

No. RITES/AP/Nashik/Topo and OLS/2024-25/

Date: 24.09.2024

Subject: Call of Quotations for Undertaking Topographical and OLS Survey for construction of Runway and allied links parallel to existing runway at HAL, Nashik (Contract No: NK/FW/CAP-1575/2023-24)

Dear sir,

RITES Limited is undertaking the Subject work for **“Consultancy Services for construction of Runway and allied links parallel to existing runway at HAL, Nashik (Contract No: NK/FW/CAP-1575/2023-24)”**. You are requested to send your most competitive quotation, duly signed (sign and stamp with office seal all the pages of this letter, along with covering letter on your company letter head) in a sealed cover for the subject work. The quotation shall be submitted at the following address:

Group General Manager (GGM)/Airports (Engineer-in-Charge)
RITES LTD., Shikhar Bhawan, Fourth Floor,

Plot No. 1 Sector -29,

Gurgaon (Haryana) – 122 001

The envelope containing the quotation should be super scribed with **“Undertaking Topographical and OLS Survey for construction of Runway and allied links parallel to existing runway at HAL, Nashik (Contract No: NK/FW/CAP-1575/2023-24)”**. The quotation shall be delivered in RITES office (at the above address) on or before **04.10.2024 hrs on 14:00 hrs**. The quotations shall be opened on **04.10.2024 at 14:30 hrs** in presence of the tendered(s) or their representatives who are present at that time of opening. The Quotation shall be valid for a Period of **90 Days** from the date of submission.

1. The work is to be carried out in accordance with the Scope of work, Technical Specifications and Schedule of Quantities by deploying manpower as per enclosed Annex-A, B. The drawing showing indicative area to be surveyed shall be provided to the successful bidder on award of Letter of Award.
2. Only AAI Empanelled Firms as per Annexure-D of this quotation document (or its subsequent amendment issued by AAI) are eligible to participate in this quotation process. Quotations received from agencies which are not included in Annexure-D shall be summarily rejected until and unless they submit subsequent amendment issued by AAI to Annexure-D which includes their name in empanelled agencies.
3. The area and location indicated in the scope of work is tentative and liable to vary up to an extent of $\pm 50\%$. The bidder shall be bound to execute the additional work, if any, on the same terms and conditions. No compensation will be paid in case of reduction in area.
4. The site is located at Ozhar Airport, Nashik in Nashik District of Maharashtra. There may be certain locations of the site where good approach may not be available. The bidder should take this aspect into consideration while quoting. The bidder may like to visit the site to familiarize himself with the terrain prior to quoting.

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CIN: L74899DL1974GOI007227

5. The proposed area to be surveyed is approximately **245 hectares**. The successful bidder to obtain confirmation of the site to be surveyed from RITES Limited before commencement of the work.
6. The total time for completion of work is 25 (Twenty Five) days from the date of issue of LOA and the drawing showing indicative area to be surveyed.

S. No.	Stage	Timeline	Remarks
1	Stage-1 – Mobilization and Field Work	To be completed within 15 days from issue of LoA	<ul style="list-style-type: none"> • The successful bidder will have to organize the work at site within 05 days of issue of Letter of Award. • The fieldwork shall be completed within 15 days of issue of Letter of Award.
2	Stage -2 – Submission of Topographical Survey Data, OLS Data, Report and Charts	To be submitted within 10 days from completion of Phase-1 works	<ul style="list-style-type: none"> • The topographic survey data, OLS Data, report and charts in the required format as specified in Technical Specifications shall be submitted within 25 days from the date of award.

7. The bidder should be able to deploy one Traversing/Staking Team (equipped with a Total Station set/DGPS) and one levelling team (equipped with an Auto level). However, if more teams are required to be deployed for completing the work in allowed time, the planning for the same shall be sole responsibility of the successful bidder.
8. The bidder will not be allowed to further sub-contract any part of the work allotted to him.
9. The bidder should take all precautionary measures for their staff, labour, equipment etc. deployed for conducting the work.
10. The rates quoted should be including all taxes but excluding GST. The GST shall be reimbursed on production of proof of payment / voucher / challan. **The bidder shall submit a copy of their GST Number certificate along with the quotation document.**
11. Time is the essence of the contract, no time extension shall be granted for delay due to the reason(s) attributable to the bidder, RITES Limited shall be free to charge liquidated damages @ 1% per week of delay or part thereof for the entire work subject to maximum of 10% of the award value of the work order.
12. RITES shall deduct taxes as per statutory provisions as applicable.
13. All works shall be done to the desired accuracy and standard as per governing specifications and sound professional practices for engineering surveys.

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14. The necessary jungle clearance and approach etc. for proper execution of the work, wherever required shall have to be done by the bidder at no extra cost.

15. Arbitration

In the event of any dispute or difference relating to the interpretation and application of the provisions of this contract, such disputes or differences shall be mutually discussed and settled with the Group General Manager (Airports), RITES Limited, Gurgaon. In case, no settlement is arrived at, the decision of the Vertical Head (BPA), RITES Limited, Gurgaon, shall be final and binding on the parties to the dispute.

16. 'Force Majeure'

'Force Majeure' as embodied in this contract shall mean, war declared or undeclared, civil war, forest fire, major flood and earthquake, subject as elsewhere herein or in the contract documents expressly provided. Only the existence of 'force majeure' circumstances as defined in this clause hereof shall afford the bidder a ground for extension of time for or any operation(s) involved therein, and specifically inclement or unforeseen weather, strike, shut-down, third party breach, delay in payment or commercial hardship shall not afford the bidder a ground for extension of time or relieve the bidder of his/her obligations under the contract, nor will any shut-down or late time charges be payable by the client to the bidder for any delay in the commencement, progress or completion of the work due to any reason whatsoever, inclusive due to the existence of force majeure circumstances.

As soon as the cause of Force Majeure is removed, the party, whose ability to perform its obligations has been affected, shall notify the other of such cessation and of the actual delay incurred in such affected activity adducing necessary evidence in support thereof. From the dates of occurrence of a case of Force Majeure, obligations of the party affected shall be suspended during the continuance of any inability so caused until the cause itself and the inability resulting there from have been removed and the agreed time of completion of the respective obligations under this contract shall stand extended by a period equal to the period of delay occasioned by such events.

Should one or both parties be prevented from fulfilling the contractual obligations by a state of Force Majeure lasting for a period of six months or more, the two parties shall consult each other and decide regarding the future execution of this contract.

17. MANDATE FORM

The bidder shall submit RTGS/NEFT Mandate Form as per Performa given in **Annexure-C**, dully filled in.

18. SECURITY DEPOSIT

18.1 At the time of making payments for each stage to the consultant, a deduction@ 5% shall be made from the gross amount towards security deposit.

18.2 On expiry of six months from the date of completion of Topographic Survey and OLS survey work and submission of Report i/c all connected drawings/charts and related documents as per scope of work to the entire satisfaction of Engineer-in-charge, the Engineer-in-charge shall, on demand from consultant, refund to him the security deposit.

19. Payment Terms

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Mobilization advance / intermediate payment shall not be payable. Payment will be made as per the following stages:

S. No.	Stage	Payment
1	On Completion of Stage -2 – Submission of Topographical Survey Data, OLS Data, Report and Charts	100% of award value.

20. Bidders should quote their most competitive rates for all the items. In the interest of expeditious completion of work, RITES will, however, be at liberty to divide the items of work suitably among various bidders.
21. As per Circular no: RITES/CO/ACCTS/TReDS/2023-24/01 dated 02.04.2024, all MSME bidders must upload their invoice on TREDS Portal and submit the seller ID of the RXIL Portal for processing of their invoice. Compliance on this account is mandatory for processing of invoices.

- Encl: i) Scope of Work and Technical Specifications (**Annexure - A**)
ii) Bill of Quantities (**Annexure –B**)
iii) Mandate Form (**Annexure C**)
iv) List of Empanelled Survey Agencies of Airports Authority of India (**Annexure-D**)

Thanking you,
Yours Sincerely,

(Narinder Singh Rawat)
GM/Airports
RITES LTD., Shikhar Bhawan,
Fourth Floor, Plot No. 1 Sector -29,
Gurgaon (Haryana) – 122 001
Ph.: 0124 2818 491
Mob No: 8860828081

Scope of Work and Technical Specifications

Annexure – A

1. Scope of Work for Topographic Survey

The following survey activities are to be carried out by the bidder.

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- i) Establishment of base line and grid system of 10m X 10m interval, for defining the co-ordinates of the various areas covered by survey works. Preparation of site Topographic plan showing all natural and manmade features if any, by running a close traverse.
- ii) Topographic survey of the entire area as well as connecting Road and spot levels on 10 m x 10m grid on area shown in the drawing. Spot levels of proposed runway, taxiway and apron site as shown in the map (which shall be provided to the successful bidder) are of particular importance. The contractor will ensure that the any abnormal undulation (Highest or lowest point) within the site boundary must be picked up at a closer interval for true representation of terrain of the site.
- iii) The invert levels/HFL's of drains/streams which shall act as outlet points for proposed drainage shall be correctly identified through survey.
- iv) Preparation of grid map of surveyed area showing geographical co-ordinates indicating latitude and longitude and elevation with reference to Mean Sea Level. All the data pertaining to Latitudes and Longitudes of the points will be provided to RITES Limited, in UTM as well as converted **WGS 84 coordinate system. In addition to it, at later stage the contractor may be asked, to provide the conversion of certain UTM data (from & within the area being surveyed) to WGS 84, which shall be binding on their part.**
- v) Fixing of Pillars and its reference point, as well as boundary to mark the land permanently on ground as per the coordinates provided.
- vi) Preparation of layout plan, contour survey maps with contour interval of 0.5m or suitable interval on a scale of 1:5000. (In case all the features in these drawings are not legible in scale 1:5000 then the same should be prepared in scale 1:2500 including all structures and facilities as per ICAO guidelines and road connection from nearest state road / Highway).
- vii) Topographic survey plan of airport site showing all natural & existing manmade structures.
- viii) Incorporation of survey area on the topo maps, scanning, digitization and stitching of topo maps in A1 size map. The number of topo-sheets and their scale to be mentioned, relative layout to be shown on index plan.
- ix) Preparation and submission of General and Index Plan, detail and topographic cum contour plan of area. Topo Maps showing land boundary etc. in hard and soft copies.
- x) It will be mandatory on the part of the contractor to establish two pair of permanent concrete pillars (300x300x500 mm) on both the end of base line, which will serve for future reference at the time of final demarcation of site and its allied works. A steel plate will be duly embedded on the pillars and will be precisely connected with levels and Total Station/DGPS for better horizontal control.
- xi) The survey work is required to be carried out by taking the references from the established Benchmark for determining the location and elevation of all the significant objects within the aerodrome area and within the 20Kms radius from the approximate center of the airport.
- xii) Topographical survey of the airport area should be conducted and spot elevation should be provided for all areas having undulation of 10m and above.
- xiii) After completion of the field survey & observations, location and citing of the runway at the airport should be precisely done so as to meet the ICAO & DGCA requirements for the airports.
- xiv) Citing of the runway and other airport components should be done in such a manner so that there may be minimum relocation & disturbance to nearby residents and villages.
- xv) Providing and fixing 15x15x90 cm boundary stone or RCC 1:2:4 with min 4 Nos steel reinforcement bars of 16 mm dia and rings of 8 mm dia @ 100 mm C/C of hard stone including excavation, concreting of size 30x30x15 cm of grade 1:2:4 and refilling complete for center line alignment and for boundary & corners of proposed area. All pillars shall be of 90 cm height with 60 cm below ground level and 30 cm above ground level.

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2. Scope of Work for Obstruction Limitation Survey

- i) Establishment of baseline and suitable grid system for defining the coordinates of the various areas covered by survey work. One Bench Mark should be established near the Centre of the Runway. The elevation of Bench Mark should be taken as the Airport Elevation for practical Purposes
- ii) The survey work is required to be carried out by taking the references from the established Benchmark for determining the location and elevation of all the significant objects within the aerodrome area and within the 20 Kms radius from the approximate center of the airport.
- iii) Topographical survey of the airport area should be conducted and spot elevation should be provided for all areas having undulation of 10 m and above
- iv) Geographical coordinates for the project should be in WGS-84 System. All the elevation should be in Meters AMSL and should be related to the elevation of the established Bench mark near the Centre of the Runway.

3. Technical Specifications for topographic survey

The objective to undertake field survey is to know about topographical information for up-gradation of existing airport. Bidder is supposed to deploy at least two teams having Total Station and one team having Auto Levels (total two teams) for carrying out topographical survey, grid survey and spot levels including but not limited to the following activities:

- i) Survey team shall run a traverse and establish survey stations along the periphery of the plot. Then, survey team will pick spot levels at a minimum spacing of 10m possible to represent true topography of the area with the help of Total Station capable of on-board data logging. The traverse shall be closed traverse and error shall not exceed the limiting value. Data collection would include recording Northing, Easting and Elevation of each point of all existing features like Habitation, Roads, Houses, Huts, Telephone Lines, Electric Lines, towers, High Tension Lines, Drains, Nallahs, Boundary Walls, Marshy lands, etc.
- ii) These survey stations shall be connected by running a double level line using Auto Level with respect to GTS Bench Marks. Closing error in levelling shall not be more than $12\sqrt{k}$ (where K is distance in km). In case of error is more than the permitted value, the same work is to be repeated again. Temporary Bench Marks (TBM) with respect to GTS shall be fixed within the surveyed area and as per direction of Engineers in-charge.
- iii) While carrying out this survey, use both horizontal and vertical angle measurements and target height to obtain x, y and z co-ordinates of terrain points. Traverse will be closed and adjusted. The same will be submitted to RITES Engineer for approval before proceeding ahead.
- iv) Topographic survey shall be carried out for Actual representation of the area only. During this process, all natural and man-made details shall be picked up along with their spot levels as required to represent the ground topography truthfully, or as directed by the Engineer-in-charge.
- v) Necessary jungle clearance for proper execution of the work, wherever required, shall have to be done by the bidder at no extra cost.
- vi) The scope of work shall also include any other items/work required to complete the work in all respects as per specifications, drawings and instructions of RITES whether specifically mentioned herein or not, but it is required to fulfil the intended purpose of this document.
- vii) During the survey, careful notes with dates should be made on the ground, from personal inquiry and observations regarding any information likely to be useful in working out the details of the project.

3.1 Field Work

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- i) The bidder will be required to carry out leveling work with reference to nearest Survey of India's benchmarks. He will carry these levels to the instrument station points. The bidder will record ground levels of each intersection point of grids or at closer interval as per decision of the Engineer-in-charge. No extra payment will be made for this. The bidder is also required to carry out leveling in isolated ponds or water-logged areas or in the existing borrow pits filled with water at closer intervals or as directed by RITES representative.
- ii) The bidder will carry the level of existing GTS bench marks and fix new permanent bench marks at important and safe locations (where they cannot be disturbed). If permanent structures etc. are not available in this corridor, these benchmarks shall be left on permanent pillars erected for the purpose, of sizes as specified below. The coordinate system should be WGS 84.
- iii) The bidder will connect new permanent benchmarks and other references established by him with the traverse left by Traversing Teams with the help of TOTAL STATION. In addition, he will compile and supply detailed sketches, list of benchmarks, their descriptions, identification numbers, northing, easting and elevation (above Mean Sea Level) with reference to the traverse of Traversing Teams.
- iv) Necessary jungle clearance for proper execution of the work, wherever required, shall have to be done by the bidder at no extra cost.
- v) Location of Approach Road mention in drawing is temporary, the bidder has to find the location of proper Approach Road.

3.2 Measurements

- i) All distance measurements shall be taken by using TOTAL STATION.
- ii) The data on nature of terrain viz: sandy, stony, vegetation, etc. and type of ground shall also be recorded along with the chainages of change point.
- iii) The linear measurements shall have an accuracy of $\pm (5\text{mm} + 5\text{ppm time's base line length})$.
- iv) All leveling work along the grid lines and connection to instrument station points left by Traversing Teams as well as establishment of new permanent bench marks shall be done by using Auto levels with an accuracy of $12\sqrt{K}$ m, where K is the circuit length in km. Each day's work shall be closed at the same bench mark from where the leveling was started.

3.3 Pillar/Block

- i) Providing and fixing 15x15x90 cm boundary stone or RCC 1:2:4 with min 4 Nos steel reinforcement bars of 12 mm dia and rings of 8 mm dia @ 100 mm C/C of hard stone including excavation, concreting of size 30x30x15 cm of grade 1:2:4 and refilling complete for center line alignment and for boundary & corners of proposed area. All pillars shall be of 90 cm height with 60 cm below ground level and 30 cm above ground level.

4. Documentation & Deliverables for Topographic Survey Work

- i) The bidder shall prepare and hand over all original field and level books, neatly maintained.
- ii) The bidder will provide electronic file in MS-EXCEL 7.0 (or later) software of all sections Including crossing details and other input data. The required format will be given by The Engineer at site.
- iii) The bidder shall submit northing, easting, survey point coding and elevation along with detailed sketches on graph sheet/computer (AutoCAD) of all the pillars/concrete Blocks, reference to bridges/tunnels/stations, bench marks etc. along with their Chainages or nearby chainages, as applicable (so that the survey data can be imported in MX Road software).

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- iv) A report shall be submitted by the bidder describing, progressively, on, topography of the area, land use pattern, terrain details, potentially unstable conditions, water logged areas, areas of unstable soil types, marshy areas, etc. All such areas shall be identified in the report with respect to chainages.
- v) Metric units shall be used in all drawings and reports.
- vi) The entire data, reports and drawings shall be submitted in MS-EXCEL (Rel.7.0 or later), MS-Word (Rel.7.0 or later) and AutoCAD respectively, duly formatted.
- vii) Preparation of grid map of surveyed area showing geographical co-ordinates indicating latitude and longitude and elevation with reference to Mean Sea level.
- viii) The bidder shall submit a L- Section from the centre line of runway for a distance of 3000m with levels at approx. dist. of 30m.

5. Technical Specifications for Obstruction Limitation survey

5.1 RUNWAY STRIP AREA & TRANSITIONAL SURFACE AREA

- i) Identification of all man-made as well as natural structures / features (Roads, buildings, high ground, electric/telephone lines, towers / chimneys, nallahs / water streams / rivers, hills etc.) falling in the runway strip area and in transitional surface area.

5.2 APPROACH SURFACE AREA AND TAKE OFF SURFACE AREA

- i) Approach surface and take off surface areas in both the directions of the runway are to be surveyed.
- ii) The survey will include identification of all man-made as well as natural structures / features (Roads, buildings, high ground, electric/telephone lines, towers / chimneys, nallahs / water streams / rivers, hills etc.) falling in the approach area on both sides of runway and establishing their location and elevation (Top & base) on a plan. The objects are required to be shown along with their location and elevation (Top & base) in the following Manner.
- iii) **Distance 0-500 m** – all objects to be shown
- iv) **Distance 500-1000 m** - all objects with more than 5 m height from ground level and all objects having top elevation more than Airport Elevation + 5 m AMSL to be shown.
- v) **Distance 1000-2000m** - all objects with more than 10 m height from ground level and all objects having top elevation more than Airport Elevation + 10 m AMSL to be shown. Four or five prominent / highest trees in the group of trees in radius of 150 m may be shown (Instead of showing all trees). In case of building/houses, four or five prominent / highest buildings / houses in the radius of 150 m may be shown (Instead of showing all buildings).
- vi) **Distance 2000-6600m**- all objects with more than 20 m height from ground level and all objects having top elevation more than Airport Elevation + 20 m AMSL to be shown. Four or five prominent / highest trees in the group of trees in radius of 150 m may be shown (Instead of showing all trees). In case of building/houses, four or five prominent / highest buildings / houses in the radius of 150 m may be shown (Instead of showing all buildings).
- vii) **Distance 6600-15000m** - all objects with more than 75 m height from ground level and all objects having top elevation more than Airport Elevation + 75 m AMSL to be shown. Four or five prominent / highest trees in the group of trees in radius of 150 m may be shown (Instead of showing all trees). In case of building/houses, four or five prominent / highest buildings / houses in the radius of 150 m may be shown (Instead of showing all buildings).
- viii) **Distance 15 Kms-20 Kms** - all objects with more than 75 m height from ground level and all objects having top elevation more than Airport Elevation + 75 m AMSL to be shown.
- ix) **Distance 20 Kms-60 Kms** - all objects with more than 100 m height from ground level and all objects having top elevation more than Airport Elevation + 100 m AMSL to be shown. (This may be given from the available Maps)

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- x) **Hill Features-** Hill features should be shown by marking peak of the hill and a few prominent contours

5.3 **INNER HORIZONTAL SURFACE & CONICAL SURFACE AREA**

- i) Identification of all man-made as well as natural structures / features (Roads, buildings, electric/telephone lines, towers / chimneys, nallahs / water streams / rivers, hills etc.) of height more than 30 m from ground level and all objects having top elevation more than aerodrome elevation + 30 m AMSL falling in the inner horizontal surface & conical surface area as shown in the enclosed sketch and establishing their location and elevation (Top & base) on a plan. Four or five prominent / highest trees in the group of trees in radius of 150 m may be shown (Instead of showing all trees). In case of building/houses, four or five prominent / highest buildings / houses in the radius from the highest structure of 150 m may be shown (Instead of showing all buildings).

5.4 **OUTER HORIZONTAL SURFACE AREA AND BEYOND UP TO 20 KMS.**

- i) Identification of all man-made as well as natural structures / features (Roads, buildings, electric/telephone lines, towers / chimneys, nallahs / water streams / rivers, hills etc.) of height more than 75 m from ground level and all objects having top elevation more than aerodrome elevation + 75 m AMSL falling in the outer horizontal surface area and establishing their location and elevation (Top & base) on a plan. Four or five prominent / highest trees in the group of trees in radius of 150 m may be shown (Instead of showing all trees). In case of building/houses, four or five prominent / highest buildings / houses in the radius of 150 m may be shown (Instead of showing all buildings). Similar all areas beyond OHS upto 20 Kms should also be surveyed and all objects having top elevation more than aerodrome elevation + 75 m AMSL falling in the outer horizontal surface area as shown in the enclosed sketch and establishing their location and elevation (Top & base) on a plan.
- ii) A few additional bench-marks with clear description of the location showing the latitude, longitude and elevation etc. should be established in survey areas for future reference purposes and should be indicated in the map.
- iii) In case of elevation of man-made objects such as building, OHWT (Overhead Water Tank) etc. the elevation of the protruding rod, antenna should be shown along with top elevation of permanent structure. In case of hills, base and top elevation of hills should be given with vegetation and without vegetation.
- iv) Accuracy of survey data is to be followed as given below: -
- | | |
|---|----------------|
| Within the Airport Boundary & in Transitional Surface. | |
| Location (Lat. & Long.) | + 1 m |
| Elevation | + 5 cm |
| In other area | |
| Location (Lat. & Long.) | + 3 m |
| Elevation | + 10 cm |
- v) All measurements shall be taken by using EDM / total station / GPS or other electronic measuring devices (And not by tape measurements).
- vi) After collection of data, calculation should be done to work out the extent of obstruction formed as per the ICAO Annex 14 and as per DGCA CAR by each object located within the various obstacle limitation surfaces. It should also be worked out whether the obstruction would cause any threshold displacement of runway and other effects caused due such obstructions.
- vii) An elaborate Survey Report should be prepared showing details of survey work including a table showing the location of all significant objects around the airport lying within various

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Obstacle Limitation Surfaces (OLS), their Geographical coordinates in WGS-84 System, distances and bearings from the ARP/ Centre of runway (For objects located within the approach funnel their distances & Bearings from the Runway strip, along the Runway Centre line and lateral distance), Elevation AMSL & height AGL, name of OLS, Permissible Elevation, Extent of obstruction if any, action required to be taken for removal of obstruction etc.). The above table should also show the effect of runway extension on various objects located in different Obstacle Limitation Surfaces (OLS).

5.5 **AERONAUTICAL CHARTING WORK**

After the survey work, provisional charts should be prepared as per the details given below by incorporating all the objects with details in the charts. The survey party has to acquire the relevant topo maps from survey of india.

The data on CD and in the form of hard copies (6 Nos.) shall be provided as per requirements. The Charts shall be prepared in accordance with the ICAO Annex-14 and DGCA Civil Aviation Requirement (CAR), Section 9 – Air Space and Air Traffic Management, Series 'G', Part I, Issue II dated 8th November 2018 or the latest amendment. (The above CAR is available on DGCA Website <http://dgca.nic.in>)

a. **Excel sheet:**

Excel sheet showing the details of various objects surveyed shall be submitted. The details should include the object number, WGS-84 Coordinates, Height of the object Above Mean sea Level, Distance and Bearing from the Centre of the Airport, Location of object with reference to various Obstacle Limitation Surfaces (i.e. whether lying in Outer Horizontal Surface, Conical Surface, Inner Horizontal Surface, Approach Surface, Transition Surface, Runway Strip etc.), Distance and Bearing from the Runway Strip in case the object lies within the Approach Funnels, Extent of obstruction formed (If any)

b. **Base Map:**

Base Maps in the suitable scale are required to be prepared by covering the total aerodrome area and neighboring areas showing various objects surveyed.

c. **Grid Map:**

Grid Map is required to be prepared by covering all aerodrome area in scale of 1:5000 or any other suitable scale with gridlines and height chart.

d. **Approach Charts and Take off Climb Charts:**

Approach Charts and Take off climb charts are required to be prepared by covering all approach and take off areas in scale of 1:15000 or any other suitable scale with gridlines.

e. **OLS Chart:**

Obstacle Limitation Surfaces (OLS) Chart is required to be prepared showing Transitional surface, Inner Horizontal Surface, Conical Surface & Outer Horizontal Surface, This Chart is required to be prepared by covering objects of vertical significance in and around the aerodrome and also all prominent landmarks such as highways, railway lines, prominent hills & HT lines etc. in the scale of 1:50000 with gridlines and height chart

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f. **Nearby Aerodromes:**

A chart showing details (Distances/ Bearings) of nearby Aerodromes to be prepared.

g. **Aerodrome Vicinity and Rescue & Fire Fighting Chart (RFF Chart):**

A chart covering an area of 8 Kms around an airport should be prepared for use by Rescue and Fire Fighting purposes covering water bodies, reservoirs, hospitals and other sources of rescue and firefighting.

h. **30NMChart:**

A chart covering an area of 30 Nautical Miles (60 Kms approx.) around the airport should be prepared for use by designing Instruments approach to land procedures (The data for this chart should be used from available Survey of India Topo Sheets and other maps.

i. **CCZM:**

Colour Coded Zoning Maps shall be prepared for an area of 20 NM around the airport as per Rule 6 of Ministry of Civil Aviation Gazette Notification G.S.R.751 (E).

j. **PAPI Protection Surfaces:**

PAPI Protection surface OLS Charts to be prepared and submitted.

k. **Type A and Type B Obstruction Charts:**

Type A and Type B Obstruction Charts are required to be prepared and submitted.

l. **Aeronautical Survey Report:**

Aeronautical Survey Report showing details of all survey points surveyed including details of existing airside and city side assets inside the airport boundary. The Aeronautical Survey Report should include the latest calibration certificate of the equipment used in surveying. The Aeronautical Survey Report should also include details of obstructions which are to be removed in Approach/Takeoff, transition, Inner horizontal and conical sections with their corresponding photographs.

6. Documentation & Deliverables for OLS Survey Work.

- i) The bidder shall prepare and hand over all original field and level books, neatly maintained.
- ii) He will provide electronic file in MS-EXCEL 7.0(or later) software of all sections including crossing details and other input data. The required format will be given by the Engineer at site.
- iii) The bidder shall submit northing, easting, survey point coding and elevation along with detailed sketches on graph sheet/computer (AutoCAD) of all the pillars/concrete blocks, reference to bridges/tunnels/stations, bench marks etc. along with their chainages or nearby chainages, as applicable (so that the survey data can be imported in MX Road software AND Civil 3D).
- iv) A report shall be submitted by the bidder describing, progressively, on topography of the area, land use pattern, terrain details, potentially unstable conditions, water logged areas, areas of unstable soil types, marshy areas etc. All such areas shall be identified in the report with respect to chainages.
- v) Metric units shall be used in all drawings and reports.
- vi) The entire data, reports and drawings shall be submitted in MS-EXCEL (Rel.7.0 or later), MS-Word (Rel.7.0 or later) and AutoCAD respectively, duly formatted.

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- vii) Preparation of grid map of surveyed area showing geographical co-ordinates indicating latitude and longitude and elevation with reference to Mean Sea level.
- viii) The bidder shall submit a L- Section from the centre line of runway for a distance of 3000m with levels at approx. distance of 30m.
- ix) The bidder shall submit the following apart from the ones mentioned in points
- x) Detailed list of all objects and obstructions identified as per points 5.1 to 5.5 of scope of work and detailed obstruction limitation survey report.
- xi) Approach Charts, Inner Horizontal Charts and Outer Horizontal Charts in 10 numbers in A0 size.
- xii) Aeronautical Charts mentioned in point 6 in 10 numbers each in A0 size, to be submitted for both VFR and IFR operations.

Note: Successful bidders may also be required to make additional site visit(s) for land boundary demarcation etc. within six months of submission of OLS Charts etc. and nothing extra shall be payable for these additional visit(s).

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पंजीकृत कार्यालय: स्कोप मीनार, लक्ष्मी नगर, दिल्ली-110 092 (भारत), **Registered Office:** SCOPE Minar, Laxmi Nagar, Delhi-110 092 (INDIA)
दूरभाष (Tel.): (0124) 2571666, फैक्स (Fax): (0124) 2571660, ई-मेल (E-mail) info@rites.com वेबसाइट (website): www.rites.com

पत्राचार का पता: सृजन, प्लॉट नंबर 144, सेक्टर-44, गुरुग्राम-122 003 (भारत), **Correspondence Address:** Srijan, Plot No. 144, Sector-44, Gurugram-122 003 (INDIA)
CIN: L74899DL1974GOI007227

Name of work: - Call of Quotations for Undertaking Topographic and OLS Survey for construction of Runway and allied links parallel to existing runway at HAL, Nashik (Contract No: NK/FW/CAP-1575/2023-24)					
Annexure B- Bill of Quantities					
S.No	Description	Unit	Quantity	Rate (INR) in figures and words	Amount (Rs.) in figures and words
1	Topographical survey including details of important features such as roads, rivers, nallas, canals, bridges, towers, chimneys, H.T. / L.T. / P&T lines, hills, buildings, village boundary within the area to be surveyed, including preparation of plan with contours in AutoCAD, and supplying field data as per specification. Topographic survey shall also include spot level at an interval of 5 m for DTM and contours. It includes carrying out of GTS benchmark from the nearby GTS benchmark and TBM to be established within the surveyed area. Survey to be carried out as directed by Engineer-in-charge using instruments such as DGPS, Total Station, Digital level, Auto Level, and taking levels at interval of 5 m and at obligatory important points longitudinally as well as at every 5 m transversely including closing of traverse and levelling work.	Hectare	245		
2	Obstruction survey in approach area on both sides, including details of important features such as roads, rivers, nallas, canals, bridges, towers, chimneys, H.T. / L.T. / P&T lines, hills, buildings of height more than 3m beyond boundary up to 15000m with 15% divergence from 300 m wide strip (as per drawing to be issued to successful bidder), including preparation of plan of all the features in AutoCad, and supplying field data as per specification. Topographic survey shall also include elevation and distance from runway, of the features surveyed. Survey to be carried out as directed by Engineer-in-charge using instruments such as Total Station, Digital level, Auto Level	LS	1		

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Name of work: - Call of Quotations for Undertaking Topographic and OLS Survey for construction of Runway and allied links parallel to existing runway at HAL, Nashik (Contract No: NK/FW/CAP-1575/2023-24)

Annexure B- Bill of Quantities

S.No	Description	Unit	Quantity	Rate (INR) in figures and words	Amount (Rs.) in figures and words
3	Obstruction survey in inner horizontal, transitional and conical surface including details of important features such as roads, rivers, nallas, canals, bridges, towers, chimneys, H.T. / L.T. / P&T lines, hills, buildings etc. From the edge of runway strip (40m on either side of centre line of runway) within a radius of 6000m from the centre of existing runway (as per enclosed drawing), including preparation of plan of all the features in AutoCad, and supplying field data as per specification. Topographic survey shall also include elevation of the features surveyed. Survey to be carried out as directed by RITES representative using instruments such as Total Station, Digital level, Auto Level.	LS	1		
4	Providing and fixing 15x15x90 cm stone pillars of hard stone/RCC M-25 including excavation, concreting of size 30x30x15cm of grade 1:2:4 and refilling complete for existing alignment as per technical specifications and detailed drawing provided.	Nos	40		
Total (Rs.) in figures and words					
Add 18 % GST					
Grand Total in figures and words					

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CIN: L74899DL1974GOI007227

Annexure C: MANDATE FORM

To,

RITES Ltd.

Dear Sir,

Authorization for payments through Electronic Fund Transfer System (RTGS/NEFT)

We hereby authorize RITES Ltd. to make all our payments, including refund of Earnest Money, through Electronic Fund Transfer System (RTGS/NEFT). The details for facilitating the payments are given below:

(TO BE FILLED IN CAPITAL LETTERS)

1	NAME OF THE BENEFICIARY	
2	ADDRESS WITH PIN CODE	
3	(A) TELEPHONE NO. WITH STD CODE	
	(B) MOBILE NO.	
4	BANK PARTICULARS	
A	BANK NAME	
B	BANK TELEPHONE NO. WITH STD CODE	
C	BRANCH ADDRESS WITH PIN CODE	
D	BANK FAX NO. WITH STD CODE	
E	11 CHARACTER IFSC CODE OF THE BANK (EITHER ENCLOSE A CANCELLED CHEQUE OR OBTAIN BANK CERTIFICATE AS APPENDED)	
F	BANK ACCOUNT NUMBER AS APPEARING IN THE CHEQUE BOOK	
G	BANK ACCOUNT TYPE (TICK ONE)	SAVING CURRENT CREDIT LOAN CASH OTHERS
H	IF OTHERS, SPECIFY	
5	PERMANENT ACCOUNT NUMBER (PAN)	
6	E-MAIL ADDRESS	

I / We hereby declare that the particulars given above are correct and complete. If the transaction is delayed or credit is not effected at all for reasons of incomplete or incorrect information, I / We would not hold RITES Ltd. responsible. Bank charges for such transfer will be borne by us. **(*Please enclose a copy of GST Certificate in Case of Firm/Company/Proprietorship).**

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Annexure D: LIST OF EMPANELLED SURVEY AGENCIES OF AIRPORTS AUTHORITY OF INDIA



भारतीय विमानपत्तन प्राधिकरण
AIRPORTS AUTHORITY OF INDIA
DIRECTORATE OF AIR TRAFFIC MANAGEMENT
RAJIV GANDHI BHAWAN, NEW DELHI-110003

GIS CIRCULAR 02/2023

Subject: List of AAI empanelled survey firms

Empanelment of survey firms vide GIS circular 03/2021 for conducting the aeronautical survey of airports managed by AAI is extended as per details appended below:

S.no	Name of Empanelled firm	Address	Contact Details (email ID and contact no.)
1	SECON PVT. LTD.	FLOT 147,7B ROAD,EPIP,WHITEFIELD, BANGALORE-560066	feedback@secon.in Mob-8826706166
2	GEOKNO INDIA PVT. LTD.	GMR AERO TOWERS, GHIA, SHAMSHABAD, HYDERABAD – 501218	info@geokno.com Mob-8130532944
3*	ADL COORDINATES PVT. LTD.	B-76, BESIDE PRAKASH FOODS, NICE AREA, MIDC SATPUR, NASHIK, MAHARASHTRA –422007	sumit@adlcoordinates.com info@adlcoordinates.com sushil@adlcoordinates.com Mob-9371550407, 7709836883
4	IIC TECHNOLOGIES PVT. LTD.	B-2-350/5/b-22,ROAD NO. 3, BANJARA HILLS HYDERABAD, TELANGANA-500034	info@iictechnologies.com, ravi.dharmavarapu@iictechnologies.com Mob- 9866005290
5	AERO SURVEY PVT. LTD.	G-11 SECOND FLOOR, GREEN PARK EXT. NEW DELHI-110016	survey@aerosurvey.in bikrivastava2000@gmail.com Mob-9372245379
6	DSR SURVEYS PVT. LTD.	75 KALPANA APARTMENT SECTOR 5 VAISHALI GHAZIABAD UP-201010	dsr_surveys@yahoo.co.in Mob-9810389854
7	GEOID CONSULTANCY PVT. LTD.	OLD NO 42/3 ,NEW NO. 99 FIRST FLOOR,VELACHERY MAIN ROAD,GUINDY,CHENNAI-600032	support@geoid.co.in dhanasekar@geoid.co.in Mob-9841033844
8	NEKTOR ENGINEERS & PROJECT CONSULTANTS	B/104 SILICON VALLEY SHIVRANJANI CROSSING SATELLITE AHMEDABAD- 380015	info@necp.in Mob-9909005218

*Empanel firm Raj Technologies in GIS circular 03/2021 is renamed as ADL Coordinates Pvt. Ltd.

This GIS circular 02/2023 is valid from 10.12.2023 to 09.12.2024 as the extension of GIS circular 03/2021.



Baran Kumar Sarkar
Executive Director(ATM-ATFM)
Airports Authority of India

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