

ABEL ENGINEERING CONSULTANTS

Infrastructure Survey and Design

Abel is a Land Survey, GNSS Survey, Cadastral Survey, GIS, Bathymetric Survey and Infrastructure Design Services Company established in the year 1992. We cater to projects in sectors of Water, Waste Water, Irrigation & Transport Engineering.



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JAL JEEVAN MISSION

Topographical Survey for JJM

Abel is vastly experienced in the Jal Jeevan Mission Projects across India. Abel has surveyed more than 2,500 villages and 15,000 km of road in the last couple of years.



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www.abelinfra.com

Sonbhadra MVS / RWSS

The district of Sonbhadra was spread across an area of 7,000 sq.km. which made it very difficult to carry out survey wholistically. A large number of GPS base points was required to overcome this.

Hilly terrain and greatly covered with trees made it challenging to use the GNSS systems. Sonbhadra being a remote location did not have access to cellular network which is needed to Communicate the data between GNSS Base Stations and its connected rovers. Another big hurdle was the short availability of time to finish the project.

○ Creative Approaches

This greatly challenging projects needed the most modern, state of the art Trimble's flagship R10 with multi frequency and multi constellation GNSS Systems

- ◆ 50 employees with 20 GNSS Systems were deployed to finish the project in time
- ◆ Large number of triangulated GPS base stations were established for level transfer.
- ◆ Used UHF Radio Based RTK Communication GNSS systems to overcome the problems of non availability of cellular network.
- ◆ Used Multi frequency and Multi Constellation GPS systems with HD GNSS Technology to cater to the large tree cover.
- ◆ Integrated total stations with GNSS systems to capture data in extreme forest area.

Rural Water Supply Scheme

Topographical Survey of all the roads, Water Utility locations and Intake river cross sections for Multi Village Rural Water Supply Scheme

◆ Client

SMEC India Pvt Ltd

◆ Project Overview

Planning, Designing, Preparation of DPR for piped drinking in Bundelkhand,



Survey Highlights

We achieved some great results with amazing accuracy and precision. Here are some numbers we feel proud of



**10,000 km
Roads Surveyed**

All the pipeline alignments like raw water main, clear water mains and distribution network in the entire district were surveyed



**7,000 sq.km.
Area Covered**

The entire district was included in the scheme and was covered in whole. The entire project was on the same reference plane



**1,500
Villages**

The main objective under the JJM is to ensure drinking water to every village in the project area. All the villages were surveyed in the AOI



**2,07,101
Housholds**

It was ensured that every house hold in the project area was taken into account during the designing and survey of the project

Karnataka JJM

Around 2500 villages had to be surveyed spread across 8 districts in Karnataka. The identification and locating of villages with reference to the JJM list of villages was a challenge.

The existing water infrastructure in the village had to be surveyed to identify the Mini Water Tanks, Borewells, Open Wells, Taps etc along with their respective storage capacities and pump capacities for borewells. Existing Multi Village Scheme had to be identified to explain the current source of OHTs. Existing Distribution Network was also mapped.

○ Creative Approaches

It was challenging to incorporate the existing water supply infrastructure of the villages. Field Coordinators were deployed to collect information from the relevant Waterman and PDOs.

- ◆ Road levels at 30m along with type and width of road was captured in the survey.
- ◆ Existing Pipeline network was surveyed along with the dia, age and material of pipeline.
- ◆ Details of Existing Over Head Tank was captured like Capacity, Condition, Staging Height, Location, Age and upstream source.
- ◆ Existing visible features like trees, Electric Poles, Manholes, Light Poles, Handpumps, Landmarks, Transformers were surveyed.
- ◆ Household details and existing service connections were collected from local waterman.

In-Village Water Supply

Topographical Survey of all the roads, Water Utility locations and Proposed location for in-village water supply schemes across Karnataka

◆ Clients

SMEC India Pvt Ltd
iDeCK
KATCON Consultants

◆ Project Locations

Hassan, Mandya, Koppal,
Bijapur, Chickmagalur, Karwar,
Belgaum, Chikkodi etc



Survey Highlights

We achieved some great results with amazing accuracy and precision. Here are some numbers we are proud of



**7,500 km
Roads Surveyed**

All the roads inside each village were carefully surveyed along with type and width of road. Road Side drains were also captured



**2,500
Villages**

in Various talukas like Channarayapatna, Arsikere, Hassan, Sakleshpur, N R Pura, Shringeri, Mandya, K R Pete, Nagmangala, Koppa etc



**3,500+
Habitations**

Each village consists of connecting habitations which have to be incorporated into the design of the system in whole.



**1,500+
Utilities**

Relevant water utilities locations such as existing OHT, GLSR, Pump House, Borewells and Proposed locations for OHTs were surveyed