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Groundwater Surveys and Development Agency, GoM.
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No. SG/GSDA/Pune/Tech/LGW/ 345 / 2025

Date- 05/03/2025

To,
Shri.Vikas Babaji Charwad and others
Bhukum,Ta.Mulshi.Dist.Pune

Sub: Regarding Hydrogeological Survey at Gat no. 39,40,41 of Village Bhukum Ta.Mulshi.Dist.Pune

Reff : Your application dated 23.02.2025

With reference to the above subject hydro-geological survey was carried out in the presence of concern personnels at the Gat no. 39,40,41 of Village Bhukum,Ta.Mulshi.Dist.Pune. At the time of Hydrogeological survey the concern personnel Shri. Ashish Walhekar was present. The details of the proposed site are as below.

| | |
|------------------------------|--|
| Name of Village | Bhukum,Ta.Mulshi.Dist.Pune |
| Co-ordinates | Lat -18 ⁰ 29'57.97"N, Long -73 ⁰ 43'28.92"E |
| Elevation (msl) | 704 m |
| Toposheet& Quadrant No | 47F/11 and 1B |
| Watershed No. | BM-45 |
| Category | Safe (As per Groundwater Assessment 2022-23) |
| Rock Type | Basalt |
| Aquifer (Water bearing Zone) | Shallow Aquifer (Jointed and Fractured Basalt) |

Location:

The village Bhukum,Ta.Mulshi.Dist.Pune is located a suburb along the western Metropolitan corridor of Pune, just off the Mumbai Bangalore national highway.

The area under study i.e said Gat no. 39,40,41 is located towards South east direction of of Village Bhukum,Ta.Mulshi.Dist.Pune.

Geomorphology:

The topography of the village area is, the South east direction area of village is having undulating topography with gentle slope NW to Sw. The drainage of Bhukum, Ta. Mulshi. Dist. Pune village belongs to dendritic drainage pattern.

Geology:

The area of the village Bhukum, Ta. Mulshi. Dist. Pune consists of solidified layers of basalt and thickness of each layer varies from 10.00 to 15.00 meters and formed during upper Cretaceous to lower Eocene period of Geological time scale. The basalts are dark grey to black in colour, fine to medium grained, medium jointed and fractured in nature. For the proposed area the geological as well as lithological data is considered as per field observations and reported data.

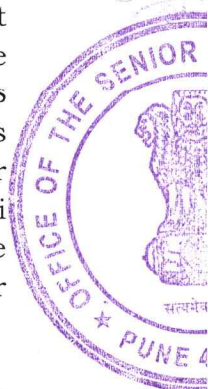
| | | |
|-----------|---|-----------------|
| Lithology | Greyish to brownish coarse grained soil | 0.00 – 0.50 m |
| | Highly to moderately weathered Basalt. | 0.50 – 5.00 m |
| | Greyish black coloured, fine to medium grained, jointed and fractured Basalt. | 5.00 – 10.00 m |
| | Greyish black coloured partly jointed and fractured Massive Basalt | 10.00 – 12.00 m |
| | Greyish black coloured compact Massive Basalt | Below 12.00 m. |

Rainfall:- Bhukum, Ta. Mulshi. Dist. Pune village receives rain from south-west Monsoon and retreating of monsoon. On an average receives scanty rainfall. The average mean annual rainfall in the district is 1573mm. The distribution of rainfall is very uneven. About 85 percentage of the annual rainfall is received during the south-west monsoon season.

Hydrogeological Conditions:

At the proposed area the Soil thickness ranges from 0.00 – 0.50 m, the weathered basalt thickness ranges 0.50-5.00m, jointed and fractured basalt ranges 5.00 – 10.00 m., Greyish black coloured partly jointed and fractured massive basalt ranges 10.00 – 12.00 m and below 12.00 m the Greyish black coloured compact massive basalt. The entire area of the studied Gat no. 39,40,41 is underlain by the basaltic lava flows of upper Cretaceous to lower Eocene age. Geologically the area is covered by jointed and fractured basalt. Ground water in Deccan trap basalt occurs mostly in the upper weathered and fractured parts down to 1.00 - 12.00 m bgl under unconfined conditions. The water bearing strata at deeper depth exists under semi confined to confined conditions at a depth of about 30-45 m and 50-55 m. From the groundwater availability point of view, the area is moderate yielding groundwater potential zone.

The availability of groundwater as a source depends largely upon surface and subsurface geology, geomorphology, natural drainage pattern, depth of weathering and fractures present. Actual annual rainfall, groundwater extraction from other sources in



the surrounding area is also the factors which control and affect the availability of groundwater.

Presently, at the said Gat no. 39,40,41 five groundwater source borewell is observed which are used for domestic and drinking purpose. The details of existing groundwater sources are given as below.

| Sr. No | Source | Location Gat No. | Details of GW Source | | | | Lifting Device | Water availability |
|--------|-----------|------------------|---------------------------|------------|-------------------|-------------|----------------------------------|--------------------|
| | | | Dimensions /Diameter in m | Depth in m | Water Level in m. | | | |
| | | | | | Winter | Summer | | |
| 1 | Bore Well | Gat no. 39,40,41 | 150 mm | 60 m | 6.50 m(R) | 15.50 m (R) | Electrict submerssible pump 1 HP | ---- |
| 2 | Bore Well | Gat no. 39,40,41 | 150 mm | 60 m | 6.50 m(R) | 15.50 m (R) | Electrict submerssible pump 1 HP | ---- |
| 3 | Bore Well | Gat no. 39,40,41 | 150 mm | 60 m | 6.50 m(R) | 15.50 m (R) | Electrict submerssible pump 1 HP | ---- |
| 4 | Bore Well | Gat no. 39,40,41 | 150 mm | 60 m | 6.50 m(R) | 15.50 m (R) | Electrict submerssible pump 1 HP | ---- |
| 5 | Bore Well | Gat no. 39,40,41 | 150 mm | 60 m | 6.50 m(R) | 15.50 m (R) | Electrict submerssible pump 1 HP | ---- |

As per information from the applicant representative, the existing source is perennial in nature and presently used for domestic and drinking purpose.

Observations:

On the basis of Hydrogeological survey done by this office, five groundwater source (Bore well) is used for drinking and domestic purpose. From the groundwater availability point of view, the surveyed area is moderate yielding groundwater potential zone. By considering the existing source presently the approx **70-80Cu.m/Day** water may available from the existing Bore well.

Nevertheless, deficit in normal rainfall, increase in population density, excess groundwater extraction from surrounding areas and lack of groundwater recharge may create stress on the availability of groundwater. Following measures are recommended and are mandatory to the applicant.



Recommendations:

1. At the time of any development process the applicant /company /every holder of a said land shall take all possible precautions to avoid the disturbance of the natural drainage system and aquifer system available.
2. The available groundwater should be strictly used for drinking and domestic purpose only. For future development of infrastructure the requirement of water should be fulfilled by tanker water/untreated raw water so that extraction/utilization of groundwater is controlled.
3. If in future the additional water required for the drinking and domestic purpose, the water requirement should be fulfilled by the water supply connections of local authority and is mandatory to the applicant.
4. For the sustainable availability of groundwater the Roof Top Rain Water Harvesting measures to the existing groundwater sources is must.
5. The rain water harvesting structures should be implemented under the technical guidance of this office (G.S.D.A. Pune) and checked it from time to time.
6. The water quality of existing source should be analyzed regularly by the applicant/firm on its own cost from the water quality laboratory. For drinking purpose treated water should be used.
7. The topographical, hydro-geological conditions and rainfall play very important role for fulfilling the requirement of drinking and domestic water. In view of sustainable groundwater for the drinking and domestic use, the groundwater recharge through rainwater harvesting measures in a quantity equal to the extraction of groundwater from the existing sources is mandatory to the applicant.
8. In view of water requirement for the drinking and domestic use, it is strongly recommended that minimum 70 % of the extracted groundwater must be recycled and reused for further usage.
9. During the Scarcity period the rules of Maharashtra Groundwater (Development and Management) Act 2009 are mandatory to the applicant.

Surveyed By


Junior Geologist

GSDA, Pune


Senior Geologist,

Groundwater Surveys & Development Agency,
Dist Pune.

