

## **15. SECTION 3: SCOPE OF WORK**

### **15.1 SCOPE OF WORK AND GENERAL RESPONSIBILITIES**

#### **Background**

The NKTVETC's objectives are to appoint appointment of consortium Engineering Professionals to provide ad-hoc Built Environment Professional Services for NKTVETC, over a period of five (5) years. All proposed key personnel should meet the requirements as set out in the Tender Document. Consortium must tender for all engineering disciplines. Supporting documentation **MUST** be included for each engineering discipline, failing which such bidders may be considered non-responsive.

- a) Project Management.
- b) Architectural Services.
- c) Mechanical Engineering.
- d) Electrical Engineering.
- e) Civil and Structural Engineering.
- f) Quantity Surveying.
- g) Occupational Health & Safety service

Work allocation will be on an ad-hoc basis and be rotated among the Consortium members based on capacity, capability and experience. NKTVETC does not guarantee that all/any of the Consortium will be allocated work within the **period of five (5) years**, as work allocation is dependent on NKTVETC's strategic planning and funding allocations.

### **15.2 EXTENT OF ENGINEERING SERVICES**

#### **15.2.1 PERSONNEL REGISTERED WITH RELEVANT PROFESSIONAL BODIES IN TERMS OF THE ENGINEERING COUNCIL OF SOUTH AFRICA - ACT 46 OF 2000**

**Engineering Services:** The Tenderer shall be capable of providing Engineering Services in terms of the Engineering Council of South Africa (ECSA). The Engineer shall be required to perform normal services. The envisaged projects will be for building/structural and civil works (water, sewer and roads) projects and any additional services as required.

#### **15.2.2 PERSONNEL REGISTERED IN TERMS OF THE SOUTH AFRICAN COUNCIL PROJECT AND CONSTRUCTION MANAGEMENT PROFESSIONALS - ACT 48 OF 2000:**

**Professional Project Management Services:** The Tenderer's Project leader must be registered as and capable of providing Project Management Services in terms of South African Council for the Project and Construction Management Professions (SACPCMP). The Project Manager shall be required to perform normal services and any additional services as required.

The Construction Project Manager shall be responsible for the co-ordination of the Professional Team and the Construction Activities. The Project Manager shall also act as the clients' agent (Principal Agent / Engineer/ Project Manager) in any contract agreement between NKTVETC and a Contractor. The Project Manager shall also be responsible for co-ordinating all inputs from other parties, College or other that has an impact on the project. The Project Manager shall be registered with a relevant construction body. The Project Manager shall not fulfil any other role on the project.

**Task Orders:** NKTVETC shall issue a Project specific Task Order for each project where the Tenderer has been selected to provide a service. The scope of the service shall be confirmed upon issuing of the task order. NKTVETC reserves the right to issue a project task order for partial services or for a particular task on a project and not necessarily for the entire scope of services.

The task order shall also confirm the fee for the specific task based on the tenderers pricing offer. NKTVETC reserves the right to negotiate the data used as input into the calculation of the fee prior to applying the tendered discount.

### 15.3 OTHER PROVISIONS

#### 15.3.1 PROJECT DELIVERABLES

The following deliverables will be expected from successful tenderer/s:

- Inception
- Concept and Viability / Preliminary Design, including all legislative authorizations, plan approvals and statutory compliance.
- Design Development / Detail Design
  - This includes the preparation of working and the approval of building plans with the relevant government bodies
  - A detailed design report, cost estimates and program with all relevant attachments in soft bound hard copy and electronic format (CD). This will include electronic .dwg files of all design layouts and drawing registers.
- Documentation and Procurement – Preparation of Scope of Works Information, Specifications, BOQs and Tender Evaluation Reports etc. for approval by the client. All procurement to be as per College's procurement policies.
- Contract Administration and Inspection – On site construction management including Risk Management, Quality Assurance and Health & Safety Management etc.
- Project close-out including:
  - Preparation of project close out reports with all relevant information such as guarantees, manuals, approved plans; GIS shape files, as built drawings, completion certificates, occupation certificates etc.
  - Project life cycle (stage 1 - -6)

***[NOTE: This list is not exhaustive, it is the successful PSP's responsibility to ensure that all quality and compliance aspects of the project are met and the list in no way minimises their ethical responsibility as outlined in the respective Built Environment governing body's ethics code]***

## **15.4 PROCUREMENT AND FUNCTION OF CONSORTIUM**

All procurement shall comply with College's procurement policies, which can be viewed on NKTVETC's website.

### **15.4.1 QUARTERLY FEEDBACK SESSIONS**

NKTVETC will hold quarterly feedback sessions with the appointed Consortium of Consultants. The feedback sessions will act as a Consortium of experts' discussion with NKTVETC.

This platform will be used by NKTVETC to seek advice from the Consortium on various issues ranging from the mechanism of managing the Consortium to how NKTVETC can improve on its infrastructure delivery commitments. The attendance at feedback sessions for all consultants on the Consortium is compulsory.

### **15.4.2 APPOINTMENT OF CONSULTANTS OUTSIDE OF THE CONSORTIUM**

NKTVETC reserves the right to procure consultants from outside the Consortium of consultants, in accordance with its procurement procedures.

## 15.5 STANDARD NORMAL ENGINEERING SERVICES

Stages typically included as Normal Services during the execution of a Project.

<b>STAGE 1. Inception</b>	
Establish client requirements and preferences, assess user needs and options, appointment of necessary consultants, establish the project brief including project objectives, priorities, constraints, assumptions aspirations and strategies	
Typical activities	Typical deliverables
<ul style="list-style-type: none"> <li>(i) Assist in developing a clear project brief</li> <li>(ii) Attend project initiation meetings</li> <li>(iii) Advise on procurement policy for the project</li> <li>(iv) Advise on the rights, constraints, consents and approvals</li> <li>(v) Define the scope of services and scope of work required</li> <li>(vi) Conclude the terms of the agreement with the client.</li> <li>(vii) Inspect the site and advise on the necessary surveys, analyses, tests and site or other investigations where such information will be required for Stage 2 including the availability and location of infrastructure and services</li> <li>(viii) Determine the availability of data, drawings and plans relating to the project</li> <li>(ix) Advise on criteria that could influence the project life cycle cost significantly (financial design criteria)</li> <li>(x) Provide necessary information within the agreed scope of the project to other consultants involved</li> </ul>	<ul style="list-style-type: none"> <li>• Agreed scope of services and scope of work</li> <li>• Signed agreement</li> <li>• Report on project, site and functional requirements</li> <li>• Schedule of required surveys, tests, analyses, site and other investigations</li> <li>• Schedule of consents and approvals</li> </ul>

**STAGE 2. Concept and Viability / Preliminary Design**

Prepare and finalise the project concept in accordance with the brief, including project scope, scale, character, form and function, plus preliminary programme and viability of the project)

Typical activities	Typical deliverables
<p>(i) Agree documentation programme with principal consultant and other consultants involved</p> <p>(ii) Attend design and consultants' meeting</p> <p>(iii) Establish the concept design criteria</p> <p>(iv) Prepare initial concept design and related documentation</p> <p>(v) Advise the client regarding further surveys, analyses, tests and investigations which may be required Establish regulatory authorities' requirements and incorporate into the design</p> <p>(vi) Refine and assess the concept design to ensure conformance with all regulatory requirements and consents</p> <p>(vii) Establish access, utilities, services and connections required for the design</p> <p>(viii) Coordinate design interfaces with other consultants involved</p> <p>(ix) Prepare process designs (where required), preliminary designs, and related documentation for approval by authorities and client and suitable for costing</p> <p>(x) Provide cost estimates and life cycle costs as required</p> <p>(xi) Liaise, co-operate and provide necessary information to the client, principal consultant and other consultants involved</p>	<ul style="list-style-type: none"><li>• Concept design</li><li>• Schedule of required surveys, tests and other investigations and related reports</li><li>• Schedule of required surveys, tests and other investigations and related reports</li><li>• Process design</li><li>• Preliminary design</li><li>• Cost estimates as required</li></ul>

**STAGE 3. Design Development / Detail Design**

Develop the approved concept to finalise the design, outline specifications, cost plan, financial viability and programme for the project)

Typical activities	Typical deliverables
<p>(i) Review documentation programme with principal consultant and other consultants involved</p> <p>(ii) Attend design and consultants' meetings</p> <p>(iii) Incorporate client's and authorities' detailed requirements into the design</p> <p>(iv) Incorporate other consultant's designs and requirements into the design</p> <p>(v) Prepare design development drawings including draft technical details and specifications</p> <p>(vi) Review and evaluate design and outline specification and exercise cost control</p> <p>(vii) Prepare detailed estimates of construction cost</p> <p>(viii) Liaise, co-operate and provide necessary information to the principal consultant and other consultants involved.</p> <p>(ix) Submit the necessary design documentation to local and other authorities for approval</p>	<ul style="list-style-type: none"><li>• Design development drawings</li><li>• Outline specifications</li><li>• Local and other authority submission drawings and reports</li><li>• Detailed estimates of construction costs</li></ul>

**STAGE 4. Documentation and Procurement**

Prepare procurement and construction documentation, confirm and implement the procurement strategies and procedures for effective and timeous procurement of necessary resources for execution of the project.

Typical activities	Typical deliverables
<ul style="list-style-type: none"> <li>(i) Attend design and consultants' meetings</li> <li>(ii) Prepare specifications and preambles for the works</li> <li>(iii) Accommodate services design</li> <li>(iv) Check cost estimates and adjust designs and documents if necessary to remain within budget</li> <li>(v) Formulate the procurement strategy for contractors or assist the principal consultant where relevant</li> <li>(vi) Prepare documentation for contractor procurement</li> <li>(vii) Review designs, drawings and schedules for compliance with approved budget</li> <li>(viii) Assist in calling for tenders and/or negotiation of prices and/or assist the principal consultant where relevant</li> <li>(ix) Liaise, co-operate and provide necessary information to the principal consultant and the other consultants as required</li> <li>(x) Assist in the evaluation of tenders</li> <li>(xi) Assist with the preparation of contract documentation for signature</li> <li>(xii) Assess samples and products for compliance and design intent</li> </ul>	<ul style="list-style-type: none"> <li>• Specifications</li> <li>• Services co-ordination</li> <li>• Working drawings</li> <li>• Budget construction cost</li> <li>• Tender documentation</li> <li>• Tender evaluation report</li> <li>• Tender recommendations</li> <li>• Priced contract documentation</li> </ul>

**STAGE 5. Contract Administration and Inspection**

Manage, administer and monitor the construction contracts and processes including preparation and coordination of procedures and documentation to facilitate practical completion of the works

Typical activities	Typical deliverables
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- (i) Attend site handover
- (ii) Issue construction documentation in accordance with the documentation schedule including, in the case of structural engineering, reinforcing bending schedules and detailing and specifications of structural steel sections and connections
- (iii) Carry out contract administration procedures in terms of the contract
- (iv) Prepare schedules of predicted cash flow
- (v) Prepare pro-active estimates of proposed variations for client decision making
- (vi) Attend regular site, technical and progress meetings
- (vii) Inspect works for conformity to contract documentation
- (viii) Adjudicate and resolve financial claims by contractor(s)
- (ix) Assist in the resolution of contractual claims by the contractor
- (x) Establish and maintain a financial control system.
- (xi) Clarify details and descriptions during construction as required
- (xii) Prepare valuations for payment certificates to be issued by the principal agent
- (xiii) Witness and review of all tests and mock ups carried out both on and off site
- (xiv) Witness and review of all tests and mock ups carried out both on and off site
- (xv) Check and approve contractor drawings for design intent
- (xvi) Update and issue drawings register.
- (xvii) Issue contract instructions as and when required
- (xviii) Review and comment on operation and maintenance manuals, guarantee certificates and warranties
- (xix) Inspect the works and issue practical completion and defects lists
- (xx) Assist in obtaining statutory certificates

- Schedules of predicted cash flow
- Construction documentation
- Drawing register
- Estimates for proposed variations
- Contract instructions
- Financial control reports
- Valuations for payment certificates
- Progressive and draft final account(s)
- Practical completion and defects list
- Electrical Certificate of Compliance
- Where a quantity surveyor is included in the project team in building works, activities (iv), (v), (viii), (x) and (xii) and related deliverables will not be required from the engineer.

<b>STAGE 6. Close-Out</b>	
Fulfil and complete the project close-out including necessary documentation to facilitate effective completion, handover and operation of the project)	
Typical activities	Typical deliverables
(i) Inspect and verify the rectification of defects (ii) Receive, comment and approve relevant payment valuations and completion certificates (iii) Prepare and/ or procure operations and maintenance manuals, guarantees and warranties (iv) Prepare and/ or procure as-built drawings and documentation (v) Conclude the final accounts where relevant.	<ul style="list-style-type: none"> <li>• Valuations for payment certificates</li> <li>• Works and final completion lists</li> <li>• Operations and maintenance manuals, guarantees and warranties</li> <li>• Operations and maintenance manuals, guarantees and warranties</li> <li>• As-built drawings and documentation</li> <li>• Final accounts</li> </ul>

**16. SPECIALIST CONSULTANTS**

**16.1 TOPOGRAPHIC SURVEY**

The detailed topographic survey for the proposed project sites was undertaken, and the survey data will be made available to tenderers upon request.

**16.1.1 GEOTECHNICAL REPORT**

The detailed geotechnical investigation for the proposed project sites was undertaken, and the Geotechnical Report will be made available to tenderers upon request.

### 16.1.2 QUALIFICATIONS AND PROFESSIONAL FEES

All bidders MUST submit all qualification and CVs for all professional listed hereunder:

Professional Provided	Qualifications	Submit Certified Copies of Qualifications (Not older than 6 months) Mandatory
Principal Agent /Project Manager	(Pr CPM - SACPCMP or Built Environment)	
Architects	(Pr Arch/ Snr Pr Arch Technologist/ Pr Arch Technologist)	
Quantity Surveyor	(Pr QS)	
Civil & Structural Engineer	(Pr Eng/ Pr Tech)	
Mechanical Engineers	(Pr Eng/ Pr Tech)	
Electrical & Electronics Engineer	(Pr Eng/ Pr Tech)	
Professional Occupational Health & Safety Agent	(Pr CHSA)	

### 17. PROJECT-BASED FEE STRUCTURE

The Professional Fees will Project-Based and fixed, bidders must indicate their percentage for their fees hereunder:

Item	Description	Project-Based Fixed %
1	Principal Agent Professional Fees	%

#### 17.1 DISBURSEMENT: ALL DISCIPLINES

Bidders are expected to quote in full, even if third parties provide this service.

Item	Claim	Unit of Measurement	Price Per Unit Including VAT
1	Travel – SARS rates (will be paid ONLY within Mpumalanga province )	Rand per km/ R4.84	R
2	A1 computer original plots (other size plots part thereof)	Per copy	R
3	A1 prints monochrome	Per copy	R
4	A3 prints monochrome	Per copy	R
5	A3 prints colour	Per copy	R
6	A4 prints monochrome	Per copy	R
7	A4 prints colour	Per copy	R
8	A0 paper	Per copy	R
9	Accommodation & meals	N/A	

**NB: Bidders are expected to quote in full, even if third parties provide this service.**

### 7.3 Professional Fees (%) for Engineers under the PA

Engineering Professionals	Percentage (%) Fees (Excl. VAT)
Architects	%
Quantity Surveyor	%
Civil & Structural Engineer	%
Mechanical Engineers	%
Electrical & Electronics Engineer	%
Professional Occupational Health & Safety Agent	%