

<b>TRACTEBEL Engineering</b> <i>GDF SUEZ</i>	GTS – TOPOGRAPHIC/HYDROGRAPHIC SURVEY FOR RIVERS	<b>Z/02</b> <b>0068</b>
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TOPOGRAPHIC/HYDROGRAPHIC SURVEY FOR RIVERS

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**TABLE OF CONTENTS**

1. OBJECTIVE ..... 1

2. SCOPE..... 1

3. EQUIPMENT..... 1

4. REQUIREMENT AND METHODOLOGY..... 1

5. REPORT ..... 2

6. FINAL REPORT ..... 2

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**1. OBJECTIVE**

- 1.1. The specification is intended to obtain topographic and hydrographic data, river bed profiles and hydrological data for river crossings.

**2. SCOPE**

- 2.1. Scope of work as minimum shall include

- To carry out topographic and hydrographical survey for river crossings.
- To provide and operate all necessary survey equipment for entire period of survey.
- To provide a suitable craft/small boat at required site for carrying out echo sounding.
- To collect and furnish the historical data available from the regulatory authorities for each of the rivers.
- The data shall also include HFL, maximum discharge at HFL, Maximum velocity at HFL, bank to bank width, effective waterway width, maximum scour level, existence of bridge/hydraulic structure 10 km upstream and downstream of crossing, details of river meandering, river bed morphological and geological assessment.
- To provide requisite qualified and experienced person for operation of survey equipment.
- To process all survey data in order to establish accurate bed profiles.

**3. EQUIPMENT**

- 3.1. Bidder shall furnish boats and all equipment required for carrying out the survey works. Details of survey equipments and boats including specifications alongwith relevant certificates of equipment to be mobilized for carrying out the survey works shall be submitted by the bidder.
- 3.2. The bidder shall mobilize a suitable survey boat equipped with dual frequency echo sounder for conducting sounding surveys in major water bodies. A suitable raft shall be mobilized for very shallow water bodies.
- 3.3. A dual frequency precision Eco sounder ,Distomats, Thedolite, Sextant, Masts as needed for the land and river survey shall be mobilized.

**4. REQUIREMENT AND METHODOLOGY**

- Hydrographic Grid survey of the riverbed shall be carried out upto 100 m on either side of the proposed pipeline. The wings shall be located at 25 m on either side of pipeline. Cross lines shall run at every 25 m interval. The dry bed shall be surveyed upto 200 m away from the existing bank alongwith the proposed pipeline and 200 m on either side of pipeline. Spot levels on dry bed shall be taken at every 25 m interval and across the pipeline alignment. However the exact location and number of wing lines shall be decided by Engineer In Charge.

- In water bodies where the depths are more than 1.5m a suitable survey boat shall be used to carry out soundings using a survey Eco Sounder. In the water bodies where the depth is less than 1.5 m a suitable raft shall be used to carry out soundings at 10 m intervals using sounding pole.
- Shall collect/obtain the maximum velocity, maximum discharge at HFL, bank to bank width, effective waterway width, maximum scour level, existence of bridge/hydraulic structure 10 km upstream and downstream of crossing, details of river meandering, river bed morphological and geological assessment . All data shall be maximum of the recorded data in the last 100 years.
- Shall carry out calibration/checks/trains of all survey equipment in the field and obtain necessary approvals for the start of operations.

## **5. REPORT**

5.1. The Contractor shall submit within a week of completion of surveys a preliminary report. This report shall include:

- A summary of all work carried out by him including location of the area.

## **6. FINAL REPORT**

6.1. Final report shall include:

- Details of field surveys
- Geological and morphological features.
- Hydrological data such as maximum velocity. HFL for all rivers based on past minimum 100 years data.
- Historical data available for any bank erosion, change in river course etc.
- Cross sectional details along with profiles across the river bed.
- Bank to Bank width
- Effective waterway width
- Maximum scour depth calculations

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