

**OLS SURVEY & AERONAUTICAL CHARTS
AND TECHNICAL FEASIBILITY / SUITABILITY STUDY
FOR IFR HELIPAD COMPLIANCE
NEW SACHIVALAYA, GANDHINAGAR**

TENDER DOCUMENT

Tender No. 348410

EMD amount: Rs. 7,50,000/-

Tender Cost: Rs. 10,000/-

**GUJARAT STATE AVIATION INFRASTRUCTURE COMPANY LIMITED (GUJSAIL)
Government of GUJARAT
GUJSAIL COMPLEX, Near Torrent Station
SVPI Airport, Ahmedabad 380004**

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Work Title: “OLS Survey & Aeronautical Charts And Technical Suitability Study For IFR Helipad Compliance - New Sachvalaya, Gandhinagar

DETAILED TENDER NOTICE

Sealed tenders are invited by CEO, GUJARAT STATE AVIATION INFRASTRUCTURE COMPANY LIMITED (GUJSAIL), GOVERNMENT OF GUJARAT, from Indian companies only for “**OLS SURVEY & AERONAUTICAL CHARTS AND TECHNICAL SUITABILITY STUDY FOR IFR HELIPAD COMPLIANCE - New Sachvalaya, Gandhinagar**” the work to be completed within a period of 12 (Twelve) months. Other conditions are set out herein. The last date for submission of bids is March 05,2019 upto 18:10 h o u r s on. For detailed information, please visit www.nprocure.com

GENERAL TERMS AND CONDITIONS:

Document fee:

Application form can be procured from the office address mentioned in the tender notice against payment of document fee of Rs. 10,000/- through Demand draft in favour of Gujarat State Aviation Infrastructure Company Limited payable at Ahmedabad or can be downloaded from the website www.nprocure.com. A non refundable document fee of Rs. 10,000/= (Rs. Ten Thousand) is payable in form of demand draft drawn in favour of “Gujarat State Aviation Infrastructure Company Limited” payable at Ahmedabad along with the tender. Bids shall be accepted only on the standard document available on the website, any other format of bid will not be accepted.

EMD:

Earnest money of Rs. 7,50,000/= (Rs. SEVEN LAKHS FIFTY THOUSAND ONLY) in form of demand draft or Irrevocable Bank Guaranty drawn in favour of “Gujarat State Aviation Infrastructure Company Limited” payable at Ahmedabad is to be deposited along with the tender. EMD for unsuccessful bidders shall be refunded on signing of contract with successful bidder and for successful bidder EMD shall be returned on submission of Bank Guarantee towards advance payment and performance guarantee as specified in the document.

Important Dates:

Date of record: All eligibility norms shall be as on the last date and time of submission of bids.

Last date for submission of bids:

March 05, 2019, 18:10 hrs. Bids received late on account of postal delay, if any, will not be considered.

Date of opening of Technical bids:

March 06,2019, 1200 Hrs. Venue:
Conference Hall GUJSAIL,
Ahmedabad, GUJARAT – 380003

**Date of presentation:
Date of opening of Financial Bids:**

To be Communicated.

Bids received late (i.e. after due date or time) because of Postal delay, if any, will not be considered /entertained and will be rejected.

Address for Communication:

GUJSAIL, GUJSAIL COMPLEX, Near Torrent Station, SVPI Airport, Ahmedabad, GUJARAT – 380004, Gujarat.

Selection Process:

First the Envelop 1 shall be opened to check document fee and EMD. Then Envelop 2 shall be opened to examine pre-qualifying /eligibility documents, followed by a presentation on the Technical bid on the date of opening mentioned above. The committee shall in due course evaluate the technical bids and the technically qualified bidders shall be intimated of the date for opening of Financial bids. The selection would be done following the “Quality and Cost Based Selection (QCBS) method of selection with 70% weightage to Technical Expertise/Experience and 30% Weightage to Financial Proposal”. The technical bids would be assessed by a committee based on documentation submitted with the bid, presentation by the participating bidders on various parameters such as past experience, conformance to technical features pertaining to Helipad & Aerodrome Subject Matter Expertise, eligibility criteria etc. The financial bids of only those bidders will be opened who are declared as technically qualified by the committee.

One Bid per Bidder:

Each Bidder shall submit only one Bid. A Bidder who submits or participates in more than one Bid shall cause all the proposals with the Bidder’s participation to be disqualified.

Cost of Bidding:

The Bidder shall bear all costs associated with the preparation and submission of its Bid, and GUJSAIL shall in no case be responsible or liable for those costs.

Site Visit:

The Bidder, at the Bidder’s own responsibility and risk, is encouraged to visit and examine the Site and its surroundings and obtain all information that may be necessary for preparing the Bid and entering into a contract for the said work. The costs of visiting the Site shall be borne by the Bidder.

Document Submission:

The bids have to be submitted in the following manner duly sealed under a cover letter on bidder’s letter head and should be valid for 180 days from date of opening *<a certificate to this effect should be mentioned in the cover letter>*:

- a) Envelop 1: Containing bid document fee and EMD as prescribed above.
- b) Envelop 2: Containing the Pre-qualification/ eligibility documents and Technical bid and supporting documents.
- c) Envelop 3: Containing the Financial Bid on format.

All the above envelopes have to be individually sealed and superscribed as under:

“Envelop <Mention no.>:<Mention the contents of this envelop – fee & EMD or Technical bid or Financial bid as corresponding to the envelop no.>

Tender for “OLS Survey & Aeronautical Charts And Technical Suitability Study For IFR Helipad Compliance - New Sachvalaya, Gandhinagar, No. 348410 due on 05/03/2019”

The three sealed envelope are then to be placed in an outer envelope duly sealed and marked as under:

“Tender for “OLS Survey & Aeronautical Charts And Technical Suitability Study For IFR Helipad Compliance - New Sachvalaya, Gandhinagar No. 348410 due on 05/03/2019”

The completed bid document are to be delivered to the address mentioned above within the last date and time specified. Bids over FAX or email are not acceptable. Any bid not sealed and delivered as per specified above or with wrong contents in any envelop will be rejected.

Signing of bids:

All documents (all pages) to be submitted against the tender/bid have to be stamped (official stamp of the bidding entity) and signed in original by the authorized signatory. A power of attorney or authorization as the case be, in favour of the signatory is to be submitted with the pre-qualification documents.

Clarifications required by bidders:

Bidders may seek clarifications on their Queries, if any, on email lao@gujsail.org upto 14/02/2019 5:00 p.m. only. In response, if necessary GUJSAIL may issue corrigendum or addendum to the bid document but the same shall be published only on the website www.nprocure.com. Similarly, all corrigendum or addendum related to the bid shall be published only on the website www.nprocure.com.

Clarifications on bids submitted:

GUJSAIL reserves the right to seek clarifications or additional information on the bids submitted by the bidders at any stage of the process if so required.

AMENDMENT OF BID DOCUMENT/CONDITIONS:

GUJSAIL may do necessary amendment/changes/additions/deletions to the tender documents or conditions if so required. These shall be published as a corrigendum/addendum on the website www.nprocure.com only. Also all further communications pertaining to the tender/bid shall only be made available on the website: www.nprocure.com only.

Evaluation and rejection of bids:

GUJSAIL reserves the right to reject any or all bids without assigning any reasons. GUJSAIL also reserves the right to call off the process of tendering at any stage without assigning any reason.

Pre-Qualification/ Eligibility criteria:

The following minimum pre-qualification/ eligibility criterion has been laid out:

- a) Bidder shall be a company registered in India under the Indian Companies Act, in existence for the last three years.
< Copy of certificate of incorporation to be submitted >
- b) The bidder shall have a NET WORTH of at least Rs. 06 Crores.
< Copy of Auditors Certificate or Chartered Accountant Certificate shall be submitted >
- c) The bidding entity should not be on the sanctioned list (black listed) by any Multilateral funding agency, Government, PSU or Government organization.
< An affidavit of self declaration on Rs. 100/= stamp paper duly notarized to be submitted >
- d) The Bidders/ firms should have experience of:
 - (i) Conducting **OLS Survey and preparation of aeronautical charts** and Technical Feasibility/Suitability Study for at least two aerodromes and 02 Helipads during the past 5 years.
- e) The bidder shall have at least 02 Directors/ 2 Attached Domain Expertise on the board of the company, at the time of submitted the bid, with AVIATION Survey experience and aerodrome / Helipad Design & Development experience of more than 5 years each.
- g) The bid document shall be supported with self-attested photo copies of valid Registration (Trade license), Permanent Account Number (PAN), Tax Deduction and Collection Account Number (TAN), ISO Compliance Certificate.

Bids not found meeting pre-qualification criterion will be rejected.

SCOPE OF WORK:

Conducting OLS SURVEY & AERONAUTICAL CHARTS AND TECHNICAL SUITABILITY STUDY FOR IFR HELIPAD (NEW SACHVALAYA) COMPLIANCE - New Sachvalaya, Gandhinagar including detailed Survey report, OLS Charts and Technical Suitability Study Report as per technical specifications in this tender.

Technical Evaluation:

Technical bids shall be evaluated based on conformance to specifications of systems and Domain Expertise mentioned in the bid document.

Period of completion:

The work under the assignment is to be mandatorily completed by successful bidder within a period of 365 days from the date of signing of contract. GUJSAIL reserves the right to allocate (divide) work to different bidders for sake of convenience.

Payment Terms:

The following payment terms shall be adopted for the works under the tender:

- a) 30% Advance payment (against irrevocable Bank Guarantee valid for 180 days).
- b) 50% on payment will be released after submission of the draft report of the OLS and Charting and Technical Feasibility / Suitability Study Report to the GUJSAIL.

b) 20% on successful completion of the work.

Necessary deductions from payment shall be made towards statutory taxes as per rules like Income Tax etc as per prevailing rates.

ACCEPTANCE OF TENDER CONDITIONS:

Submission of a Tender by a Bidder implies that he/she has read the notice tender document and all other conditions, contract documents and has made himself/herself aware of the scope and specifications of the scope of work/s to be done and of conditions and rates at which land for stores, tools and plant, etc. will be available at the specified site, local conditions, local material rates and other factors bearing on the execution of the works. No counter conditions shall be acceptable.

CURRENCY FOR QUOTATION:

All bids will be submitted ONLY in INDIAN RUPEES. GUJSAIL will not be responsible for any currency fluctuations so bidders are advised to take necessary precautions towards this in case of imported component if any of the bid.

Taxes:

For evaluation purposes all taxes as applicable on the date of financial bid have to be included by the bidder. Any change in tax rates or levy of any additional tax by the government (Central /State) shall be as per prevailing on the date of raising of invoice. *<necessary proof of change shall have to be submitted by successful bidder>.*

Canvassing and use of Corrupt Practices:

All bidders are cautioned not adopt canvassing in any form in connection with the tender as it is strictly prohibited and the bid submitted by the bidder who resort to canvassing will be liable to rejected. Bidders are also advised not to resort to use of any corrupt practice such as payment of commissions to influence the bid process. Any bidder found to have used corrupt means/ practice shall be black listed in addition to any other punitive action which GUJSAIL may take. Bidder shall also give a declaration that they have not resorted to any collusive/corrupt practice for influencing the bid process in their favour and have not paid any commissions for such activity.

Contract:

The successful bidder will be required to enter into a contract with GUJSAIL on non judicial stamp paper of Rs. 100/=. The contract would invariably define the terms governing the work, scope of work etc.

Indemnity:

The successful bidder shall indemnify GUJSAIL of all copyrights/ IPR and any individual/group claims towards the equipment, software, material and work performed under the contract. Bidder will ensure that there is absolutely no infringement of any copyrights/laws of the land/international laws. Bidder shall also indemnify that the items offered and the installation process do not violate any environment parameters laid down in India.

Jurisdiction:

The Courts of Law situated in Ahmedabad (GUJARAT) India shall have absolute jurisdiction.

Force Majeure and Arbitration:

The contract shall be covered under a Force majeure clause. The disputes arising if any shall be settled amicably by the parties to the contract and any unresolved matter shall be referred to CEO GUJSAIL for resolution, if still unresolved, the Arbitration Act 1996 (and all its latest amendments / enactments) shall be applicable to the contract.

Financial bid format:

Financial bids have to be submitted on the format placed at annexure.

Financial bids will be evaluated for the minimum quantity as mentioned in the Financial bid format however GUJSAIL reserves the right to increase or decrease the quantity of work as per requirements. The bidder has to include all cost related to the said work such as travel, boarding, professional fee, professional, accidental and third party insurance of workmen and crew.

SUBMISSION OF BIDS:

Last date for the submission of bids is upto 18:10 hours on 05/03/2019.

Bids shall be submitted at the address mentioned in the cover page within the date and time indicated. The bids shall be sealed in three envelops and all the three envelops shall be sealed in an outer envelope exactly as per described earlier. The contents of each of the three envelops will be as under:

- a) Envelop 1: Containing bid document fee and EMD as prescribed above.
- b) Envelop 2: Containing the Technical bid and supporting documents.
- c) Envelop 3: Containing the any information that bidder would like to specify.

Envelope 1: This envelop shall contain the Demand draft for bid document fee in case of downloaded tender document (OR the copy of payment already made towards bid documents in case document has been procured from the GUJSAIL) AND the Demand draft for EMD as indicated in the tender document.

Envelope 2: This envelop shall contain the documents in support of Pre-Qualification/Eligibility and the Technical bid. Invariably the following documents shall be submitted in this envelop (self attested):

- a) Proof of Incorporation in India under the company's act.
- b) Auditor's Certificate / CA Certificate with supporting documents stating Net Worth.
- c) An affidavit of self declaration of not being on sanctioned list (black list) on Rs. 10/= stamp paper duly notarized.
- d) Documents in support of conducting OLS Survey and preparing aeronautical charts and Technical Suitability Study for at least two aerodromes / 2 Helipads and during the past 5 years.

- e) Documents in support of minimum 2 Directors/ 2 Attached Domain Expertise on the board of the company, on board of the bidder having minimum of 5 years of Aviation experience each.
- f) Valid Trade Tax Registration (Trade license).
- g) Permanent Account Number (PAN).
- h) Tax deduction and Collection Account Number (TAN).
- i) ISO Compliance Certificate.
- j) Complete Technical Specification document and brochure on the products offered along with compliance to technical specifications mentioned in the bid document.
- k) The bid document duly signed and stamped on all pages (with blank and crossed price bid format).
- l) CHECK LIST: Bidders are advised in their own interest to submit a check list of all documents submitted in the Technical bid envelop indexing the various documents submitted.

CAUTION: The Envelop 1 and 2 should not contain any indication/mention of the price. Any bid found to have a mention of the price in the Envelop 1 or 2 shall be summarily rejected.

Envelope 3: This envelope shall contain any information that bidder would like to specify.

Prices shall be INCLUDING all applicable taxes including VAT, Service Tax, Import customs duties, excise and other taxes. However, rates of such applicable taxes and duties shall be indicated in the price bid. GUJSAIL shall provide necessary document for duty/tax waiver/exemption to the successful bidder and it shall be the responsibility of the successful bidder to seek such exemptions/waivers.

Prices quoted shall be FOR site no separate freight shall be paid by GUJSAIL. Transit insurance and comprehensive insurance for the period upto final handover for the total order value shall have to taken by the successful bidder at their own cost, no separate payment shall be made for this. Necessary documentary proof shall be submitted to GUJSAIL. Similarly, activity such as custom clearing etc. if any, shall be the successful bidder's responsibility.

CORRECTIONS, OVER WRITING:

Any bid containing any correction/s or over writing shall be liable to be rejected.

AWARD OF CONTRACT:

Notification of Award of contract will be made in writing to the successful bidder by the Accepting Authority or his representative. The contract will normally be awarded to the qualified and responsive Bidder offering lowest evaluated bid in conformity with the requirements and the specifications and bid documents and the Accepting Authority shall be the sole judge in this regard. The Accepting Authority does not bind himself to accept the lowest or, any bid or to give any reason for his decision. A responsive bidder is one who submits priced bid and accepts all terms, conditions and specifications of the bid documents. A bidder shall submit a responsive bid, failing which his bid will be liable to be rejected. In case successful bidder fails to accept the award, the EMD shall be forfeited.

False Information/ Concealment of facts:

GUJSAIL reserves the right to disqualify the bidders whose performance based on feedback obtained in ongoing project(s) is below par or unusually poor. If at any stage, any information/documents submitted by the applicant are found to be false/ information is found to be concealed, the bidder shall be liable for debarment from tendering and the bid shall be rejected in addition to any other appropriate/legal action which GUJSAIL may initiate. The EMD of such bidders shall be forfeited.

Validity of bids:

The bid for the work shall remain valid for acceptance for a period of 180 days from the date of opening of Price Bid. If any bidder withdraws his bid before the said period, then GUJSAIL, Government of GUJARAT shall without prejudice to any other right or remedy, will be at liberty to forfeit the full earnest money absolutely. Bidders are not allowed to make any modifications in the bids such as specifications, price, terms and conditions. GUJSAIL may seek extension of bid validity if required and bidder will have liberty to accept or decline such a request.

GUJSAIL reserves the right to transfer the ownership of the contract to the concerned organization/department of the government, in which case the bidder shall be liable to perform all requirements under the control and guidance of that particular organization/department. GUJSAIL may also assign a particular organization / department of the government to sign the contract under this bid with the successful bidder. GUJSAIL reserves the right to accept in whole or any part of the bid/Tender and bidder shall be bound to perform the same at their quoted rates. No claim whatsoever will be entertained on this account.

On acceptance of the bid, the name of the accredited representative(s) of the Bidder who would be responsible for taking instructions from the CEO GUJSAIL shall be communicated.

CEO
GUJARAT STATE AVIATION
INFRASTRUCTURE COMPANY LIMITED
GOVERNMENT OF GUJARAT

INDICATIVE CHECKLIST

FOR OLS SURVEY & AERONAUTICAL CHARTS AND TECHNICAL SUITABILITY STUDY REPORT FOR IFR HELIPAD COMPLIANCE, NEW SACHVALAYA, GANDHINAGAR

Instructions:

1. Please fill the following table and submit the table along with necessary annexures as a part of Envelope 2.

2. Applicant may add more than one Annexures as the underlying enclosures for each point.

SI. No.	Particulars Required	Details					Annexures Enclosed
1	Name of the Bidder:						
2	Address and Contact Details of the Bidder:						
3	Details of Registration of Bidder:						
4	Details of Experience for Pre-Qualification:						
5	Details of PAN and TAN/TIN (as applicable)						
6	Details of Works Successfully Completed:	SI. No.	Name of Work	Work Order No. / Agreement No.	Term of Contract; and Final Completion Date	Cost of Contract as per Agreement; and Final Cost Incurred	

**Signature of Authorized Signatory of
the Bidder**

Name:

Designation:

DECLARATION ON BIDDERS LETTER HEAD

TO BE SUBMITTED WITH TECHNICAL BID (ENVELOP 2)

I <state here the name of signatory> hereby declare that the documents submitted/enclosed are true and correct. In case if any document at any stage is found fake/incorrect, my EMD may be forfeited and action as deemed fit by GUJSAIL, GOVERNMENT OF GUJARAT, can be taken against me.

I undertake to keep my bid (Technical and Financial) valid for a period of <insert no. of days> days as required in the bid document. I also undertake that in case I withdraw my bid before the said validity my EMD deposit may be forfeited.

I further undertake that changes suggested by ICAO/DGCA in method of reporting or format during the warranty period will be incorporated by us without any extra cost.

I further declare that I/we have not resorted to any collusive/corrupt practices in connection with this bid and that we have not paid any commissions to influence the bid process to any person/s or organization in this regard.

Place:

Date:

Signature
Authorized Signatory of the Bidder
Stamp

TECHNICAL SPECIFICATIONS FOR OBSTACLE SURVEY & PREPARATION OF AERONAUTICAL CHARTS

1.1 Survey of the total area of helipad and its surroundings in accordance with the IFR Non Precision Approach Helipad for Performance Class 1 (Category 'A') Helicopter operations.

This will include following:

- i) **Operational Area:** It includes all movement and maneuvering area comprising Final Approach and Take – Off Area (FATO), Touchdown and Lift –Off Area (TLOF), taxiways / Airways, parking stands etc.
- ii) **Non-Operational Area:** It includes all the remaining areas excluding areas as explained above and may comprise Road, perimeter wall, security posts, and surrounding all structures within the specification distance as required by the IFR Helipad regulation including Non – Precision approach Procedure. (30Nm Radius from Heliport Reference Point)

1.2 Establish the Primary and Secondary Control Station in accordance with AAI aeronautical survey Manual-Part II.

1.3 Conduct survey of the helipad Features comprising the following:

- i) **Helipad Points:** The 3-dimensional positions and elevation of the helipad FATO, Safety Area. End and Start of Declared Distances. and a vertical profile of Helipad. In the HAPI/PAPI vertical profile points must be measured at 100 ft intervals for the entire helipad to establish obstacle Protection of HAPI/PAPI.
- ii) **Terminal Navigation Aids:** The 3-dimentional positions of the following Terminal Navigation Aids will be surveyed.
 - NDB / DVOR
- iii) **Visual NAV AIDS** – The latitude and longitude of all Visual NAVAIDs
- iv) Points to be surveyed for GNSS based procedure:
 - LTP (Landing Threshold Point)
 - PAP (Flight Path Alignment Point)
 - GARP (GBAS Azimuth Reference Point)
- v) **HAPI/PAPI: Slope Abeam Point**
- vi) **Helipad Crown and Elevation:** - The highest point on each FATO / TLOF must be determined
- vii) **Other Aerodrome Facilities**
 - Helicopter stand
 - Anemometer Location
 - Reference Point
 - ATC Tower
- viii) **Additional information may include the following:**
 - Fire Service accommodation
 - Emergency access / egress gates and routes
 - Emergency water supply tanks
 - Facility safeguarding (fences)

1.4 Conduct the obstacle survey and determine the penetration of the following Obstacle limitation surface: -

Approach surface

Take-off climb surface.

Transitional surface.

Obstacle Protected Side Slope Surfaces

PAPI/HAPI Obstacle Protection Surface

Complete details along with the lateral and vertical dimensions of Obstacle Limitation Surfaces (OLS) are provided in the Airport Survey Manual Part I/ DGCA CAR Section, Heliports & Annex 14 Volume II – Heliports.

1.5 Preparation of the following charts: -

- Grid Map,
- Helipad Chart
- Approach Chart for both FATO ends
- Type A chart (Both side)
- Parking and docking chart
- Objects of vertical significance around Helipad (15KM all around)
- Zoning map (20 Km from ARP – with BM/Contour heights etc. scale of map is 1: 50,000)
- 30 NM Chart (other obstacle marking for digital NOC computer data. Scale of map is 2,50,000)
- HAPI/PAPI Obstacle Protection Surface

Above Charts are required to be provided in appropriate AutoCAD and GIS format along with two sets (hard copy) of all the charts

1.6 Horizontal coordinates (lat. & long) shall be provided in the WGS-84 system and vertical elevation shall be provided as AMSL, orthometric as well as ellipsoidal heights.

1.7 Digital photographs (soft & hard copy) of essential and critical points viz. Reference Point, FATO ends Vertical profile of FATO, NAV-Aids and all other critical objects as per Annex III of Annexure D of NIT or Heliport requirements.

Airports Authority Authentication and Verification:

- a) The survey to be conducted, shall be based on Aeronautical Survey Manual / DGCA Civil Aviation Requirements, Section 4, Series B, Part III, Heliports and the scope of work as defined above and the survey requirements of Surveyors mentioned in Annexure 'D' & Annexure 'E' of the NIT.
- b) Survey data will be delivered to AAI as defined in the survey requirements for Empanelled Surveyors in the Annexure 'E' format along with Annex 1 (Survey Declaration Form).
- c) The Aeronautical charts shall be drawn Annexure 'D' of survey requirements for Surveyors and as per standards of AAI and as specified in the NIT.
- d) The Agency should depute one technical member to monitor the survey activity at each of the Helipad where survey is being carried out. A detail time schedule of the project/survey activities shall be provided within 15 working days of the receipt of the work order.
- e) A detailed list of survey equipment with valid manufacturer's calibration certificate and manpower details shall be provided to GUJSAIL for approval within 07 days of the receipt of the work order before commencement of survey work at the Heliport. Survey firm shall use survey equipment approved / Accepted by AAI /DGCA only during survey.
- f) Survey data and Aeronautical charts will be submitted by the contractor for verification, authentication and approval /acceptance at his own cost to:
Airports Authority of India/ DGCA New Delhi-110003
- g) The Surveyor at his own cost will replace data/charts supplied if found not as per specifications or found faulty.
- h) An undertaking on Unconditional acceptance of all terms and conditions of the NIT shall be submitted by the firm in format as mentioned in Annexure 'A' along with price bid electronically.

Reference Documentation

All work must be related to the following documentation; accuracies and specifications and are methodically documented to ensure a systematic, repeatable and precise survey:

- a) AAI's Aeronautical Survey Manual, WEBSITE: www.aai.aero
- b) CAR section 9, series G, Part 1, series E
- c) CAR section 8, series B, Part 1, series B, part III - Heliports

Reference Control

At some of the airports in India, there are few existing survey control marks established through previous surveying and engineering projects. These existing control marks are classified as **valueless** unless there is a direct survey tie (current or historical) to the Primary and Secondary Control Stations (PACS and SACS respectively) or IGS stations.

All surveying projects for the benefit of the AAI must initiate from the PACS and SACS or establish one PACS and two SACS as per Aeronautical Survey Manual prior to commencing Aeronautical Survey.

EQUIPMENT

Survey work at any of the airports is not equipment specific. Virtually all survey equipment manufactures equipment can be utilized meeting the accuracy and integrity requirements.

Equipment Maintenance

All equipment that is to be used on this project must have the corresponding maintenance logs which have the documented routine maintenance of the electronic and optical equipment.

Following the best practices of a competent surveyor, reports of periodic equipment calibration verification must also be readily available for inspection.

Equipment Type

RTK GPS

RTK GPS receivers with data controller capable of receiving corrections from a known base station should be utilized when access to the AAI RS (Reference Stations) is not feasible or equipment constraints restrict data access. The RTK GPS base station should be erected over a PACS, SACS or other control mark established from said PACS/SACS and broadcast the GPS correction based on the known coordinate of the control mark being utilized. Once initialization is made, whether from the AAI RS or other ground based RTK GPS base station, a known geodetic control station must be observed with the RTK Rover and the position must be verified within a nominal tolerance to confirm a successful initialization. RTK GPS surveys should be utilized when horizontal and vertical positions of 0.05 of a foot or less accuracy are required and horizontal obstructions are at a minimum.

Note: Prior to any survey execution, the survey contractor will check the identified reference monuments to ensure that the monuments are correct. If the reference control monuments do not comply with AAI/ DGCA accuracy requirements, then the survey contractor will stop survey execution, and notify the project representative and create new reference monuments before commencing survey work.

Static GPS Receiver

For Static GPS surveys, only Static GPS receiver of geodetic quality capable of receiving multiple frequency GPS data will be utilized. The minimum session observation will be 15 minutes or more of continuous data. This time is dependent on the relative distance between corresponding static GPS receivers. The trivial and non-trivial baselines need to be processed and a least-squares adjusted must be performed in accordance with FGCS Specifications using the manufacturers corresponding GPS vector processing software. This survey type is commonly required when surveys of higher accuracy or surveys generating long GPS vectors are required. Data from the **IGS reference station** may be made available for use during static surveys.

Electronic Total Station

An Electronic Total Station of an angular accuracy of 5-arc seconds or better will be utilized for surveys requiring traditional methods to achieve an accuracy of 0.001 meter or better. During each setup the reference geodetic control station distance (back sight) must be checked and verified and if possible a second reference geodetic control station should be observed to verify that the back sight observation had been successfully performed on the correct geodetic control stations.

Differential Level

An automatic differential level of 0.1-mm accuracy or better will be utilized when accuracies of greater than 0.005 meter is needed to be performed for construction staking or geodetic control point establishment. The level circuit must start on a PACS, SACS or AAI published geodetic control station, attention should be paid to balancing the foresights and back sights leading back to the original geodetic control station or an additional PACS, SACS or AAI published geodetic control station.

Accuracies And Standards

Prior to any field activities, the Surveyor shall coordinate all field work through the POC responsible for the project where work will be performed prior to work beginning. The Surveyor shall meet with the AAI /DGCA representative(s) responsible for the site where work will be performed to review and resolve any issues (safety, work authorizations, badges, escorts, etc.), and review the execution plan prior to any work beginning.

Quality Control / Quality Assurance

To ensure that all surveys are consistent and meet the accuracy requirements described in AAI's Aeronautical Survey Manual / DGCA CAR, Section 4, Part III - Heliports, the following requirements must be met.

Quality Control

All RTK GPS surveys must show a quality check into a PACS, SACS or other AAI published geodetic control station. Multiple observations throughout the day should be made and documented. A tabular result should be documented to ensure that all survey coordinates collected for the day meet the accuracy requirements for all RTK GPS survey operations.

Quality Assurance

All surveys performed at the Helipad facilities will be performed under the direct supervision of GUJSAIL official so designated. All surveys performed at the helipad facilities will list the horizontal and vertical control stations that the surveys are reference to. All topographic surveys will establish, at a minimum two horizontal control stations, and two temporary benchmarks and will have their positions published to 0.01' accuracy.

Survey Mark Maintenance

To assist with maintaining the current geodetic control mark network and database and to help the surveying community, mark maintenance is an essential component to preserving our localized control network.

If applicable, the Surveyor shall install new temporary and permanent bench marks and monuments for further densification to be used for horizontal and vertical control at the Helipad as required. The locations of bench marks and monuments to be installed shall be specified on the contract documents. The surveyor shall submit a drawing outlining their proposed bench mark(s) and monument(s) construction with the layout plan. Permanent and temporary benchmarks and monuments will have a permanent reference point that has been centered punch on the bench mark and monument to indicate the precise coordinate location. The Surveyor shall furnish the following information for each bench mark and monument installed:

- Date of survey
- Identification number
- CAD Sketch of surrounding features
- Reference ties
- Horizontal location established on coordinate grid system
- Elevation relative to the datum

Below is a list of tasks that should be completed and delivered in the final report as described in the deliverable section.

- AAI Control Station Recovery Form.
- Removal of debris around control station, including weeds and tall grass in coordination with Project In-Charge/Airport Director.
- Notification of AAI of control point discrepancies, including destroyed control stations and coordinate confliction
- Impending destruction or impact of existing control marks. (A new structure that impact the GPS quality of a monument as an example)
- A digital photographic imagery of the permanent control stations.

DELIVERABLES

- i) Project time schedule and progress report.
- ii) Survey Data Report as per Annexure 'E' along with Annex 1 (Survey Declaration form) – Both hard & soft copy.

iii) Digital photographs (soft & hard copy) of essential and critical points viz. ARP, FATO Inner Edge, vertical profile of FATO, NAV-Aids and all other critical objects as per Annex III of Annexure D of NIT.

iv) Following two hard copy sets of Aeronautical charts:- (soft copy to be provided in AutoCAD & GIS format)

- Grid Map
- Aerodrome Chart
- Approach Chart for both FATO ends
- Take – Off Climb Chart for both FATO ends
- Type A chart (Both side)
- Parking and docking chart
- No Precision Approach terrain chart (data used: contour map of approach), if applicable
- Objects of vertical significance around Helipad (15 KM all around)
- Zoning map (20 Km from ARP – with BM/Contour heights etc. Scale of map is 1: 50,000)
- 30 NM Chart (other obstacle marking for digital NOC computer data. Scale of map is 1: 2,50,000)
- Detail Technical Suitability Study For IFR Helipad Compliance & Recommendation,

Color coding and symbols to be used as per Appendix 2 & 3 of ICAO Annex 4

FINANCIAL BID FORMAT

< to be submitted online only on www.nprocure.com >

Applicable Taxes/Duties on above:

Sl.	Work Component	Quantity	Rate per each in figures in INR	Rate per each in words
1	“OLS Survey & Aeronautical Charts And Technical Feasibility Suitability Study For IFR Helipad Compliance - New Sachvalaya, Gandhinagar	01		

Applicable Taxes/Duties on above:

Sl.	Type of Tax/duty <name of tax/duty>	Rate of Tax/duty in figures	Rate of Tax/duty in words

GUJSAIL reserves the right to increase or decrease the quantity or delete any of the component.

Signature of bidder _____

Name _____

Date _____

Stamp of bidder: