

**Terms of Reference (TOR) for Authority's Engineer (AE) for Phase-II roads of  
Uttar Pradesh Core Road Network Development Project  
(UPCRNDP)**

**PROJECT BACKGROUND:**

1. In the last decade, the Government of Uttar Pradesh (GoUP) has made significant investments to enhance its transport infrastructure. Rural road networks have substantially increased in the state and is being supplemented by huge investments planned in state highways and urban transport infrastructure by GoUP. The state highways are increasingly gaining importance in terms serving mobility needs of people both inter-city and rural/Urban. GoUP, through the Department of Economic affairs, Govt. of India has received the assistance of the World Bank for the improvement of State roads comprising a select network of state highways in Uttar Pradesh. The World Bank assistance, delivered through the proposed Uttar Pradesh Core Roads Network Development Project (UPCRNDP).
2. The state has a road network of 299,604 km, out of which 240,854 km is under Uttar Pradesh Public Works Department (UPPWD). The roads under UPPWD comprise 8,448 km of National Highways (NHs), 6,892 km of State Highways (SHs), 7,377 km of Major District Roads (MDRs), 49,405 km of Other District Roads (ODRs) and 168,692 km of Village Roads (VRs) as per performance budget of 2018-19 of UPPWD.
3. With a view to improve the transport network system, UP PWD has identified 24,095 km of Core Road Network (CRN), comprising NH, SH, MDR and ODRs for development. NH is not part of UP PWD, hence remaining roads are being envisaged for upgradation under various schemes. The Core road development works will consist of raising the formation level, widening to full two/four lanes from the existing single, intermediate & two-lane widths, and/or pavement rehabilitation/strengthening. Road sections with high volumes of non-motorized traffic will be widened to 10m with 1.5m full paved shoulders. Road stretches crossing urban areas may also require upgrading to a four-lane cross section, and/or provision for drains, sidewalks and parking where required. In some cases, new alignments (bypasses and/or re-alignments may also be required.
4. The Road sections under UPCRNDP are being executed under two phases. Under Phase-I four Road sections are already under execution as tabulated below-

SI No	Project Road	Category	Length (Km)	Contract Amount (Cr.)
1	UPG/01: Hamirpur - Rath	SH-42	72.785	349.46
2	UPG/02: Garautha - Chirgaon Road	SH-42	49.145	227.16
3	UPG/03: Gola - Shajahanpur	SH-93	57.300	418.48
4	UPG/04: Badaun - Bilsa-Bijnaour	SH-51	79.420	419.91
	<b>Total Project Length &amp; Cost</b>		<b>258.650</b>	<b>1415.03</b>

5. The DPR of the Missing Link (between Hamirpur-Rath and Garautha-Chirgaon i.e. Rath-Garautha (UPG/05)) has been prepared for 35.88 Km length and 251.30 crores cost. The construction supervision of Missing Link is vested with the existing PMC Consultant.

6. Uttar Pradesh Government has approved following five road sections for execution under Phase –II of UPCRNDP:

Sl No.	Package	Description	Length (Km)	Estimated construction duration and timelines
1.	UPG/06	Bansi-Medawar-Khalilabad (Km 0.000 - Km 28.900)- 2 Lane with paved shoulder (SH-88)	28.900	18 months
2.	UPG/07	Bhraich-Gonda-Faizabad (Km 0.000 - Km 60.067)- 2 Lane with paved shoulder (SH-30)	60.067	24 months
3.	UPG/08	Garh-Syana-Bulandshahar (Km 0.000- Km 49.500)- 4 Lane (SH-65)	49.500	24 months
4.	UPG/09	Moradabad-Haridwar-Dehradun (Km 0.000- Km 36.000) - 4 Lane (SH-49)	36.000	24 months
5.	UPG/10	Hamidpur-Kuchesar Road Hamidpur via Badshahpur (0.000 to 47+500 m)- 2 Lane with paved shoulder (SH-100)	47.500	24 months

7. The objective of the assignment is to undertake Construction Supervision to ensure conformity and quality of the works and compliance with the relevant procedures and provisions of contractual documents. This Terms of Reference is for the prospective Authority Engineer firm to carry out Supervision works of Phase-II Roads of the UPCRNDP.

## **SCOPE OF SERVICE**

### **1. GENERAL**

- 1.1. The Authority's Engineer shall discharge its duties in a fair, impartial and efficient manner, consistent with the highest standards of professional integrity and Good Industry Practice.
- 1.2. Assist UPPWD to negotiate the mutually beneficial terms and conditions as well as construction schedule;
- 1.3. Ensure the contractor adheres to the agreed schedule at the time of signing of the contract for submitting all documents (performance bonds, insurance policies, license, etc.) completing the Engineer's facilities, and any other requirements as stipulated in the specifications and the civil works contract;
- 1.4. The Authority's Engineer shall perform the duties and exercise the authority in accordance with the provisions of the Civil Contract Agreements, but subject to obtaining prior written approval of the Authority before determining:
  - (a) any Time Extension;
  - (b) any additional cost to be paid by the Authority to the Contractor;
  - (c) the Termination Payment; or
  - (d) any other matter which is not specified in (a), (b) or (c) above and which creates an obligation or liability on either Party for a sum exceeding 0.2% of Contract price.
  - (e) any change of scope as per civil contract.

- 1.5. The Authority's Engineer shall submit regular periodic reports, at least once every month, to the Authority in respect of its duties and functions of the Civil Contract Agreements. Such reports shall be submitted by the Authority's Engineer within 10 (ten) days of the beginning of every month.
- 1.6. The Authority's Engineer shall inform the Contractor of any delegation of its duties and responsibilities to its suitably qualified and experienced personnel; provided, however, that it shall not delegate the authority to refer any matter for the Authority's prior approval in accordance with the provisions of the contract.
- 1.7. In the event of any disagreement between the Parties regarding the meaning, scope and nature of Good Industry Practice, as set forth in any provision of the Civil Contract Agreements, the Authority's Engineer shall specify such meaning, scope and nature by issuing a reasoned written statement relying on good industry practice and authentic literature.
- 1.8. The Authority Engineer will plan and execute construction supervision and contract administration, including effective and regular supervision of the works, maintenance of project records, correspondence and diaries, as well as quality control testing to ensure that the works are executed in accordance with the contract;
- 1.9. The Authority Engineer will provide timely assistance to the contractor in all matters related to interpretation of the contract documents, ground survey controls, planning, quality control testing and other matters relating to Project;
- 1.10. Conduct a complete joint review of the works with all stakeholders and the Bank, as well as a safety audit, prior to hand over of the site to UPPWD;
- 1.11. The Authority's Engineer shall assist and advice the Authority in handling over the sites and in establishing milestones for completion of contracts.
- 1.12. Follow the issue of the Taking Over Certificate, during the balance of the contract period inspect and approve the execution of the outstanding works (if any), as well as the rectification of any defects or damage -advise on any extension to the contract period that may be required for such works;

## **2. CONSTRUCTION PERIOD**

- 2.1 The Authority's Engineer shall review the Quality Assurance Plan submitted by the Contractor and shall convey its comments to the Contractor within a period of 21 (twenty-one) days stating the modifications, if any, required thereto.
- 2.2 The Authority's Engineer shall complete the review of the methodology proposed to be adopted by the Contractor for executing the Works, and convey its comments to the Contractor within a period of 10 (ten) days from the date of receipt of the proposed methodology from the Contractor.
- 2.3 During the Construction Period, the Authority's Engineer shall review the Designs and Drawings furnished by the Contractor along with supporting data, including the geo-technical and hydrological investigations, characteristics of materials from borrow areas and quarry sites, topographical surveys, and the recommendations of the Safety Consultant in accordance with the relevant provisions of Civil Contract Agreements. The Authority's Engineer shall complete such review and send its observations to the Authority and the Contractor within 15 (fifteen) days of receipt of such Designs and Drawings; provided, however that in case of a Major Bridge or Structure, the aforesaid period of 15 (fifteen) days may be extended up to 30 (thirty)

- days. In particular, such comments shall specify the conformity or otherwise of such Drawings with the Scope of the Project and Specifications and Standards.
- 2.4** The Authority's Engineer shall grant written approval to the Contractor, where necessary, for interruption and diversion of the flow of traffic in the existing lane(s) of the Project Highway for purposes of maintenance during the Construction Period in accordance with the provisions of Civil Contract Agreements.
  - 2.5** The Authority's Engineer shall maintain, check, record and approve the daily progress records produced by the contractors on work progress, labor, equipment, major construction materials, at site, work accomplished, weather, river conditions, accidents as well as any other events affecting projects cost or implementation conditions of the Project.
  - 2.6** The Authority's Engineer shall review the monthly progress report furnished by the Contractor and send its comments thereon to the Authority and the Contractor within 7 (seven) days of receipt of such report.
  - 2.7** The Authority's Engineer shall inspect the Construction Works and the Project Highway and shall submit a monthly Inspection Report bringing out the results of inspections and the remedial action taken by the Contractor in respect of Defects or deficiencies. In particular, the Authority's Engineer shall include in its Inspection Report, the compliance of the recommendations made by the Safety Consultant.
  - 2.8** The Authority's Engineer shall conduct the pre-construction review of manufacturer's test reports and standard samples of manufactured Materials, and such other Materials as the Authority's Engineer may require.
  - 2.9** The Authority's Engineer shall ensure that at least one of its engineers is on site at each subproject at all times during construction activities.
  - 2.10** For determining that the Works conform to Specifications and Standards, the Authority's Engineer shall require the Contractor to carry out, or cause to be carried out, tests at such time and frequency and in such manner as specified in the Agreement and in accordance with Good Industry Practice for quality assurance. For purposes of this Paragraph, the tests specified in the IRC Special Publication-11 (Handbook of Quality Control for Construction of Roads and Runways) and the Specifications for Road and Bridge Works issued by MORTH (the "Quality Control Manuals") or any modification/substitution thereof shall be deemed to be tests conforming to Good Industry Practice for quality assurance.
  - 2.11** The Authority's Engineer shall test check all the quantity or number of tests prescribed for each category or type of test for quality control by the Contractor.
  - 2.12** The timing of tests referred to in Paragraph 2.10, and the criteria for acceptance/rejection of their results shall be determined by the Authority's Engineer in accordance with the Quality Control Manuals. The tests shall be undertaken on a random sample basis and shall be in addition to, and independent of, the tests that may be carried out by the Contractor for its own quality assurance in accordance with Good Industry Practice.
  - 2.13** In the event that results of any tests conducted under Civil Contract Agreements establish any Defects or deficiencies in the Works, the Authority's Engineer shall require the Contractor to carry out remedial measures.
  - 2.14** The Authority's Engineer may instruct the Contractor to execute any work which is urgently required for the safety of the Project Highway, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work required on account of a Force Majeure Event.

- 2.15** In the event that the Contractor fails to achieve any of the Project Milestones, the Authority's Engineer shall undertake a review of the progress of construction and identify potential delays, if any. If the Authority's Engineer shall determine that completion of the Project Highway is not feasible within the time specified in the Agreement, it shall require the Contractor to indicate within 15 (fifteen) days the steps proposed to be taken to expedite progress, and the period within which the Project Completion Date shall be achieved. Upon receipt of a report from the Contractor, the Authority's Engineer shall review the same and send its comments to the Authority and the Contractor forthwith.
- 2.16** Authority's Engineer may recommend to the Authority suspension of the whole or part of the Works if the work threatens the safety of the Users and pedestrians. After the Contractor has carried out remedial measure, the Authority's Engineer shall inspect such remedial measures forthwith and make a report to the Authority recommending whether or not the suspension hereunder may be revoked.
- 2.17** In the event that the Contractor carries out any remedial measures to secure the safety of suspended works and Users, and requires the Authority's Engineer to inspect such works, the Authority's Engineer shall inspect the suspended works within 3 (three) days of receiving such notice, and make a report to the Authority forthwith, recommending whether or not such suspension may be revoked by the Authority.
- 2.18** The Authority's Engineer shall carry out, or cause to be carried out, all the Tests specified in Civil Contract Agreements and issue a Completion Certificate or Provisional Certificate, as the case may be. For carrying out its functions under this Paragraph and all matters incidental thereto, the Authority's Engineer shall act under and in accordance with the provisions of Civil Contract Agreements relevant schedules and articles.
- 2.19** The Authority's Engineer shall monitor, using Microsoft Project software, a) the physical and financial progress of the works, b) progress with associated pre-construction activities, c) performance against safeguards (environmental and social) indicators, d) the project critical path, and e) days float for each non-critical path activity. It is expected that a separate schedule be prepared for each subproject, that detailed tasks, relationships, and accurate durations be included, and that both planned and actual task completion dates be included.
- 2.20** The Authority's Engineer shall carefully track physical and financial progress of each subproject using Project Management Information System (PMIS), and shall provide advice each civil works subcontractor to carefully manage cost and schedule.
- 2.21** The Authority's Engineer shall advise the Authority on all matters relating to the execution of the works and on claims submitted by the contractors, and to make recommendations thereon, including possible recourse to dispute resolution methods. The Authority's Engineer shall also prepare replies & participate in the meetings/hearings of the Dispute Redressal Mechanisms/ Arbitrations/ Court cases etc. for providing necessary assistance to the Client.
- 2.22** The Authority's Engineer shall inform the Authority and the Contractor of any event of Contractor's Default within one weeks of its occurrence.
- 2.23** The Authority's Engineer shall prepare & submit, as necessary, detailed recommendations to the Authority for contract variations, Contract extensions and addenda to ensure the best possible technical results are achieved with the available funds.

- 2.24 The Authority's Engineer shall prepare specific engineering reports when requested by the Authority which shall include an analysis of the problems encountered and proposed solutions.
- 2.25 The Authority's Engineer shall inspect regularly the contractor's construction equipment, installations, housing, medical facilities, etc. and prepare inspection acts, and ensure that they are adequate and in accordance with the terms and conditions specified in the contract for the works;
- 2.26 The Authority's Engineer shall obtain from the Contractor a copy of all the Contractor's quality control records and documents before the Completion Certificate is issued.
- 2.27 The Authority's Engineer shall ensure that the contractor does not involve child labor in the execution of civil works contracts in accordance with the provisions of the contract agreement;
- 2.28 The Authority Engineer shall ensure that the contractor complies with ESHS (Environment, Social, Health & safety) policies of World Bank stipulated in the contract which inter alia includes.

#### **Environmental Aspect-**

- 2.29 Approve and monitor the contractor's construction program and method statements, including the specific Environmental Management Plan in light of site conditions, verifying that they are consistent with the project implementation schedule and with the design solutions, the requirements of existing normative documents, technological sequence and safety of construction, informing about it in a written form to UPPWD. These documents will be subject to Bank review and guidance.
- 2.30 The Authority's Engineer shall issue notices to the contractor advising of any non-compliance with environmental mitigation measures, asset out in the contract documents. Copies of all notices should be provided to UPPWD. Before issuing such notices, the AE should, as appropriate, have advised the contract or of the non-compliance and given an opportunity to the contractor to make good any adverse impact prior to the notice being issued;
- 2.31 The EA shall Certify payments for the works as stipulated in the contract and issue Interim Payment Certificates, the Final Payment Certificate and other certificates, including Taking Over Certificate, as required under the civil works contract as consistent with the requirements of the EMP for the contract;

#### **Social Aspects-**

- 2.32 The Authority Engineer will have following responsibilities:
  - I. Monitoring of RAP implementation including grievances received and resolved
  - II. Monitoring of implementation of gender action plan including actions required for addressing issues related to gender based violence
  - III. Preparation of quarterly monitoring report on RAP implementation
  - IV. Drafting terms of reference for mid-term and end term evaluation of RAP implementation
  - V. Capacity building of UP PWD on Social Impact Assessment and R&R

### **Traffic Safety-**

- 2.33 The Authority's Engineer shall ensure that road safety design requirements are implemented in accordance with the contract and works are undertaken with due regards to safety of road users and workers;
- 2.34 As part of the OHS requirements, the Authority Engineer should be expected to monitor and report on contractor's adherence to the **Traffic Management Plan (TMP)** and support in developing/ strengthening one, if need be. The TMP in particular should detail how road users—particularly vulnerable cyclists and pedestrians—will be directed around a work site, crashes, or other temporary road disruption, to minimize inconvenience while providing safe conditions for both the road user and the workers carrying out the activity. From a safety perspective, the TMP at a minimum should define (i) the approved haul routes for all construction traffic; (ii) maximum speed limits (which are often lower than the legal speed limit) at locations on the route (e.g. 40 km/h or 30 km/h when vulnerable users are present, such as during school hours., and the hours at which vehicles operate and; (iii) work zone safety standards, particularly adequate warning signage and conspicuity for night time.
- 2.35 The AE shall carry out regular monitoring and reporting of any injury incident at the work site. This incident reporting should also include any traffic related incident as well on the project roads. Particularly for serious and fatal injuries, the supervision consultant must immediately report and as per Bank policies and a preliminary report must be submitted for corrective measure against future traffic accidents in the work zone.
- 2.36 The Authority's Engineer shall independently track status and ensure adequate resolution of all design stage, construction stage, and post-construction stage road safety audit comments. These audits will be completed by a separate and independent consultant to be engaged by the PMC who is engaged under the project.

### **3. MAINTENANCE PERIOD**

- 3.1 The Authority's Engineer shall aid and advise the Contractor in the preparation of its monthly Maintenance Program and for this purpose carry out a joint monthly inspection with the Contractor.
- 3.2 The Authority's Engineer shall undertake regular inspections, at least once every month, to evaluate compliance with the Maintenance Requirements and submit a Maintenance Inspection Report to the Authority and the Contractor.
- 3.3 The Authority's Engineer shall specify the tests, if any, that the Contractor shall carry out, or cause to be carried out, for the purpose of determining that the Project Highway is in conformity with the Maintenance Requirements. It shall monitor and review the results of such tests and the remedial measures, if any, taken by the Contractor in this behalf.
- 3.4 In respect of any defect or deficiency referred to in Civil Contract Agreements, the Authority's Engineer shall, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration with reference to the Specifications and Standards and shall also specify the time limit for repair or rectification of any deviation or deterioration beyond the permissible limit.

3.5 The Authority's Engineer shall examine the request of the Contractor for closure of any lane(s) of the Project Highway for undertaking maintenance/repair thereof, and shall grant permission with such modifications, as it may deem necessary, within 5 (five) days of receiving a request from the Contractor. Upon expiry of the permitted period of closure, the Authority's Engineer shall monitor the reopening of such lane(s), and in case of delay, determine the Damages payable by the Contractor to the Authority under relevant clause of Civil Contract Agreements.

#### **4. DETERMINATION OF COSTS AND TIME**

- 4.1 The Authority's Engineer shall determine the costs, and/or their reasonableness, that are required to be determined by it under the Agreement.
- 4.2 The Authority's Engineer shall determine the period of Time Extension that is required to be determined by it under the Agreement.
- 4.3 The Authority's Engineer shall consult each Party in every case of determination in accordance with the provisions under relevant clause of Civil Contract Agreements.

#### **5. PAYMENTS**

- 5.1 The Authority's Engineer shall withhold payments for the affected works for which the Contractor fails to revise and resubmit the Drawings to the Authority's Engineer in accordance with the provisions of Civil Contract Agreements.
- 5.2 Authority's Engineer shall -
- (a) within 10 (ten) days of receipt of the Stage Payment Statement from the Contractor pursuant to Civil Contract Agreements, determine the amount due to the Contractor and recommend the release of 90 (ninety) percent of the amount so determined as part payment, pending issue of the Interim Payment Certificate; and
  - (b) within 15 (fifteen) days of the receipt of the Stage Payment Statement referred to in Civil Contract Agreements, deliver to the Authority and the Contractor an Interim Payment Certificate certifying the amount due and payable to the Contractor, after adjustments in accordance with the provisions of Civil Contract Agreements and as consistent with EMP provisions.
- 5.3 The Authority's Engineer shall, within 15 (fifteen) days of receipt of the Monthly Maintenance Statement from the Contractor pursuant to Civil Contract Agreements, verify the Contractor's monthly statement and certify the amount to be paid to the Contractor in accordance with the provisions of the Agreement.
- 5.4 The Authority's Engineer shall certify final payment within 30 (thirty) days of the receipt of the final payment statement of Maintenance in accordance with the provisions of Civil Contract Agreements.
- 5.5 **Payment terms** - The payment to the Authority Engineer will be Monthly based on time input.

#### **6. OUTPUTS**

The Authority Engineer shall submit all the following reports, manuals and outputs in a format approved by the Authority.



Sl. No.	Document	Time	Remarks
1	Inception report	After one month of consultancy effectiveness	The consultant should mention about the team which will be deputed, their individual responsibilities, methodology and time frame.
2	Monthly progress reports	5 business days after end of month	The reports shall include, at a minimum, physical and financial progress, ongoing technical and safeguards issues, road safety compliance status, construction quality status and trends, and other key information requested by the Authority for each subproject.
3	Quarterly progress reports	5 business days after end of quarter	
4	Sectional/Substantial Completion Reports	After substantial completion	
5	Engineering Reports	As needed	
6	Training to Client's and contractors' personnel	As needed	
7	Draft Final Report	After completion of project.	
8	Final Report	After incorporation of all comments on draft final report.	

## 7. MISCELLANEOUS

- 7.1 A copy of all communications, comments, instructions, Drawings or Documents sent by the Authority's Engineer to the Contractor pursuant to this TOR, and a copy of all the test results with comments of the Authority's Engineer thereon, shall be furnished by the Authority's Engineer to the Authority forthwith.
- 7.2 Within 90 (ninety) days of the Project Completion Date, the Authority's Engineer shall obtain a complete set of as-built Drawings, in 2 (two) hard copies and in micro film form or in such other medium as may be acceptable to the Authority, reflecting the Project Highway as actually designed, engineered and constructed, including an as-built survey illustrating the layout of the Project Highway and setback lines, if any, of the buildings and structures forming part of Project Facilities; and shall hand them over to the Authority against receipt thereof.
- 7.3 The Authority's Engineer, if called upon by the Authority or the Contractor or both, shall mediate and assist the Parties in arriving at an amicable settlement of any Dispute between the Parties.
- 7.4 To a reasonable amount, if so required by UPPWD, provide any of the following additional services within the contract amount (i) prepare reports, including technical appraisals, additional contract documentation, and/or reviewing and commenting on the contractor's proposals, as may be required for any additional work required for

- the successful completion of the Project; and (ii) provision of any other specialist services as may be required from time to time;
- 7.5 UPPWD will engage a Third-Party Quality Auditor to review quality of works and supervision services. AE is to provide all required information/records and participate with Auditors during site visits/ discussions/tests. AE will be responsible for ensuring observations of Auditors are addressed.
- 7.6 The Authority Engineer will submit reports and other details to the existing PMC as and when required by them.
- 7.7 Before demobilizing completely from the site and after completion of construction and maintenance activities, the Authority Engineer shall impart training to the PWD staff regarding maintenance of the project roads which shall be supervised by them thereupon. All pertinent documents must also be shared by the Authority Engineer to the PWD staff.

## **8. CONSULTANT'S PROPOSAL**

- 8.1 The input of Key/non-key Professional staff for Phase II to be fielded by the Consultants shall be as below
- 8.2 To achieve the objectives of consultant services under this Terms of Reference and in accordance with the scope of works as stated, the requirements of key and sub-key professional staff and anticipated person-months has been estimated in the table below.
- 8.3 While some anticipated responsibilities are also included below for some key staff positions, these lists are not all-inclusive and it is the responsibility of the consultant to effectively manage its team to ensure that all items required in the scope for each task are completed.

<b>SI No</b>	<b>Key personnel</b>	<b>No</b>
<b>Key Professional</b>		
1	Team Leader Cum Senior Highway Engineer	1
2	Resident cum Highway Engineer	5
3	Contract Administration Specialist	1
4	Sr Quantity Surveyor	1
5	Bridge/Structure Engineer	1
6	Sr Quality cum Material Expert	1
7	Environment Specialist	1
8	Social Development Specialist	1
<b>Sub-Key Professional</b>		
1	Quantity Surveyor	5
2	Survey Engineer	5
3	Asst. Highway Engineer	10
4	Lab Technician	5
5	Asst. Bridge Engineer	5

- 8.4 Required staffs and amenities should be procured by the consultant as per their requirement and should be incorporated while quoting of rates. The consultant may propose alternative staffing arrangements and person months in their technical proposal provided that the quality of tasks performed is not compromised and provided that all the reporting obligations are covered.
- 8.5 The consultant may propose additional non-key staff as appropriate and reasonable to complete the work. All key and non-key staff should be included in the fee proposal for each task.

## **9. PERIOD OF SERVICES**

- 9.1 The services of an Authority Engineer will be in phases as per Contract Agreement. The period of construction of contracts is varying from 18-24 months followed by 5 years post- construction DLP/maintenance. The procurement of civil contracts will be carried out in a staggered way; therefore, the contract duration of the Authority Engineer will be for 36 months supervision of construction period followed by 2 years supervision of DLP/maintenance. Subsequently, the remaining 3 years of DLP/maintenance will be carried out by UPPWD inhouse.
- 9.2 The appointment of the Authority's Engineer shall initially be as per details given below-

<b>Period of Service (in months)</b>	<b>Construction Period (in months)</b>	<b>Maintenance/DLP Period (in months)</b>
Construction Period + DLP period as per Civil Contract Agreement	36 months	24 months

## **10. FACILITIES TO BE PROVIDED BY THE CONSULTANT**

The consultant shall be required to provide office accommodation, equipment, IT facilities, transportation and whatever else is required to complete the services, and associated costs should be clearly identified in the cost proposal. Provision will be made in their office for visiting staff from the UP PWD Project Management Unit, including a meeting room with all facilities for 20 participants.

### **ATTACHMENTS**

- i. Qualification and experience of key personnel- **Enclosure A**

**Enclosure A****QUALIFICATION AND EXPERIENCE OF KEY PERSONNEL**

While some anticipated responsibilities are also included below for some key staff positions, these lists are not all-inclusive and it is the responsibility of the consultant to effectively manage its team to ensure that all items required in the scope for each task are completed.

**1. TEAM LEADER CUM SENIOR HIGHWAY ENGINEER (Full Time)****(1) Essential Qualifications.**

- a) Bachelors degree in civil engineering from accredited university.
- b) Minimum professional experience of 20 years with civil works project preparation and/or contract supervision.
- c) At least 5 years' experience with highway civil works contract supervision.
- d) At least 3 years' experience as Team Leader/Resident Engineer/Project Manager or similar capacity for other relevant highway projects.
- e) He should have handled as Team Leader/Resident Engineer/Project Manager or similar capacity of at least two projects in Construction Supervision of Highways.
- f) At least one-year experience as team leader or similar capacity for project preparation and/or supervision for two-laning project.
- g) At least one-year experience as team leader or similar capacity for project preparation and/or supervision for four-laning project.
- h) Not more than 65 years of age.

**(2) Preferential Qualifications.**

- (a) Post Graduate Degree in Construction Management/Highway Engineering.
- (b) Supervised Highway Construction projects with flexible pavements.  
**Note:** (1) Similar Capacity includes the following positions-
  - i. *On behalf of Consultant:* Team Leader / Resident Engineer (Construction Supervision/IE/AE).
  - ii. *On behalf of Contractor:* Project Manager (Construction/ Construction Supervision)
  - iii. *In Government Organizations:* Superintending Engineer (or equivalent) and above

## **2. RESIDENT ENGINEER CUM PAVEMENT SPECIALIST+ROAD SAFETY EXPERT (Full Time)**

He should have the following qualification / experience.

### **(1) Essential Qualifications: -**

- a) Bachelors degree in civil engineering from accredited university.
- b) Professional Experience of 12 years in supervision of Highway Projects.
- c) At least 8 years' experience as Resident Engineer/Assistant Resident Engineer/Project Director/Project Manager/Superintending Engineer or equivalent/Executive Engineer or equivalent on similar construction work/Independent Engineering project.
- d) Construction supervision experience for at least 2 highway projects with minimum lengths of 20 km each.
- e) Not more than 65 years of age

### **(2) Preferential Qualifications: -**

- (a) Post Graduate Degree in Transportation/Pavement Engineering.

## **3. CONTRACT ADMINISTRATION SPECIALIST**

He should have the following qualification / experience.

### **(1) Essential Qualifications.-**

- (a) Bachelors degree in business management, contract law, or other relevant field from an accredited university.
- (b) Professional experience of 15 years in contract management.
- (c) Experience of at least 4 years as Contract Specialist on any National/State Highway project.
- (d) At least 5 years experience in contract management of a large highway contract, minimum Rs.150 crore. Experience of reviewing and disposing contractor claims and variation orders.
- (e) Experience with arbitration cases for highway projects.
- (f) Not more than 65 years of age.

### **(2) Preferential Qualifications.**

- (a) Degree in Law/PG in management/certificate course in management/ certificate course in construction management/certificate course in contract management.

## **4. SENIOR QUANTITY SURVEYOR**

He should have the following qualification / experience.

**(1) Essential Qualifications: -**

- (a) Bachelor's degree in civil engineering from an accredited university.
- (b) Total Professional Experience of 15 years in handling Highway Contracts.
- (c) At least 10 years' experience as Quantity Surveyor in Highway project.
- (d) He should have handled as Quantity Surveyor in at least two projects in Construction Supervision of Two/four laning Highways.
- (a) Not more than 65 years of age.

**(2) Preferential Qualifications:-**

- (a) Post Graduate Degree in Construction Management/Engineering/ certificate course in management/ certificate course in construction management/ certificate course in contract management.

**5. BRIDGE / STRUCTURAL ENGINEER**

He should have the following qualification / experience.

**(1) Essential Qualifications: -**

- (b) Bachelors degree in civil engineering from an accredited university.
- (c) Professional Experience of 15 years.
- (d) 10 years' experience in Construction / Construction Supervision of bridge / interchange / any other structures.
- (e) Must be familiar with modern methods of construction of bridges/ROB/flyover involving RCC/pre-stress concrete, design standards, technical specifications and statistical Quality Control/Assurance procedures for construction of different component of bridges.
- (f) Experience in similar capacity in supervision of 2 Major Highway Bridges on Pile/Well foundation.
- (g) Experience in supervision of Rehabilitation and repair of 2 nos Bridges.
- (h) Not more than 65 years of age.

**(2) Preferential Qualifications-**

- (a) Post Graduate Degree in Structural Engineering.
- (b) Experience as a Bridge Engineer abroad.

**6. SR MATERIAL CUM QUALITY CONTROL ENGINEER**

He should have the following qualification / experience.

**(1) Essential Qualifications-**

- (a) Bachelors degree in civil engineering from an accredited university.
- (b) Professional experience of 12 years in construction of highways.
- (c) Experience of 5 years in similar capacity in Construction / Construction Supervision of

Highway projects.

- (d) Experience as Material / Geotechnical Engineer in Construction/Construction Supervision of at least two Highway projects.
- (e) Must be familiar with material property of road construction material, technical specifications and procedures of material tests and testing equipment.
- (f) Not more than 65 years of age.

**(2) Preferential Qualifications.**

- (a) Post Graduate Degree in Geo-Technical Engineering/Soil Mechanics and Foundation Engineering.
- (b) Abroad experience as Material Engineer in Highway Construction projects.

**7. ENVIRONMENTAL SPECIALIST-**

**(1) Educational qualifications**

Minimum- Master's Degree or equivalent in Environment Sciences or related field.

**(2) General experience**

Minimum- Total work experience after post-graduation 15 years.

**(3) Relevant experience**

Minimum- 7 years of total work experience on carrying out environment impact assessment of rural development projects supervising implementation of Environmental Management Plans in linear projects.

Desirable- Environmental expert in at least two World Bank funded projects.

**(4) Essential *knowledge and experience***

- (a) The candidate must have knowledge of World Bank's guidelines, procedures and operational policies/directives.
- (b) Candidates should be conversant with all the activities expected to be undertaken for environmental/forest/wildlife clearances procedures and pertinent guidelines of Ministry of Environment and Forest (MoEF), Government of India.
- (c) The candidate must have the experience of preparing environmental management plans and supervising and monitoring implementation of the plans.

**8. SOCIAL DEVELOPMENT SPECIALIST**

**(1) Educational *qualifications***

Minimum- Master's degree or equivalent in social sciences or related field.

**(2) General *experience***

Minimum- total work experience after post-graduation 15 years

**(3) Relevant *experience***

- (a) Minimum- 5 years of total work experience in ICT project leadership role.
- (b) Desirable- Social/resettlement expert in at least two World Bank funded projects.

**(4) Essential *knowledge and experience***

- (a) The candidate must have knowledge of the World Bank's guidelines, procedure and operational policies/directives.
- (b) Experience in preparation of RAP, gender plan, community consultations and IP DP is required.
- (c) Familiarity with the project area and local language will be advantages.