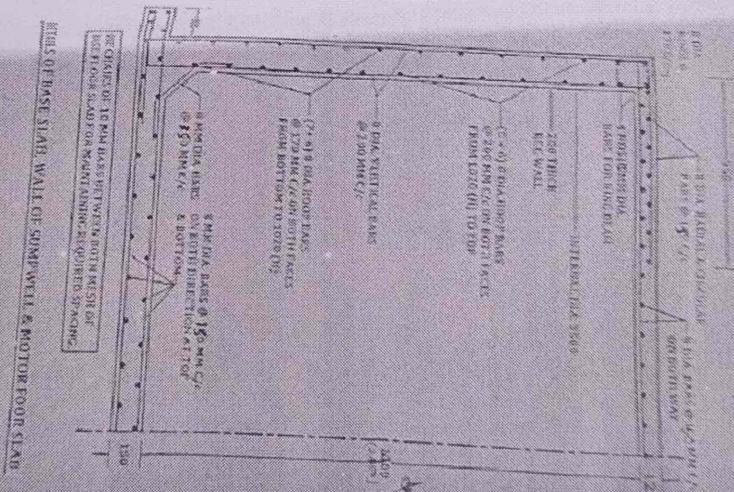
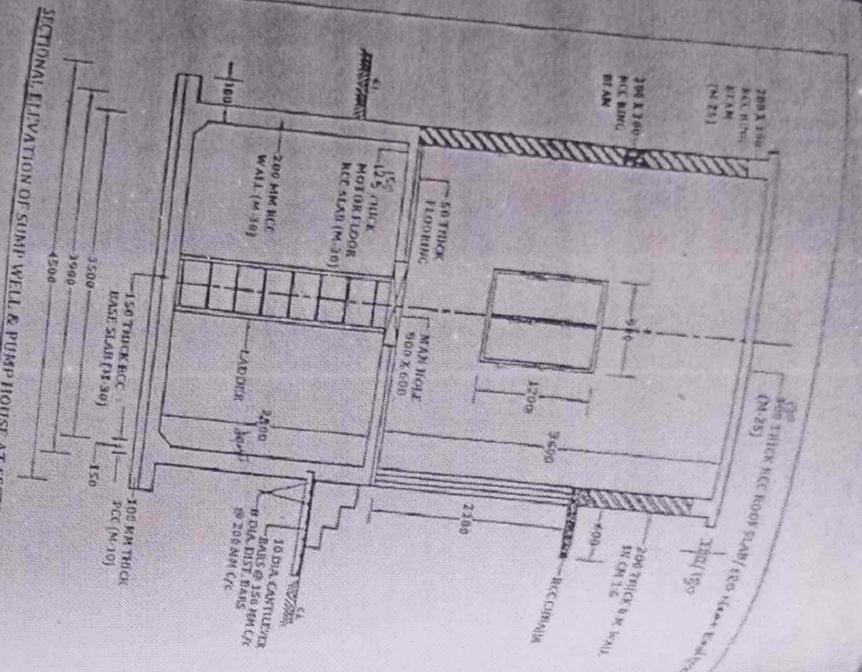
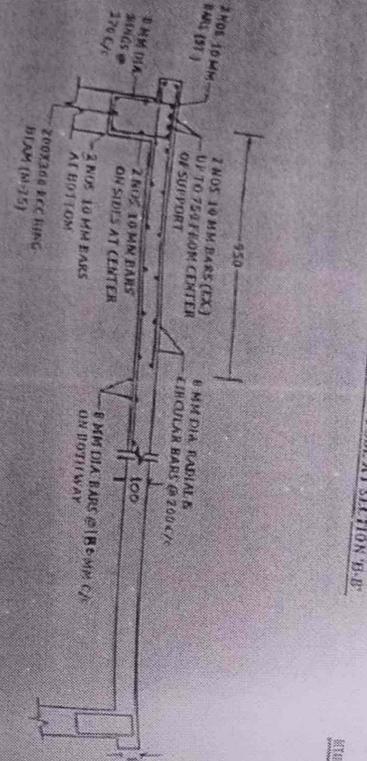
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Fig.4 : Drawing of Sump Well Part 2

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DETAILS OF 200 X 300 RING BEAM & ROOF SLAB OF PUMP HOUSE



FOR: Executive Engineer, PHED Division, Gwalior (M.P.)
 Scheme: Jal Jeevan Mission (M.P.)

2022/5/21 12:13

Dr. P. K. Saxena
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 N. S. Gwalior

Dr. G. S. Gwalior
 G. S. Gwalior

Supervising Engineer
 Gwalior Circle, Gwalior

Design of water tank is a very tedious method. Particularly design of underground water tank involves lots of mathematical formulae and calculation. It is also time consuming. Hence program gives a solution to the above problems.

There is a little difference between the design values of program to that of manual calculation. The program gives the least value for the design. Hence designer should not provide less than the values we get from the program. In case of theoretical calculation designer initially add some extra values to the obtained values to be in safer side.

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CHARACTER COUNT

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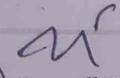
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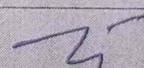

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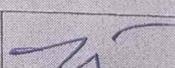
FORMAT

FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR

Name of student	MANAS GUPTA		Department	PHED GWALIOR	
Industry/Organization	Govt		Date/Duration	16/01/22 - 01/02/22	
Criterion	Poor	Average	Good	Very Good	Excellent
Punctuality/Timely completion of assigned work				✓	
Learning capacity/Knowledge up gradation				✓	
Performance/Quality of work					✓
Behaviour/Discipline/Team work				✓	
Sincerity/Hard work				✓	
Comment on nature of work done/Area/Topic					
<u>OVERALL GRADE (Any one)</u>	<u>POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT</u>				
<u>Name of Industry Mentor</u>	Satyam Chaturvedi Team leader TPI (PHED) GWL				
<u>Signature of Industry Mentor</u>	 Team Leader (TPI) Fortress Infracon Ltd. Gwalior (M.P.)				
Receiving Date		Name of Faculty Mentor	Chayam Gupta	Sign	

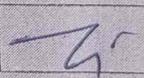
FORMAT

FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR

Name of student	Manas Gupta		Department	PHED - Gwalior	
Industry/Organization	Cout		Date/Duration	01/02/22 - 16-2-22	
Criterion	Poor	Average	Good	Very Good	Excellent
Punctuality/Timely completion of assigned work					
Learning capacity/Knowledge up gradation					
Performance/Quality of work					
Behaviour/Discipline/Team work					
Sincerity/Hard work					
Comment on nature of work done/Area/Topic					
<u>OVERALL GRADE (Any one)</u>	<u>POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT</u>				
<u>Name of Industry Mentor</u>	Satyam Chaturvedi - Team leader (TPED)				
<u>Signature of Industry Mentor</u>	 Team Leader (TPED) Fortress Infracon Ltd. Gwalior (M.P.)				
Receiving Date		Name of Faculty Mentor	Chayan Gupta	Sign	

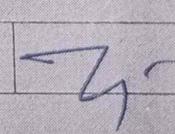
FORMAT

FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR

Name of student	Manas Gupta		Department	PHEO - Gwalior	
Industry/Organization	Govt		Date/Duration	16/02/22 - 03-03-22	
Criterion	Poor	Average	Good	Very Good	Excellent
Punctuality/Timely completion of assigned work					
Learning capacity/Knowledge up gradation					
Performance/Quality of work					
Behaviour/Discipline/Team work					
Sincerity/Hard work					
Comment on nature of work done/Area/Topic					
<u>OVERALL GRADE (Any one)</u>	<u>POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT</u>				
<u>Name of Industry Mentor</u>	Satyarn Chaturvedi - Team Leader (TPIED)				
<u>Signature of Industry Mentor</u>	 Team Leader (TPI) Fortress Infracon Ltd. Gwalior (M.P.)				
Receiving Date		Name of Faculty Mentor	Chayan Gupta	Sign	

FORMAT

FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR

Name of student	Manas Gupta		Department	PHED - Gwalior	
Industry/Organization	DIOVA		Date/Duration	03/03/22 - 18/03/22	
Criterion	Poor	Average	Good	Very Good	Excellent
Punctuality/Timely completion of assigned work					
Learning capacity/Knowledge up gradation					
Performance/Quality of work					
Behaviour/Discipline/Team work					
Sincerity/Hard work					
Comment on nature of work done/Area/Topic					
<u>OVERALL GRADE (Any one)</u>	<u>POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT</u>				
<u>Name of Industry Mentor</u>	Satyam Chaturvedi - Team leader (TPIED)				
<u>Signature of Industry Mentor</u>	 Team Leader (TPI) Fortress Infracon Ltd. Gwalior (M.P.)				
Receiving Date		Name of Faculty Mentor	Chayan Gupta	Sign	

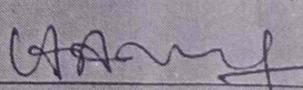
FORMAT

FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR

Name of student	MANAS Gupta		Department	PHED GWALIOR	
Industry/Organization	Govt.		Date/Duration		
Criterion	Poor	Average	Good	Very Good	Excellent
Punctuality/Timely completion of assigned work				✓	
Learning capacity/Knowledge up gradation				✓	
Performance/Quality of work			✓		
Behaviour/Discipline/Team work				✓	
Sincerity/Hard work				✓	
Comment on nature of work done/Area/Topic					
OVERALL GRADE (Any one)	<u>POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT</u>				
Name of Industry Mentor	Satyam Chaturvedi Team Leader TPI (PHED)				
Signature of Industry Mentor	 Team Leader (TPI) Fortress Infracon Ltd. Gwalior (M.P.)				
Receiving Date		Name of Faculty Mentor	Chayam Gupta	Sign	

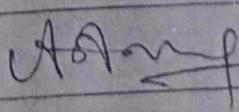
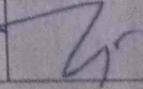
FORMAT

FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR

Name of student	Manas Gupta		Department	Learner's Digital	
Industry/Organization	Nexturn technology		Date/Duration	DD/MM/YR - DD/MM/YR 04-04-22 - 15-04-22	
Criterion	Poor	Average	Good	Very Good	Excellent
Punctuality/Timely completion of assigned work				✓	
Learning capacity/Knowledge up gradation				✓	
Performance/Quality of work					✓
Behaviour/Discipline/Team work				✓	
Sincerity/Hard work				✓	
Comment on nature of work done/Area/Topic	Java Java core SQL				
<u>OVERALL GRADE (Any one)</u>	<u>POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT</u>				
<u>Name of Industry Mentor</u>	Amar Amirededy				
<u>Signature of Industry Mentor</u>	 				
Receiving Date	Name Faculty Mentor	Chayan Gupta		Sign	

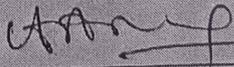
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FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR

Name of student	Manas Gupta		Department	Learner's Digital	
Industry/Organization	Nextwin Technology		Date/Duration	DD/MM/YR - DD/MM/YR 16-04-22 - 1-05-22	
Criterion	Poor	Average	Good	Very Good	Excellent
Punctuality/Timely completion of assigned work				✓	
Learning capacity/Knowledge up gradation				✓	
Performance/Quality of work					✓
Behaviour/Discipline/Team work				✓	
Sincerity/Hard work				✓	
Comment on nature of work done/Area/Topic	Job C Github				
OVERALL GRADE (Any one)	POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT				
Name of Industry Mentor	Amar Amircaldy				
Signature of Industry Mentor					
Receiving Date	Name Faculty Mentor	Chayan Gupta		Sign	

FORMAT

FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR

Name of student	Manas Gupta		Department	Devarun's Digital	
Industry/Organization	Nextwin technology		Date/Duration	DD/MM/YR - DD/MM/YR 02/05/22 - 18/05/22	
Criterion	Poor	Average	Good	Very Good	Excellent
Punctuality/Timely completion of assigned work				✓	
Learning capacity/Knowledge up gradation				✓	
Performance/Quality of work					✓
Behaviour/Discipline/Team work				✓	
Sincerity/Hard work				✓	
Comment on nature of work done/Area/Topic	Hibernate HTML CSS				
OVERALL GRADE (Any one)	POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT				
<u>Name of Industry Mentor</u>	Amar Amiredoly				
<u>Signature of Industry Mentor</u>					

Receiving Date	Name Faculty Mentor	Chayan Gupta	Sign	
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