



# NATIONAL HIGHWAY AUTHORITY

Procurement & Contract Administration Section  
28 Mauve Area, G-9/I, Islamabad ☎ 051-9032727, 📠 051-9260419

Ref: 6(550)/DIR-III (P&CA/NHA/2021/413

Dated: 24/11/21 November, 2021

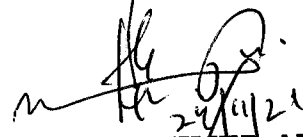
## All Prospective Consultants

Subject: **Consultancy Services For Feasibility Study and Detailed Design for Road Tunnel Across Babusar Pass and Its Link Access Roads.**

### **"Minutes of Pre-Proposal Meeting & Addendum No.1 "**

Reference: Pre-Proposal meeting held on 21<sup>st</sup> October, 2021.

Minutes of Pre-Proposal Meeting alongwith Addendum No.1 being integral part of RFP for the subject Consultancy services are enclosed herewith for necessary action, please.

  
**((MUHAMMAD AHMED ABRO))**  
Director (Consultancy)P&CA

### **Enclosure:**

- **Minutes of Pre-Proposal Meeting (04 Pages)**
- **Addendum No.1 (01 Page)**
- **Attachments to Addendum No.1 (06 Pages)**

### **Copy for information to:**

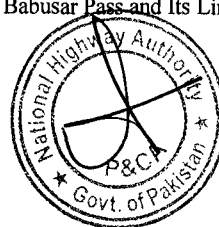
- Member (Planning), NHA, Islamabad;
- General Manager (Planning), NHA, Islamabad;
- General Manager (Design), NHA, Islamabad;
- General Manager (P&CA) NHA, Islamabad;
- Dir (MIS) NHA, Islamabad.
- DD (Services)-P&CA NHA, Islamabad.

**MINUTES OF PRE-PROPOSAL**  
**MEETING HELD ON 21<sup>st</sup> October, 2021**

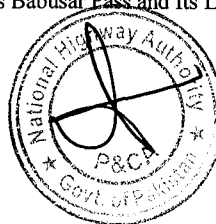
**Consultancy Services For Feasibility Study and Detailed Design for Road Tunnel**  
**Across Babusar Pass and Its Link Access Roads**

A Pre-Proposal Meeting was held in NHA Auditorium at 1100 hours on 21<sup>st</sup> October, 2021 to discuss the Request for Proposal (RFP) for subject Services in the presence of NHA officials and prospective consultants. During the said meeting the prospective consultants submitted queries. The clarifications/ replies are summarized below for information of all prospective bidders:

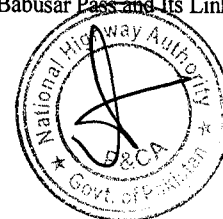
Sr. No	Queries	Reply
<b>M/s Engineering &amp; Management Services</b>		
1.	<p><b><u>Clause 1.7 (v) of Data Sheet</u></b></p> <p>Minimum 20% Assignment to a new Company is un-pragmatic and overloading because, if there are four (4) to five (5) firms in a Joint Venture, the average share of main firm vary between 20% to 25%. Moreover, a new firm may not constitute 20% of the Assignment. Therefore, it is suggested that minimum share for new firm should be limited to minimum 10% with maximum 20% of Assignment. 20% constitute major component.</p>	<p><b>It is a Policy matter. NHA has taken up at higher level till then proceed as per RFP.</b></p>
2.	<p><b><u>Clause 3.1.4 of ITC and Data Sheet</u></b></p> <p>A foreign firm acting as JV Partner must be registered with PEC before signing of the Contract. However, at the stage of proposal submission, they should give an Undertaking to get it registered with PEC. In Registration PEC take more than one (1) month because the registration is decided in a periodical meeting of a Committee. The existing condition debar the new foreign companies from participation in bidding.</p>	<p><b>Foreign consultants should apply for PEC registration prior to submission of proposal and attach the receipts in the proposal. Please refer to Data Sheet clause 1.8 (i) of the RFP document.</b></p>
3.	<p><b><u>Clause 1.8 (i) of Data Sheet and Clause 3.1.4 (b) of ITC</u></b></p> <p>Clause 1.8 (i) of Data Sheet defines that failure to provide valid documents / receipts (in case of foreign consulting firm) (each member in case of JV) by the PEC will entitle the Client to reject the proposal. It is suggested that this condition may be relaxed for foreign firm. A foreign firm acting as JV Partner must be allowed to register with PEC subsequent to being declared as successful bidder but before signing of the Contract. However, at the stage of proposal submission, they should give an Undertaking to get it registered with PEC, if Contract is awarded. For Registration of Foreign Firms, PEC take more than one (1) month because the Registration is decided in a periodical meeting of a Committee. The existing condition debar the new foreign companies from participation in bidding.</p>	<p><b>Foreign consultants should apply for PEC registration prior to submission of proposal and attach the receipts in the proposal. Please refer to Data Sheet clause 1.8 (i) of the RFP document.</b></p>



4.	<p><b>Clause 3.1.4 (d) of ITC and Data Sheet</b></p> <p>The Key Personnel for Special &amp; Non-conventional Projects, which are not common and regular practice, may not be maintained as permanent and will be unpractical to maintain. This is particularly applicable for Tunnel and Harbour Projects.</p> <p>Therefore, the requirement of permanent employee and accordingly 10 Marks allocated against status with the firm (Permanent) may be deleted.</p>	<p><b>Not Acceded to Please proceed as per RFP.</b></p>
5.	<p><b>Clause 3.1.4 of Data Sheet (Minimum Requirement of Education and Experience of Key Personnel)</b></p> <p>a) The longest Tunnel in Pakistan (Lowari Tunnel) was designed at project site by a team comprising of expatriates and local consultants including M/s EMS. Having a long association with Lowari Tunnel Project, M/s EMS very well understands the local expertise available in the country and considers it practically impossible to find local engineers with educational qualifications and experience requirements stipulated in the RFP. It is worth mentioning here that in Lowari Tunnel Project none of the professionals of either the expatriate or locals were PhD but were experienced and practicing personnel on the project including full time Design Team at site, except one man who was the practical advisor and the Engineer as the Chairman of the Company. Whereas, in the instant RFP, requirements of Team Leader include a local Engineer with PhD Degree in Tunnel Engineering (which program has recently been offered at few universities in Pakistan) and that too with 20 year's experience.</p> <p>b) Team Leader was stipulated to lead and coordinate the Team of various experts including that of Electro-Mechanical Works. Emphasis be given to his multidirectional knowledge and experience including documentation and preparation of PC-1, which cannot be done by PhD in a specific field. His job not be confirmed to one speciality only. The minimum qualification be B.Sc. (Engineering) with relatively longest available experience preferably over 30 years, on Design Review of Tunnel and Highway Project including preparation of Tender Documents and PC-1 because experience has not substitute &amp; not many experienced engineers possess PhD degree.</p> <p>c) For all the other Master Degree required, minimum should be specified as B.Sc. (Engg.) having longer experience in the relevant field. Similarly, PhD and M.Sc. for Electro-Mechanical Works is lesser importance that working experience in E&amp;M Work of Tunnel. Therefore, minimum Qualification of Experts including Electrical &amp; Mechanical (E&amp;M) Expert for Tunnel may be B.Sc. Engg in relevant field. Similarly, in RFP, Seven (7) Junior Engineers of various fields with Master Degree and 7 years of experience is required. It is apprised that Junior Engineer</p>	<p><b>(a&amp;b): Minimum Qualification required is M.Sc. However, higher qualification will be awarded higher score. Proceed as per RFP.</b></p> <p><b>(c): Qualification criteria for "Electrical &amp; Mechanical (E&amp;M) Expert for tunnel", only and Experience of "Junior Engineers" have been revised. Please see Attachment No. 01, 02, 03 &amp; 04 to Addendum No. 01.</b></p>



	<p>in industry is considered as the one who has an experience of upto 5 years. Beyond 5 years, the Engineer is considered in Senior role. Hence, it is requested to reduce the experience qualification of Junior Engineers to maximum 5 years with B.Sc. and 3 years with M.Sc. moreover, junior Engineers are a kind of technical support to the key experts. therefore, it is suggested that the Junior Engineers should be considered as non-key staff.</p> <p>Due to brain drain witnessed in the country over past few years and limited expertise I experience relevant to tunnels available in the country, it is suggested that recommendations given above w.r.t. experience requirements of key staff be given serious considerations on priority supported with minimum required Qualification.</p>	
6.	<p><b>Item (6) of Clause 5.2 of Data Sheet (Transfer of Knowledge)</b></p> <p>Criteria of 6 years for new firms is not pragmatic. A Company may have say about 4 to 6 years of registration age but has done three (3) to four (4) Project and as such do not remain new. A Company without any work cannot become experienced just after six (6) years, if they have not done any work. The Criteria should be based on number of Projects involves as JV say about 3 to 4 Project over a period of 6 to 8 years and it should not be confined to single requirement of time frame.</p>	<p><b>Not Acceded to Please proceed as per RFP.</b></p>
	<p><b>M/s Prime Engineering &amp; Testing Consultants (Pvt.) Ltd.</b></p>	
7.	<p>Please clarify the start point and end point of the project.</p>	<p><b>Start Point: After crossing Naran Bazar End Point: N-15 intersection with N-35.</b></p>
8.	<p>Refer to item 12 on Form A-16, of Direct (Non-Salary) Costs on Page-52 of RFP, UAV Drone Survey is required along Alignment and Portal Areas for which Drone is required. It is suggested to include the cost in item 23 for the purchase of Drone and its accessories, which will be the property of NHA.</p>	<p><b>Purchase of Drone is not required.</b></p>
9.	<p>The Provisional Sum allocated to Detailed Geotechnical Investigation under item 18 of Form A-16 on page-53 shall be move to phase-II please.</p>	<p><b>Agreed. Please see Attachment No. 05 to Addendum No. 01.</b></p>
10.	<p>On Page-106 under mode of payment, 2% is allocated to Design of Railway System for Tunnels (Optional). It is suggested to include this as L.S with the Inclusion of an item under form A-16 to quote its respective cost. The 2% may be re-distributed to other items as appropriate.</p>	<p><b>Agreed. Please see Attachment No. 06 to Addendum No. 01.</b></p>
	<p><b>M/S FINITE ENGINEERING</b></p>	
11.	<p><b>Refer Clause-2, Form A-4 (A and B) of RFP document</b></p> <p>“...Enumerate each suggestion in Form A-4 with incremental cost as a separate attachment to Financial proposal indicating breakdown into individual remuneration and expenses for each suggestion. Forms A-11 to 17 should be prepared without incorporating the</p>	<p><b>The consultant should comment each suggestion in Form A-4 and cost should be quoted in Sr. No. 25 of Form A-16 against the item mentioned in Form A-4. “Others not covered above</b></p>



	changes".  However, Form A-16 of RFP document states that Other item not covered above to comply with TOR requirement should be mentioned under Sr.No.25 of Form A-16 with solid/tenable justification (s) detailed in Technical proposal submission Form A-4. Kindly clarify.	<b>to comply with TOR requirement".</b>
12.	Kindly clarify whether Annex-E (Power of Attorney to sign the contract agreement) be submitted with technical proposal or afterwards during contract signing.	<b>Power of Attorney to sign the contract agreement shall be submitted by the successful consultant at the time of contract signing.</b>
13.	Refer to Sr.No.19, Form A-16 of RFP document, Highway Safety Audit is kept as provisional sum (P.S). However, amount is not mentioned over there.	<b>Please see Attachment No.05 to Addendum No. 01.</b>
14.	Refer to evaluation criteria of RFP document wherein maximum weightage of form for specific experience related to particular assignment is 75. It is requested that specific experience of foreign expatriates would also be considered while evaluating firms specific experience. This will reflect actual input of foreign expatriates in technical evaluation.	<b>In case of Joint Venture (JV) specific experience of all JV members will be considered.</b>

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## **ADDENDUM No.1**

### **Consultancy Services Feasibility Study and Detailed Design for Road Tunnel Across Babusar Pass and Its Link Access Roads**

Following amendments have been made in the Request for Proposal (RFP) for subject Services under this Addendum No.1, which shall be read and construed as an integral part of RFP and shall take precedence in case of any conflict(s)/ambiguity(s) amongst this Addendum No.1 and other provisions of the RFP.

#### **1. Qualification Criteria**

##### **1.1 Electrical & Mechanical (E&M) Expert for Tunnel and Junior Engineers;**

Qualification Criteria and scoring for Electrical & Mechanical (E&M) Expert for Tunnel and Experience of Junior Engineers is amended and attached as **Attachment No. 01, 02, 03 & 04**.

Refer page 13, 14 & 15 of RFP; page 13, 14 & 15 are replaced and enclosed as **Attachment No. 01, 02, 03 & 04 to Addendum No.1**.

#### **2. Form A-16**

##### **2.1 Sr. No. 18 of Form A-16, Detailed Geotechnical Investigation;**

Refer to Sr. No. 18 of Form A-16, P.S for Detailed Geotechnical Investigation has been re-allocated from Phase-I to Phase-II and attached as **Attachment No. 05**.

##### **2.2 Sr. No. 19 of Form A-16, 3<sup>rd</sup> Party Highway Safety Audit;**

Refer to Sr. No. 19 of Form A-16, Unit of 3<sup>rd</sup> Party Highway Safety Audit is amended and attached as **Attachment No. 05**.

Refer page 53 of RFP; page 53 is replaced and enclosed as **Attachment No. 05 to Addendum No.1**.

#### **3. Terms of Reference (Mode of Payment)**

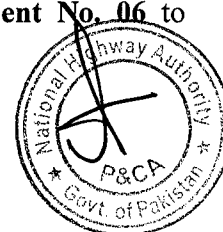
##### **3.1 Sr.No. 18 of Mode of Payment (Design of Railway System for Tunnels (Optional));**

Refer to Sr. No. 18 of Mode of Payment, Unit of Design of Railway System for Tunnels (Optional) is amended and attached as **Attachment No. 06**.

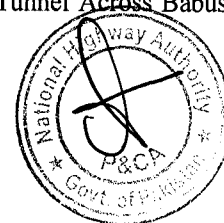
Refer page 106 of RFP; page 106 is replaced and enclosed as **Attachment No. 06 to Addendum No.1**.

#### **4. All other terms and conditions shall remain same.**

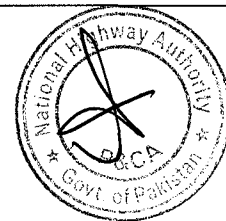
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	ten (10) years' experience as Senior Geotechnical Engineer on major Tunnel and Highway Design projects]. Weightage shall be given to the experience in similar geographical conditions.
<b>Snow Survey and Avalanche Specialist (Expatriate)</b>	<p><b>Education:</b> Preferably M.Sc. (snow avalanche protection works or equivalent (Structure with specific experience in snow avalanche design and protection works) or minimum B.Sc. (Civil Engineering) with experience in snow and avalanche survey and protection design.</p> <p><b>Experience:</b> Preferably fifteen (15) years relevant experience [proven ten (10) years' experience as snow avalanche protection works on major Tunnel and Highway Design projects].</p>
<b>Electro-Mechanical Specialist for E&amp;M Works, Designing all types of Sensors, Automation and SCADA/IT Specialist (Expatriate)</b>	<p><b>Education:</b> Preferably PhD. in (Mechanical / Electrical Engineering with Experience in Tunnel E&amp;M works/design) or minimum M.Sc. in (Mechanical/ Electrical Engineering with Experience in Tunnel E&amp;M works/design). Relative marking will be made, assigning maximum marks to the CV with longest tunnel in experience.</p> <p><b>Experience:</b> Preferably fifteen (15) years relevant experience [proven ten (10) years' experience as Tunnel Engineer (E&amp;M) on major Highway and Tunnel Design projects with having specific experience on tunnels greater than 05 KMs].The individual must show his familiarity with international codes and practices for E&amp;M and PLC works on long tunnels. He must also be well experienced in critical toxic emissions disposal specific to long tunnels.</p>
<b>Senior Geotechnical Engineer</b>	<p><b>Education:</b> Preferably M.Sc. (Soil Mechanics/ Geo-Tech Engineering) or minimum B.Sc. (Civil Engineering/ Geo-Tech Engineering).</p> <p><b>Experience:</b> Preferably fifteen (15) years' relevant experience [proven ten (10) years' design experience as Senior Geotechnical Engineer on major Highway Projects].</p>
<b>Senior Geologist</b>	<p><b>Education:</b> Preferably M.Sc. (Geological Engineering) or minimum B.Sc. (Geological Engineering)/ M.Sc. Geology.</p> <p><b>Experience:</b> Preferably fifteen (15) years' relevant experience [proven ten (10) years' design experience as Senior Geologist on major Highway Projects].</p>
<b>Electrical &amp; Mechanical (E&amp;M) Expert for Tunnel</b>	<p><b>Education:</b> Preferably M.Sc. in (Mechanical / Electrical Engineering with Experience in E&amp;M works of Tunnel Engineering) or Minimum B.Sc (Mechanical / Electrical Engineering with Experience in E&amp;M works of Tunnel Engineering) Additional training / courses in Tunnel Engineering will be scored.</p> <p><b>Experience:</b> Preferably ten (10) years relevant experience [proven five (05) years' experience as E&amp;M expert on Highway and Tunnel Design projects].</p>
<b>Senior Structural Engineer</b>	<p><b>Education:</b> Preferably PhD in (Structural Engineering) or M.Sc. (Structural Engineering) or minimum B.Sc. (Civil Engineering).</p> <p><b>Experience:</b> Preferably fifteen (15) years' relevant experience [proven ten (10) years' design experience as Senior Structural Engineer on National Highways Projects].</p>
<b>Senior Highway Engineer</b>	<p><b>Education:</b> Preferably PhD in (Transportation Engineering/Highway Engineering) or M.Sc. (Transportation Engineering) or minimum B.Sc. (Civil Engineering).</p> <p><b>Experience:</b> Preferably fifteen (15) years' relevant experience [proven</p>

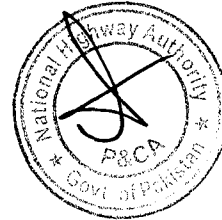


	ten (10) years' design experience as Senior Highway Engineer on National Highways Projects. Weightage shall be given to the experience in similar geographical conditions.
<b>Traffic/ Pavement Engineer</b>	<p><b>Education:</b> Preferably PhD in (Traffic/Pavement Engineering) or M.Sc. (Traffic/Pavement Engineering) or minimum B.Sc. (Civil Engineering).</p> <p><b>Experience:</b> Preferably fifteen (15) years' relevant experience [proven ten (10) years' design experience as Traffic/ Pavement Engineer on major Highway Projects].</p>
<b>Junior Engineer (Tunnel)</b>	<p><b>Education:</b> Preferably M.Sc. in Tunnel Engineering/ M.Sc. in (Structure Engineering/ Geotechnical Engineering) or minimum B.Sc. (Civil Engineering).</p> <p><b>Experience:</b></p> <p><b>For M.Sc.</b> Preferably Three (03) years [design experience as Junior Engineer (Tunnel) on Tunnel project / National Highways Projects].</p> <p><b>For B.Sc.</b> Preferably Five (05) years relevant experience [proven three (03) years' design experience as Junior Engineer (Tunnel) on Tunnel project / National Highways Projects].</p>
<b>Junior Engineer (Structures)</b>	<p><b>Education:</b> Preferably M.Sc. (Structural Engineering) or minimum B.Sc. (Civil Engineering).</p> <p><b>Experience:</b></p> <p><b>For M.Sc.</b> Preferably Three (03) years [design experience as Junior Engineer (Structures) on National Highways Projects/Bridges/Avalanche Galleries].</p> <p><b>For B.Sc.</b> Preferably Five (05) years relevant experience [proven three (03) years design experience as Junior Engineer (Structures) on National Highways Projects/Bridges/Avalanche Galleries].</p>
<b>Junior Engineer (Highway)</b>	<p><b>Education:</b> Preferably M.Sc. (Transportation Engineering) or minimum B.Sc. (Civil Engineering).</p> <p><b>Experience:</b></p> <p><b>For M.Sc.</b> Preferably three (03) years [design experience as Junior Engineer (Highway) on National Highways Projects];</p> <p><b>For B.Sc.</b> Preferably Five (05) years relevant experience [proven three (03) years' design experience as Junior Engineer (Highway) on National Highways Projects];</p>
<b>Junior Engineer (Electrical)</b>	<p><b>Education:</b> Preferably M.Sc. (Electrical Engineering) or minimum B.Sc. (Electrical Engineering).</p> <p><b>Experience:</b></p> <p><b>For M.Sc.</b> Preferably three (03) years [design experience as Junior Engineer (Electrical) on National Highways Projects/Tunnel Projects];</p> <p><b>For B.Sc.</b> Preferably Five (05) years relevant experience [proven three (03) years design experience as Junior Engineer (Electrical) on National Highways Projects/Tunnel Projects];</p>





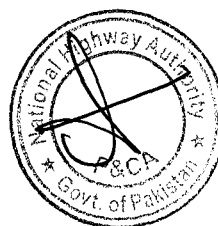
<b>Junior Engineer (Mechanical)</b>	<p><b>Education:</b> Preferably M.Sc. (Mechanical Engineering) or minimum B.Sc. (Mechanical Engineering).</p> <p><b>Experience:</b></p> <p><b>For M.Sc.</b> Preferably three (03) years [design experience as Junior Engineer (Mechanical) on National Highways Projects/Tunnel Projects];</p> <p><b>For B.Sc.</b> Preferably Five (05) years relevant experience [proven three (03) years' design experience as Junior Engineer (Mechanical) on National Highways Projects/Tunnel Projects];</p>
<b>Junior Geotech Engineer</b>	<p><b>Education:</b> Preferably M.Sc. Geo-Tech Engineering or minimum B.Sc. (Civil Engineering/ Geo-Tech Engineering).</p> <p><b>Experience:</b></p> <p><b>For M.Sc.</b> Preferably Three (03) years [design experience as Junior Geotech Engineer on National Highways Projects/Tunnel Projects];</p> <p><b>For B.Sc.</b> Preferably Five (05) years relevant experience [proven three (03) years' design experience as Junior Geotech Engineer on National Highways Projects/Tunnel Projects];</p>
<b>Junior Geologist</b>	<p><b>Education:</b> Preferably M.Sc. (Geological Engineering) or minimum B.Sc. (Geological Engineering) / Civil Engineering.</p> <p><b>Experience:</b></p> <p><b>For M.Sc.</b> Preferably Three (03) years [design experience as Junior Geologist on National Highways Projects];</p> <p><b>For B.Sc.</b> Preferably Five (05) years relevant experience [proven three(03) years' design experience as Junior Geologist on National Highways Projects];</p>



<b>Junior Architect</b>	<p><b>Education:</b> Preferably M.Sc. (Architecture) or minimum B.Sc. (Architecture).</p> <p><b>Experience:</b>  <b>For M.Sc.</b> Preferably Three (03) years [design experience as Junior Architect on Buildings].  <b>For B.Sc.</b> Preferably Five (05) years relevant experience [proven three (03) years' design experience as Junior Architect on Buildings].</p>
<p><b>Academic and General Qualification</b></p> <ul style="list-style-type: none"> <li>For Team Leader/Tunnel Engineer, Tunnel Engineer (Expatriate), Electro-Mechanical Specialist (Expatriate): P.hD. with additional training/courses in Tunnel Engineering from recognized organization-100%; Ph.D.– 90%; M.Sc. with additional training/courses in Tunnel Engineering from recognized organization – 80%; M.Sc. – 70%.</li> <li>Electrical and Mechanical (E&amp;M) Expert for Tunnel: M.Sc. with additional training/courses in Tunnel Engineering from recognized organization-100%; M.Sc.– 90%; B.Sc. with additional training/courses in Tunnel Engineering from recognized organization-80%;B.Sc-70%.</li> <li>Senior Geotechnical Engineer (Expatriate): M.Sc. with additional training/courses in Tunnel Engineering from recognized organization-100%; M.Sc.– 90%; B.Sc. with additional training/courses in Tunnel Engineering from recognized organization – 80%; B.Sc. – 70%.</li> <li>Snow Survey and Avalanche Specialist (Expatriate): M.Sc. with experience in snow and avalanche Survey and protection design and additional relevant training/courses from recognized organization-100%; M.Sc.– 90%; B.Sc. with experience in snow and avalanche Survey and protection design and additional relevant training/courses from recognized organization – 80%; B.Sc. with experience in snow and avalanche Survey and protection design – 70%.</li> <li>Senior Highway Engineer, Senior Structural Engineer, Traffic/Pavement Engineer: Ph.D. with additional relevant training/courses from recognized organization-100%; Ph.D.– 90%; M.Sc. with additional relevant training/courses from recognized organization – 85%; M.Sc. 80%, B.Sc. – 70%.</li> <li>Senior Geotechnical Engineer, Senior Geologist, Junior Engineer (Tunnel/Structures/Highway/Electrical/Mechanical), Junior Geotech Engineer, Junior Geologist &amp; Junior Architect: M.Sc. with additional relevant training/courses from recognized organization-100%; M.Sc.– 90%; B.Sc. with additional relevant training/courses from recognized organization – 80%; B.Sc. – 70%.</li> </ul>	
<p><b>Note: The Consultants are advised to submit updated CV's strictly in compliance with the format of CVs given in Technical Proposal Form A-5. CVs submitted without regard to the said format may score low.</b></p>	
<p>e. Training is an important feature of this Assignment:  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>  If Yes, details of training are given in TOR</p>	
3.2.3	<p>Professional liability, insurances (description or reference to appropriate documentation):</p> <ol style="list-style-type: none"> <li>The Consultants shall be responsible for Professional Indemnity Bond of the required amount at their own cost. This bond shall be in the joint name of Consultant and the Client.</li> <li>The Consultants are required to insure their Employees and Professionals for Hospitalization/ Medical, Travel and Accident Cover for the duration of the Contract. The details provided in Para 3.5 of Special Conditions of Contract in Model Contract.</li> </ol>

Sr. No.	Nomenclature	Unit	Qty.	Phase-I Unit Price (Rs.)	Phase-II Unit Price (Rs.)	Total Amount (Rs.)
	cost of report writing, Instrument Rental Charges (if any), Salary of Traffic Engineer, Enumerators, etc. (complete in all respects).					
15	Purchase Satellite (Tri-Stereo) Images (0.5 m) & process DEM (1.0 m) (Archive / Fresh based on availability) including Ground Control Points (about 300 Sq Km)	P.S.	-	5,472,000	N/A	5,472,000
16	Petrography and index properties Testing for overburden Samples, Geophysical Survey and Investigations at Tunnels and Bridges	P.S	-	750,000	1,000,000	1,750,000
17	Collection of maps, Data from WAPDA, Survey of Pakistan Geological Survey of Pakistan, Metrological Survey of Pakistan	L.S			N/A	
18	Detailed Geotechnical Investigation including Vertical Core Drilling for Geotechnical Field Investigation at tunnel portal locations, tunnel alignment, Avalanche Galleries, Slope Stability Measure locations (1000m approx of drilling) excluding salary of Geotechnical Engineer	P.S	-	N/A	12,000,000	12,000,000
19	3 <sup>rd</sup> Party, Highway Safety Audit. Including cost of activities mentioned in ToR and cost of report writing, Instrument Rental Charges (if any), Salary of Highway Auditor, Enumerators, etc. (complete in all respects).	L.S		N/A		
20	"Soil & Material Investigation" including cost of activities mentioned in ToR and cost of report writing, Instrument Rental Charges (if any), Salary of Material Engineer, Lab Technicians and Helpers, etc. (complete in all respects)".	L.S		N/A		
21	Hydrology/Hydraulic Study "Hydrology and Hydraulic Study" including the cost of activities mentioned in ToR, purchase of data (if any), cost of report writing, Instrument Rental Charges (if any), Salary of Hydraulic Engineer / Hydrologist, Helpers, etc. (complete in all respects)".	L.S		N/A		

Consultancy Services for Feasibility Study and Detailed Design for Road Tunnel Across Babusar Pass and its Link Access Roads



**3.11. MODE OF PAYMENT**

**“A” is to be calculated by excluding all Provisional Sum / Lump Sum items from Contract Cost.**

S.#	DELIVERABLES AND APPROVAL	%age of “A”
1	Data Collection & Coordination Report along with Inception Report	2%
2	Alignment Study Report including all the requirements spelled out in the TOR along with recommendations and KMZ files	7.5%
3	Tri-stereo Image (2.5m resolution) and Processed DEM (5m resolution) along with GCPs (about 1000 sq. km)	PS
4	Tri-stereo Image (0.5m resolution) and Processed DEM (5m resolution) along with GCPs (about 300 sq. km)	PS
5	Topographic Survey Drawings & Report	LS
6	Traffic Survey and Axle load survey Report	LS
7	Report on Land slide, Debris & Mud Flow	2%
8	Geological Survey Report	2%
9	Hydrological Survey Report	LS
10	Soil Investigation & Material Investigation (Including Construction Material Report & Geology Survey)	LS
11	Existing Pavement and Structures Conditions Report	7.5%
12	Snow and Avalanche Survey Report with potential and critical location and their Extent.	2%
13	Feasibility Study with approximate Comparative Cost Estimates of Preferred alternative.	5%
14	UAV (RTK Drone) Survey along the Approved Alignment including UAV Survey Report	L.S
15	Geotechnical Field Investigation Report of Core Drilling at each Portal location, Structures and potential sliding areas requires slope stability (1000m approx. of drilling) excluding Salary of Geotechnical Engineer.	PS
16	Petrography and index properties Testing for overburden samples, Geophysical survey, Testing and Investigations at Tunnels and Bridges Report	PS
17	Detail Tunnel Design & Portal Facilities including design of E&M Works	10%
18	Design of Railway System for Tunnels (Optional)	L.S
19	Hydrology and Hydraulic Designs	LS
20	Slope Stability Investigation, Analysis and Design for protection measures	2.5%

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