

UNION TERRITORY OF JAMMU & KASHMIR

OFFICE OF THE EXECUTIVE ENGINEER PHE (JAL SHAKTI) GROUND WATER DIVISION
BAGHI-ALI-MARDAN, NOWSHARA SRINAGAR.

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R/o. Stanley Building Kochi,
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E-mail ID. eos.kochi@gmail.com.

No:PHE/GWD/ 6972-01
Dated: 08-3-2023

ALLOTMENT ORDER NO: PHE/GWD/JJM/ 109 OF 03/2023
DATED: 08-3-2023

Sub: Formal allotment for Construction of Production tube well at W.S. Scheme Arkhoshipora, Qazigund Anantnag under Jal Jeevan Mission (JJM).

- Ref: i) Chief Engineer, Kashmir Jal Shakti (PHE) Department Srinagar's e-NIT No: 02 of 2022-23 Dated: 22-07-2022 issued under endorsement No: CE/PHE/DB/13307-19 Dated: 22-07-2022 read with corrigenda, I.
- ii) UT Level committee meeting held on 28-10-2022 and 12-11-2022 under the Chairmanship of Development Commissioner Works PW (R&B).
- iii) Chief Engineer, Kashmir Jal Shakti (PHE) Department Srinagar's fixation of Rate Contract issued vide No: CE/PHE/JJM/41246-61 Dated:06-02-2023.
- iv) Chief Engineer, Kashmir J.S. (PHE) Department Srinagar's fixation of Rate Contract issued vide No: CE/PHE/JJM/E&T/32387-431 Dated: 28-11-2022, for "Construction of Production wells in different Divisions/Districts of Kashmir Province under Jal Jeevan Mission (JJM).
- v) Superintending Engineer, PHE Hydraulic Circle Anantnag / Kulgam's authority letter No: SE/Hyd/ Cors/12170-74, Dated: 15-02-2023.
- vi) This office letter No: PHE/GWD/6367-74 Dated: 16-02-2023 & No: PHE/GWD/6839-45 Dated: 03-3-2023

Dear Sir,

For and on behalf of Lieutenant Governor of Jammu and Kashmir, the contract for Construction of Production tube well at W.S. Scheme Arkhoshipora, Qazigund Anantnag under Jal Jeevan Mission (JJM) is allotted to you with contract value of Rs. 33,88,000.00 (Rupees: Thirty-three lacs & Eighty-eight thousand only) on the following rates, terms and conditions as per Annexure "A" & "B"

| S.No | Items of NIT | Unit | Qty. | Rate | Amount |
|------|---|------|------|------------|-----------|
| 1. | Boring /Drilling bore well of required dia for casing /strainer pipe, by suitable method prescribed in IS 2800 (Part-1), including collecting samples from different strata preparing and submitting strata chart/bore log, including hire and running charges of all equipment tools plants and machineries required for the job, all complete as per direction of Engineer-in-Charge upto 90 m depth below ground level | | | | |
| 1.1 | All Kinds of soil (Diameter of casing/Strainer pipe of 250 mm. | Mtr | 90 | Rs.10900/- | 981000.00 |
| 2. | Boring/drilling bore well of required dia for casing /strainer pipe, by suitable method prescribed in IS 2800 (Part-1), including collecting samples from different strata preparing and submitting strata chart/bore log, including hire and running charges of all equipment tools plants and machineries required for the job, all complete as per direction of Engineer-in-Charge beyond 90 m & upto 150m depth below ground level. | | | | |

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|-----|---|-----|-----|------------------|--------------|
| 2.1 | All Kinds of soil (Diameter of casing/Strainer pipe of 250 mm. | Mtr | 60 | Rs.11800/- | 708000.00 |
| 3. | Grovel packing in tube well construction in accordance with IS: 4097, including providing gravel fine/ medium/coarse in required grading and sizes as per actual requirement all complete as per direction of Engineer in-charge. | Cum | 30 | Rs.9000/- | 270000.00 |
| 4. | Supplying, assembling, lowering and fixing in vertical position in bore well, ERW (Electric Resistance Welded)FE 410 mild steel screwed and socketed /plain ended casing pipes of required dia, conforming to IS: 4270 of reputed & approved make, including painted with outside surface with two coats, of anticorrosive paint of approved brand and manufacture including required hire & labour charges, fitting and accessories, all complete for all depths, as per direction of Engineer-in charge 250mm nominal dia having wall thickness as per IS: 4270. | Mtr | 110 | Rs.7500/- Mtr | 825000.00 |
| 5. | Supplying, assembling, lowering and fixing in vertical position in bore well, ERW (Electric Resistance Welded)FE 410 plain slotted (having lot of size 1.6/3.2 mm)mild steel threaded and socketed/plain bevel ended pipes (type-A) of required dia and wall thickness conforming to IS:8110, of reputed & approved make having including painted with outside surface with two coats of anticorrosive bitumestic paint of approved brand and manufacture including required hire and labour charges fitting ad accessories all complete for all depths as per direction of Engineer in-charge. 250 nominal size dia. | Mtr | 40 | Rs. 9100/- | 364000.00 |
| 6. | Development to tube well in accordance with IS: 2800 (Part-1) and IS:11189 to establish maximum rate of usable water yield without sand content (beyond permissible limit) with required capacity air compressor ruing the compressor for required time till well is fully developed measuring yield of well by "V" notch method or any other approved method measuring static level and draw down etc. by step draw down method collecting water sample & getting tested in approved laboratory I/c disinfection of tube well all complete including required hire and labour charges of air compressor tools and accessories etc. all as per direction of Engineer In-charge. | Job | 01 | Rs.240000/- | 240000.00 |
| | Rs. Thirty-three lacs and Eighty-eight thousand only) | | | TOTAL Rs. | 33,88,000.00 |

Head Draftsman

Technical Officer

Executive Engineer
Jal Shakti PHE Ground Water Div.
Srinagar

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TECHNICAL SPECIFICATION

01. SITE SELECTION:

The Contractor/Firm would be given the tentative location of tube well, the information regarding Tube wells and Dug wells, existing in the vicinity of the proposed sites like their depth, formation encountered, discharge and static water level will also be furnished wherever possible. Based on above information expected yield from the tube well shall also be communicated to the Contractor/Firm.

In addition to above the Contractor/Firm shall be free to undertake the electric resistivity mapping of the proposed site and seek an opinion from a hydro-geological expert, **who shall be registered with the CGWB or with the Govt. Organisation of the UT of J&K. The charges shall be paid by the contractor himself.** The data regarding strata obtained from ERM mapping shall be compared with the strata chart of the nearest existing well. The site for the tube well selected shall also be sufficiently away from possible sources of contamination like drains, septic tank, manure animal farms, rubbish dumps, petrol and chemical storage site. After satisfying himself about the feasibility of the site for drilling of production tube well, the firm shall start the work at site. In case the Contractor/Firm is not satisfied about the feasibility of proposed site on the basis of above tests etc, the Contractor/Firm is free to choose/propose a more suitable site. However the above exercise shall necessary be undertaken in presence of Departmental Engineer, while doing so the Contractor/Firm shall specify the following:

- Whether a test bore hole is proposed and if so, its diameter and depth, and also depth of production tube well
- Likelihood of increase or decrease of the depth specified above
- Method of drilling with size of bore in different depths;
- Type of plain pipe with size, wall thickness and slotted/strainer pipes with opening, may be mentioned;
- Guarantee with regard to the verticality of tube well and sand content (pm) in the discharge from the well at the time of handing over;
- Development methods shall be adopted as per the guidelines of CGWB/as per the IS code to be decided by the site In-charge Engineer.

The site plan and the preliminary design shall require approval of competent authority i.e. Superintending Engineer PHE Mechanical Circle (North) Srinagar. **On initiating the drilling process, the Contractor is at liberty to make the assessment for availability of adequate discharge of minimum 4000 GPH at the proposed site and if the discharge of the well turns out to be less, then the well shall not be taken over by the concerned Division and no payment shall be made in favour of the firm.**

Pilot Bore:-

In case of sites where feasibility of drilling cannot be ascertained other than by exploration, a pilot bore of **150 mm** diameter shall first be done which can be finished to the required final diameter by reaming. Strata chart shall be prepared based on samples collected during drilling of the pilot bore. Geophysical log of the borehole shall also be taken which shall be used in conjunction with the strata chart for assessing quality of the aquifer. When this is done, Engineer-in-charge will inspect the site, and collect all the data needed for designing the well. Based on this data, the well shall be designed, and started for further execution. If the site is not suitable, the pilot bore shall be abandoned, and an alternative site shall be selected.

02. CONSTRUCTION OF PRODUCTION TUBE WELL:

Construction of Production Tube Well based on results of pilot bore data by a suitable method of drilling viz

- Direct Circulation Method/**
- Reverse Circulation Method/**
- Dual Rotary Method**
- For Pilot Bore : DTH/ODEX**

up to the desired depth as per the code of practice for construction and Testing of Tube Wells/Bore Wells (Second Revision) IS 2800 (Part-I): 1991 and IS-2800 (Part-II) 1979 in all kinds of soils, boulder, rock, collapsible Strata, saturated soils etc. with the requisite accessories required thereof including Bentonite mud, foam, water lubricants etc.

The drilled bore hole is to be reamed from 400mm to 550 mm diameter for Mud Rotary

The size and length of slotted/strainer Pipes would be selected according to the actual requirement and Strata met with and the expected discharge and depth of Tube Well.

03. CASING PIPE:

The Well casing must be large enough to house the pump and should allow sufficient clearance for installation and efficient operation. The dia of casing shall not be less than 250 mm Dia.

The Well casing Pipes generally conforming to IS-4270:1983 and the slotted/ Strainer Pipes conforming to IS-8110:1985 shall be provided by firm at the site of Well construction. **The Pipe shall be ERW 250 mm dia wall thickness as per IS: 4270:1983, Double Bituminous Coated and Bevel edged as per IS Code.** The welding electrodes used for welding the casing Pipes shall conform to the relevant Standard IS codes. The jigs and fixtures for lowering the casing Pipe shall be provided by the firm. The bail plug or bottom plug, the clamp for holding the casing Pipe and Well cap shall be fabricated out of IS-226:1975. The verticality and alignment of the Well and casing Pipes shall be tested as per IS-2800 (Part-II): 1979. The well Casing shall be anchored with ISMC150 and CC Block. The CC Block shall be laid of size (2 X 2 X 1) Mtr in M-15 Mix, excluding the annular dia of the Well.

04. INTAKE DESIGN:-

Water moves from the aquifer into the well through either a screen or slotted or perforated casing. Screens shall be manufactured with regularly shaped and sized openings. They shall be engineered to allow the maximum amount of water in with minimal entry of formation sediments. Stainless steel screens will be preferred because they are strong and relatively able to withstand corrosive water. Screens are manufactured with various slot sizes and shapes to match the characteristics of the aquifer. A good screen should allow the flow of water into the well and should be effective in holding back the formation sediments.

Cuttings from the borehole should be examined and a judgment should be made whether to use a screen, or slotted or perforated casing/liner. While a screen is the more expensive alternative, it is necessary if the aquifer is composed of loose material such as fine sand, gravel or soft sandstone. A slotted or perforated casing/liner can be used when the aquifer formation is more consolidated, such as hard sandstone or fractured shale.

05. SLOT / SCREEN SIZE OPENINGS

The slot/ Screen openings shall be designed on the basis of Sieve analysis of Samples collected after every 10 to 20 Feet of Drilling, and must be small enough to permit easy entry of water into the well while keeping out sediment. The slot size chosen will depend on the particle size of the earth materials in the producing aquifer. Typically one should select a slot size that allows 60 percent of the aquifer material to pass through during the well development phase of drilling. The remaining 40 percent, comprising the coarsest materials, will form a natural filter pack around the perforations or screen. The slot size shall conform to IS 8110:2000.

06. TOTAL OPEN AREA OF SCREEN

The amount of open area in the screen or slotted or perforated casing/liner will affect how quickly the water from the aquifer enters the well. A smaller amount of open area allows the water to enter the well at a slower rate, causing a lower drop in pressure as the water moves into the well. If the water flows too quickly, dissolved minerals in the water will precipitate out of solution and create an incrustation build-up in restricting the flow of groundwater into the well. Incrustation is a build-up that occurs when dissolved minerals in the groundwater come out of solution and deposit on the screen or casing. The pore spaces in the aquifer immediately adjacent to the perforations may also get clogged, restricting the flow even more.

The total area of the slot openings is dependent on the length and diameter of the screen. While the length of the screen is variable, the diameter of the screen is determined by the diameter of the well casing. The yield from a well increases with an increase in screen diameter but not proportionately.

07. PLACEMENT IN THE AQUIFER

The screen or perforations on the casing/liner must be placed adjacent to the aquifer. If improperly placed, the well may produce fine sediment which will plug plumbing fixtures and cause excessive wear on the pump. Therefore bore log data should be analysed to accurately identify the boundaries of the aquifer for exact placement.

08. VERTICALITY OF TUBE WELLS

Tube wells must be perfectly vertical by using a plumb disk. Two disks made out of 3mm thick steel plate are connected together by a rod of 25mm diameter and 3 m long tightened with the help of nuts at the ends. Some holes are punched in plates to facilitate immersion in water. A knob is fixed on the top nut to which a thin steel wire is attached. The disk is suspended into the tube by the wire passing over a pulley on a tripod. When the disk is lowered into the pipe, the wire is exactly in the centre of pipe. When the disks are further lowered down and if the well pipe is not truly vertical, the wire will deviate from the centre and that shall be indicated at the top of pipe.

Absolute verticality is ideal for installation of Submersible Pumping Unit.



09. **ANNULAR SEAL & WELL CAP**

Sealing the well protects the well from contamination. The annular space must be sealed to prevent any surface contamination from migrating downward and contaminating the water supply. A vermin-proof well cap shall be designed to keep animals, insects and contaminants from entering the well. It shall be equipped with rubber gaskets and screened vents to ensure air circulation. Coverings shall be custom made to the respective diameter of each well.

10. **WELL DEVELOPMENT**

Well development is the process of removing fine sediment and drilling fluid from the area immediately surrounding the perforations. This increases the well's ability to produce water and maximize production from the aquifer. If the aquifer formation does not naturally have any relatively coarse particles to form a filter, it may be necessary to install an artificial filter pack. This pack is placed around the screen or perforations so the well can be developed. This procedure is necessary when the aquifer is composed of fine sand and the individual grains are uniform in size. It is important to match the grain size of the filter pack material with the size of the slot openings of the screen to attain maximum yield from the well. Typically the slot size of the screen shall be selected so that 85 percent of the artificial pack material will remain outside of the screen after well development. **The Well development shall be purely as per the CGWB norms and as per relevant IS Code: 2800 (Part-I)**

11. **YIELD TEST:-**

Tube well shall be tested for yield by the Contractor/Firm as per IS:2800-1979. Yield test is to be performed by the firm in order to establish the following Data;

- i. **Static Water Level.**
 - ii. **Dynamic Water Level.**
 - iii. **Draw-Down**
 - iv. **Constant Discharge of the Well.**
 - v. **Safe Yield of the Well for installation of Pumping Unit.**
- After drilling and developing a well, Contractor/Firm must stabilize the well with Pumping unit for at least 30 Hours before Handing Over the Well to the concerned Territorial Division.**


12. **DISINFECTING THE WELL:**

The Contractor/Firm shall disinfect the tube well with chlorine. The concentration must be at least 200 milligrams of chlorine per litre of water present in the well and must be left in the well for at least 8-12 hours to ensure any bacteria present are destroyed.

13. **FILTER PACK:**

- i. Filter pack shall consist of well-rounded particles, with uniformity co-efficient (D60/D10) less than 2.5. The gravel / sand used in the filter pack shall be 95% siliceous (Not >5% soluble in hydrochloric acid), free from foreign matters, washed and disinfected. Gravel shall conform to IS: 4097:1988 "Gravel for use as filter pack in bore wells".
- ii. The filter pack shall extend above the screen a distance of 1 to 2 m, to account for setting and loss during development to prevent the filter pack around the screen from being fouled by and the sealing grout.
- iii. The size and grading shall be as per B-3 of Annexure B of IS: 8110:2000 "Well screens and slotted pipes - Specifications". Gravel shall consist of sand or gravel. The grain size shall be so selected as to have D50 of the filter pack 9 - 12.5 times the D50 of the formation in the aquifer in uniform aquifers and 11-15.5 times the D50 of the formation in the aquifer in non-uniform aquifers. Another criteria is that the average pore size of the gravel pack, which may be taken as 0.4 times D10 of the gravel pack, should be less than D85 of the formation in the aquifer.


Head Draftsman


Tech: Officer


Executive Engineer
Jal Shakti PHE Ground Water Division,
Srinagar.

GENERAL TERMS AND CONDITIONS

1. PERFORMANCE SECURITY:

The Performance Security deposited by you in shape of B.G. Vide No: 0010NDLG0007723, Dated: 27-02-2023 for an amount of **Rs.31,51,000/-** is retained in Direction office as performance guarantee/security against the works.

2. THIRD PARTY MONITORING:

The allotted works shall be subject to check by the third party monitoring agency appointed by the Department in Kashmir. The agency shall check the quality of works executed by the agencies, quality of materials used for construction and quality of machinery installed in each scheme. The TPIQM's role shall be that of an assistant to the Employer's Representative for the purpose of monitoring and evaluation of the performance of the Contract during the Contract Period.

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2. COMPLETION PERIOD:

The time of completion of work shall be **60 days** from the date of issuance of allotment order.

3. TERMS OF PAYMENT:

- a. 90% payment shall be released after successful completion of the well as per the tender specifications and Handing Over the said well to the territorial PHE Division, after verification from concerned Assistant Executive Engineer.
- b. 05% shall be released after successful performance of Production Tube Well for minimum period of (06) months (Defect Liability Period).
- c. Balance 05% shall be paid after harnessing of the tube well for a trial run of (06) months. In case of failure of well i.e. Discharge below 4000 GPH, no payment shall be released in favour of the firm.

4. WARRANTY:

The firm shall be bound for satisfactory performance of the work for 06 months after the successful completion of trial run of 06 Months or whichever is later. If during warranty period any malfunctioning/defects arise, the firm/joint venture shall have to rectify the same within a period of ten days of receipt of intimation. In case of any failure on the part of the firm/joint venture to remove the defect, the Department may get the defects removed/ repaired by any other agency and cost thereof shall be recovered from the firm / joint venture and shall be recommended for further punitive action as governed under the relevant clause of the contract including blacklisting.

5. DEFECTS LIABILITY PERIOD (DLP):

The defects Liability period shall be for a period of 06 Months which shall commence after the successful completion of Trial run, the Contractor/Firm shall be responsible to make good & remedy at his own expense any defect in works which is noticed during the DLP. In case any defect remains unattended by the firm at the completion of DLP, the department may extend the DLP for such time as deemed fit for getting the defect rectified subject to a maximum ceiling of 6 Months.

6. LIQUIDATED DAMAGES (LD)

In the event of firm's/joint venture failing, declining, neglecting or delaying the supplies / works or in the event of any damage occurring or being caused by the firm/ joint venture or in the event of any default or failure by the firm in complying with any of the terms and conditions of the contract, the Department shall with or without prejudice to any other remedies available to it under any law for the time being enforce in the UT, shall;

- a) Terminate the contract after 15 days' notice and/or
- b) Recover the amount of loss caused by damage, failure or default, as may be determined by the department. and/or
- c) Recover the extra cost, if any, involved in allotting contract to other party. and/or
- d) Impose Liquidated damages on account of delay beyond the schedule completion period to the tune of 0.5% of the delayed portion of contract every week but not exceeding 10% value of the allotment and/or
- e) Forfeit the performance security and blacklist the firm.

7. FORCE MAJEURE:

Any failure or commission to carry out the provision of the contract shall not give rise to any claim by the department or Contractor/Firm one against the other if such failure of commission arises from the 'ACT OF GOD' which shall include all natural calamities such as fires, floods, earthquake, hurricane, strikes, riots, embargoes or from any political or other reasons beyond the control of the parties including war, or a state of insurgency.

8. ARBITRATION:

Any Dispute or difference arising between the department and Contractor/Firm shall be dealt in accordance with the Arbitration and Conciliation Act 1996 and rules thereof. All disputes shall be subject to Srinagar jurisdiction only.

9. SPECIFICATIONS OF MATERIAL/JOB:

The Specifications and scope must be as given in respective Appendix of this e NIT and there shall be no deviation from the approved parameters. While having submitted the tender by e-tendering method, it is understood that the tenderer is well versed with the site conditions and the terrain etc.

10. VALIDITY OF TENDER:

The tenders shall remain valid for a period of 180 days (Six Months) from the Date of Opening of Price Bid.

11. FALSE INFORMATION:

If the firm furnished any false information to the department, the contractor shall be liable for cancellation shall be invoked as and when it comes to the notice of the department even during the execution of the contract.

12. CONTRACTOR/FIRM DYING, BECOMING INSOLVENT OR IMPRISONED:

In the event of the death or insanity or insolvency or imprisonment of the Contractor/Firm or where the Contractor/Firm being a partnership or firm becomes dissolved or being corporation goes into liquidation, voluntary or otherwise, the contract may, in the opinion of the Engineer-in-charge, be terminated by notice in writing posted at the site of the works.

13. SUSPENSION OF SUPPLY BY THE CONTRACTOR/FIRM:

In case of the firm agency failing to execute the job, the department has the right to get the work executed through some other firm/agency or of its own, at the risk and cost of the defaulters.

14. SAFETY OF GOVT. INFRASTRUCTURES:

The Contractor/Firm should ensure the safety of the water supply lines, sewer lines, telephone cables, power cables, storm water drains etc., pipe laying alignment and, if any damage occurs during execution it should be attended immediately at the cost of the Contractor/Firm. Failing to attend immediately, the same will be got done by the Department at the risk and cost of the Contractor/Firm.

15. CONTRACTOR/FIRM'S RISK AND INSURANCE:

All risks of loss or damage to physical property and of personal injury and death which arise during and in consequence of the performance of the Contract are the responsibility of the Contractor/Firm.

16. SUBLETTING OF WORK:

The Contractor/Firm shall not sublet the whole or part of the work. The Contractor/Firm shall not assign the work or any part thereof or any benefit or any interest thereon or any claim arising of the contract, without prior written consent of the allotting authority.

