

Request for Quotations for Aerial LiDAR Survey

January 2019

1 Introduction

Eptisa is undertaking Consultancy Services for preparing feasibility studies and a detailed project report for flood mitigation and comprehensive river management measures for Jhelum River Basin for the Jhelum and Tawi Flood Recovery Project of the Government of Jammu and Kashmir.

These services include the development of a mathematical model of flooding in the Jhelum River and its floodplain, which in turn requires accurate survey.

The subject of this Request for Quotation (RFQ) comprises the acquisition and processing of aerial LiDAR data for the Jhelum River floodplain. The approximate area inundated in the 2014 flood was about 950km² including Wular Lake and minor waterbodies, as shown in Figure 1. This would represent the approximate area for which the LiDAR survey is required. The outer area, also shown in Figure 1, is the preferred survey area which includes areas of interest immediately outside of the 2014 inundated area. This area totals almost 1,800km². Google Earth kmz files of these areas are attached to this brief. We are requesting quotations, on a fixed fee basis, as per the format attached.

Other survey components, including ground control survey are the subject of other RFQ and are not included herein. However, the prospective contractor needs to specify the ground control to be provided in support of its operations as part of its response to this RFQ.

Eptisa understands that at least part of the proposed survey is in a restricted area (no survey is required downstream of the Baramulla urban area to minimise this issue). It will be the successful Contractor's responsibility to obtain the necessary flight approvals.

This RFQ will include data acquisition of LiDAR point cloud data and aerial photography. These data will be processed to provide both digital surface model (DSM) for urban areas to allow definition of buildings and other structures in the floodplain, digital terrain model (DTM) and orthophotographs.

2 Specification

The technical specifications of the requirements for this survey are given below.

- Horizontal Datum: WGS 84
- Projection UTM Zone: 43S
- Vertical Datum: Indian GTS

All survey will be in metric units.

Vertical accuracy is a key issue due to the very flat gradient along the Jhelum River which is as low as 1/12,000 in places and generally between 1/8,000 and 1/12,000. Hence, the vertical error required must have 2xRMSE of not greater than 0.15m.

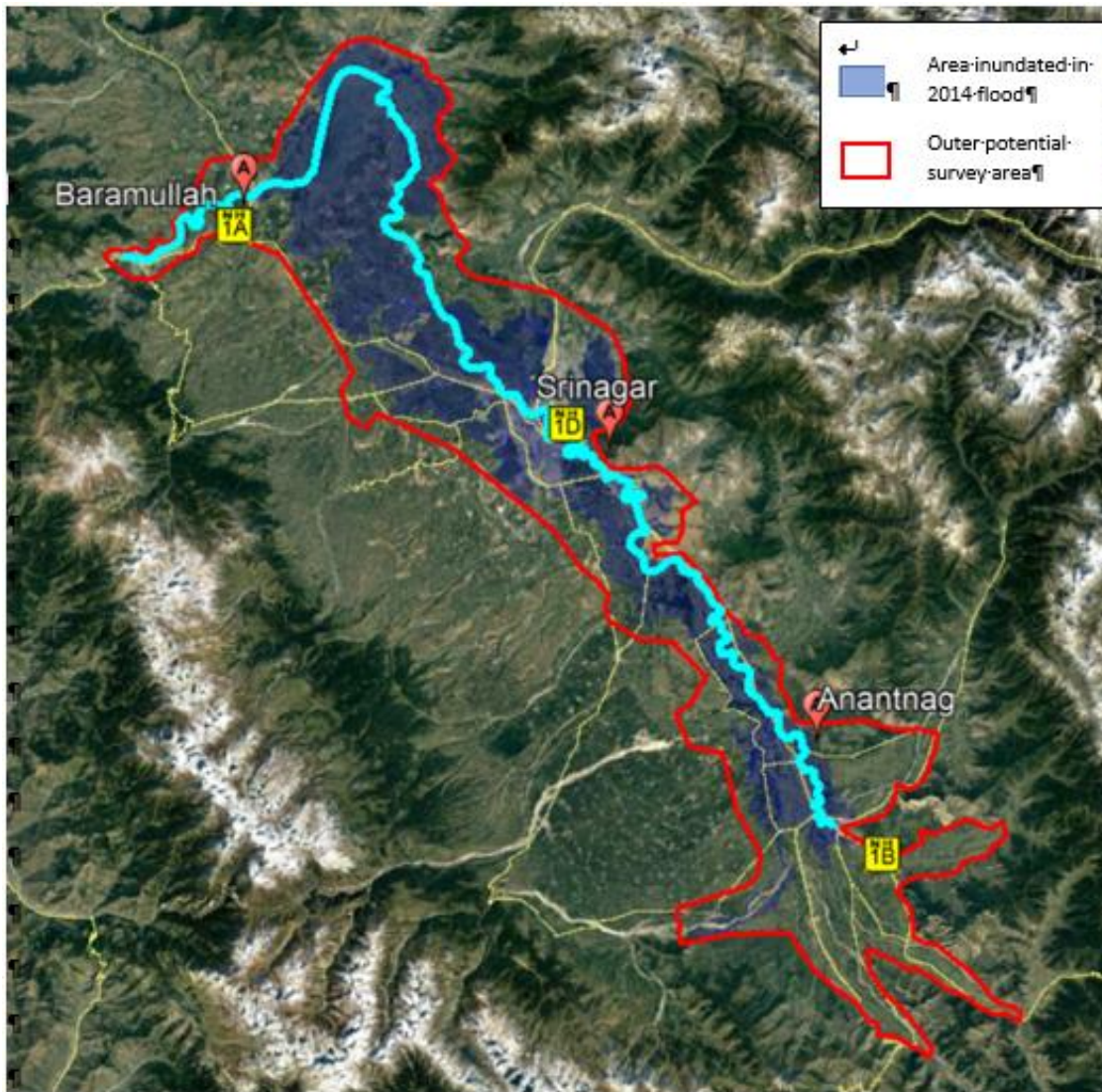


Figure 1 Minimum and Maximum Survey Areas

Survey data and summary information reporting shall be provided by the firm as below:

- (i) Raw survey data in native format.
- (ii) Processed DSM and DTM in raster data as 1m x1m grid in .las and ascii grid format in 2km x 2km tiles (or as otherwise agreed).
- (iii) Orthophotos in .ecw or other approved format.
- (iv) All raw and processed survey data shall be provided on external hard drive(s) in electronic format.
- (v) Brief weekly progress reports are to be provided by email.
- (vi) A survey report shall be provided summarizing the survey including equipment used, survey accuracies achieved, any legitimate difficulties and delays in work execution, etc.

3 Proposal due date & Submittal Procedures;

Financial and Technical proposal should be submitted until **5.00PM on Friday 4th February, 2019.**

Proposal received after the time specified above will not be considered.

a) Technical Proposal:

The Technical proposal should be submitted by email in **'pdf' format** to the following address:

- Team Leader, Eptisa: davidsargent@tpg.com.au
Project Head Office: jhelumtawipri@eptisa.com

Copy To:

- Director Planning & Coordination , Jhelum Tawi Flood recovery Project:
(dirpnc@gmail.com).

b) Financial Proposal:

The Financial proposal should be submitted in a **password protected PDF file** to the following email address .

Team Leader ,Eptisa: davidsargent@tpg.com.au
Project Head Office: jhelumtawipri@eptisa.com

The file password should be shared through a separate & explicit email only & only to.

- Director Planning & coordination , Jhelum Tawi Flood recovery Project:
(dirpnc@gmail.com).

Any queries should be addressed to the above email only by or before 28th January 2019. Responses to the same shall be communicated to the bidder through email by or before 31st January 2019.

Eligibility Criteria:

1)	Incorporation of the Firm:	The firm should be registered and should be in Survey business for at least last five years for which registration certificate, turnover certificate needs to be attached along with affidavit of registration to this effect. In case of JV both Firms to satisfy the criteria.
2)	Similar Work:	the firm should have successfully completed at least single work of similar nature to the tune of rupees not less than INR 1.5 Crores in Twelve Months Period, during last 5 years. The satisfactory performance certificate & cost should be duly certified by the employer. In case of JV any one partner should satisfy this criterion
3)	Successful Bidders:	The financial bid shall be opened only of those bidders who successfully qualify the Technical evaluation.
4)	Similar Project:	The bidder should have executed similar projects in India for an area of 1000sq km in a single work order of the said work for Government / PSU within last five years. Completion certificate, DGCA permission and work order required to be submitted. Note: Similar Project means, Aerial LiDAR Survey works completed in India for any Irrigation / Flood Management applications/relevant works.
5)	Financial Standing:	Details of financial standing (minimum solvency of <u>₹2-Crores</u>) and annual average turnover of <u>₹2 Crores</u>) for the last 3 years. In case of JV the minimum turnover

		should be 50% for the lead Partner and that of the other partner with minimum turnover should be 25%, together totalling 100% of the criterion.
6)	Laws:	The firm is bound to abide with the labour laws & insurance Policies for men & machinery to be deployed during the execution of work. The firm is required to include all the incidental charges in their price Bid

In addition to the above Quotations should also include:

- (i) The quotation form as attached should be complete and amount should be written in both figures as well as words.
- (ii) Brief approach, methodology & bar chart to ensure the completion of work within the required time frame.
- (iii) Any comments on the requirements of this survey brief.
- (iv) Statement of ground control requirements.
- (v) Names and curricula vitae of key personnel.
- (vi) Details of equipment to be used - The bidder should own Aerial LiDAR Sensor (with a minimum range of Aerial LiDAR equipment being 2 km or above) and Digital Camera (with resolution being 80 MP or above) (Invoice & Bill of Entry Custom duty paid shall be provided as proof of ownership).
- (vii) The bidder should own at least 8 numbers of Survey Grade GPS receivers. Proof of ownership to be provided.
- (viii) The bidder should either own or should be able to get on lease Aircraft/ Helicopter. Document in respect of each to be provided. The bidder should produce the NSOP certificate in India of the company where from the aircraft is hired in case of lease of aircraft or its own NSOP in case own aircraft is used.

The following Special Conditions of Contract will apply:

- (i) The Survey Contractor will be responsible for obtaining all clearances regarding this contract, including but not limited to:
 - Flight clearance; and
 - Clearance to release processed data (if required).

Eptisa and JTFRP will assist in providing any documentation required in this regard, but the responsibility for these clearances lies with the Contractor.

- (ii) The processed data must be provided within **3-months** of date of Work Order.
- (iii) The payment terms will be as follows:
 - **20%** of contract cost against bank guarantee on receipt of flight clearance/permission;
 - **20%** of contract cost against bank guarantee on completion of flying;
 - **30%** of contract cost on receipt of deliverables; and
 - **30%** of contract cost on acceptance of deliverables.

Survey work for River Jhelum, Flood Plain based on LiDAR Technology.

Quotation Form

Name of Firm:

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Nominated Representative:

Contact details:

Email:.....**Phone:**.....

No	Description	Approx. Quantity	Rate/Sq Km	TAX /GST	Amount including Taxes INR
1	Survey work by way of Lidar technology for 2014 floodplain	1200 km ²			

note:

- Quantities are approximately and are subjected to increase or decrease by 30%.

Total in Figures:

Total in words:

Signed.....

Position.....

Company.....

Date.....