

	<b>Tender Evaluation</b>	<b>Engineering</b>
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Title: **Technical Evaluation Strategy for Appointment of Consultant to Perform the Detailed Inspection and Structural Condition Assessment of Chimneys at Tutuka Power Station**

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## **1. INTRODUCTION**

This document outlines the technical requirements as per the scope of work on the NEC3 Professional Services Document needed to place the *Consultant* professional engineering services for a specialist reinforced concrete structural engineer registered (Pr. Eng/Pr. Tech ECSA registered) for chimneys at Tutuka Power Station.

The *Works* comprises of the detailed inspections, investigations and structural condition assessment, tests, 3D laser scan survey, life expectancy analysis and repair recommendations including drawings and reports for two wind shield structures, six brick flue ducts and associated structural elements at Tutuka Power Station.

## **2. SUPPORTING CLAUSES**

### **2.1 SCOPE**

The Consultant executes the scope in accordance with the ***Scope of Work for Tutuka Flue Stack Structural Inspections (15ENG GEN 700)*** issued by the Client.

The *Consultant* must perform the detailed inspections and full structural assessment as well as providing repair scope of work for two windshield structures and six brick flue ducts at Tutuka Power Station. The chimney structural elements in its entirety shall be inspected, investigated in detail and subjected to full detailed structural assessments. The chimney structural elements include but not limited to:

- Concrete windshield internal and external
- Brick flues or lining internal and external
- Bearing pads
- Concrete support slabs
- Lightning protection and other fixtures at the chimney top
- Waterproofing at the top slab
- Chimney lift structure
- Steel staircase
- Thermal insulation
- Flue insulation

During the detailed inspections and structural assessment, the *Consultant* is expected to perform the following tests: -

- a) Readings of surface hardness;
- b) Depth of carbonation, tested at critical/ key points (Key points to be documented in method statement);
- c) Concrete strength by taking core samples;
- d) Concrete cover, tested at critical/ key points;
- e) Brick and mortar testing
- f) Potential half-cell method for corrosion testing;
- g) Sulphate/ Nitrate/Chloride attack;
- h) Environmental factors, as detailed below;

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- Analysis of concrete samples (chemical analysis);
- i) Life expectancy under normal and abnormal conditions (e.g.: extreme chemical attack, major cracks, loss of concrete cover); and
- j) 3D laser scan survey and model to measure the deformations, possible settlement, and loading patterns of the as-built shell structures and report on the deformations found. Excessive deformations will be highlighted for further investigation.

### **2.1.1 Purpose**

The purpose of this tender technical evaluation strategy is to define the Mandatory Evaluation Criteria, Qualitative Evaluation Criteria to evaluate all tender returnables by Technical Evaluation Tender (TET) members in response to the Enquiry.

### **2.1.2 Applicability**

This document will apply to all appointed and involved in the technical tender evaluation of tenders received from the Service Provider(s) in response to detailed inspection and structural condition assessment of chimneys at Tutuka Power Station.

## **2.2 NORMATIVE/INFORMATIVE REFERENCES**

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

### **2.2.1 Normative**

- [1] 15ENG GEN 700 Scope of Work for Tutuka Flue Stack Structural Inspections
- [2] 240-48929482 Tender Technical Evaluation Procedure;
- [3] 240-48929482 Tender Technical Evaluation Procedure;
- [4] 240-53716712 Technical Evaluation Results;
- [5] 240-53716726 Technical Scoring Form;
- [6] 32-1034 Eskom Procurement Policy;
- [7] National Treasury Instruction 4 of 2015/2016 - Standard for Infrastructure Procurement and Deliver:

### **2.2.2 Informative**

- [8] 240-144332407 Guideline for Eskom Power Stations Concrete Remedial Work
- [9] 240-56364545 Structural Design and Engineering Standard
- [10] MNT QIP F 194: Tutuka Power Station Quality Control Plan
- [11] 240-9952737 Inspection Manual for Civil Works at Eskom's Power Stations
- [12] 360-TUT-AABB-D00139-83 *Tutuka Power Station, Technical Specification for Remedial Works on Existing Infrastructure*
- [13] 360-TUT-AABB-D00139-83 Tutuka Power Station, Technical Specification for Remedial Works on Existing Infrastructure

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- [14] Occupational Health and Safety Act No. 85 of 1993 Health and Safety requirements: Construction 2014
- [15] TUT-ADDB-D00180-8 Tutuka Power Station, Structures and Buildings Visual Inspection Report  
Tutuka Power Station, Investigations done on Chimney Windshield No 1, Flue No 2 & Gap Measurements on Flue no 1, 2 & 3, 2013

## 2.3 DEFINITIONS

Definition	Description
Chimneys	The structure constitute of the two windshield which is the reinforced concrete structure and six flue duck which comprises brickwork
Consultant	Refers to the corporation/individual appointed to perform the consulting engineering works required for the project.
Employer	Refers to Eskom Holdings State Owned Company

### 2.3.1 Classification

- a. **Controlled Disclosure:** Controlled Disclosure to external parties (either enforced by law, or discretionary).

## 2.4 ABBREVIATIONS

**Table 1: Abbreviations**

Abbreviation	Description
CoE	Centre of Excellence
ECSA	Engineering Council of South Africa
EDWL	Engineering Design Work Lead
ITP	Inspection Test Plan
Pr. Eng	Professional Engineer
Pr. Tech	Professional Technologist
QCP	Quality Control Plan
RFP	Request for proposal
RFQ	Request for Quotation
TET	Technical Evaluation Team

## 2.5 ROLES AND RESPONSIBILITIES

As 240-48929482: Tender Technical Evaluation Procedure

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## 2.6 PROCESS FOR MONITORING

## 2.7 ESKOM PROCUREMENT POLICY [6] AND TENDER COMMITTEERELATED/SUPPORTING DOCUMENTS

As per section 2.2

## 3. TENDER TECHNICAL EVALUATION STRATEGY

The evaluation criteria will be based upon a two-step mandatory and qualitative criteria process as discussed below:

### Mandatory Criteria Evaluation

All TET members as defined in the Tender Technical Evaluation Strategy (and specifically TET member responsibilities) shall independently evaluate each tender in terms of compliance to the defined Mandatory Evaluation Criteria. Each TET member shall provide an individual scoring form on the compliance / non-compliance of all tenderers' responses to the Mandatory Evaluation Criteria. Each TET member shall provide clear justification(s) for each Mandatory Criteria evaluated as non-compliant ('NO'). All individual scoring forms shall be evaluated by the EDWL/System Engineer to check for consistency in scoring of the Mandatory Evaluation Criteria. Should the EDWL/System Engineer find inconsistency in the scoring, an internal clarification meeting shall be conducted with all TET members (who performed the evaluation) in the presence of the Commercial Representative. This meeting shall aim to jointly establish which of the tenderers qualify for the next phase of Qualitative Technical Evaluation. In the case where no tenderer meets all Mandatory Evaluation Criteria this shall be formally escalated to the Commercial Representative who shall guide the subsequent process. All meeting minutes shall be recorded and distributed to the Commercial Representative and included in the Tender Technical Evaluation Report.

### Qualitative Criteria Evaluation

Tenderers that have met all the Mandatory Evaluation Criteria shall be evaluated against the Qualitative Criteria as defined in the Tender Technical Evaluation Strategy. The scoring of qualitative criteria shall be based on the degree of achievement by the tenderer to meet the technical requirements. A score shall be allocated as per **Table 2**, for each technical qualitative criterion. Each TET member shall populate a Tender Technical Evaluation Scoring Form [5] for each tenderer. Note: Individual Qualitative Criteria scores shall only be finalised after all clarification sessions have been concluded. The technical criteria and weighting is broken down as follows:

a) Civil & Structural Engineering: 100%

The evaluation of the tender submission will be based on the tenderer's ability to meet the Engineering requirements.

The scoring method will be as follows

**Table 2: Qualitative Evaluation Criteria Scoring Table**

Score	%	Definition
5	100	<b>COMPLIANT</b> Meet technical requirement(s) AND; No foreseen technical risk(s) in meeting technical requirements.

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4	80	<b>COMPLIANT WITH ASSOCIATED QUALIFICATIONS</b> Meet technical requirement(s) with; Acceptable technical risk(s) AND/OR; Acceptable exceptions AND/OR; Acceptable conditions.
2	40	<b>NON-COMPLIANT</b> Does not meet technical requirement(s) AND/OR; Unacceptable technical risk(s) AND/OR; Unacceptable exceptions AND/OR; Unacceptable conditions.
0	0	<b>TOTALLY DEFICIENT OR NON-RESPONSIVE</b>
Note 1: The scoring table does not allow for scoring of 1 and 3. Note 2: Foreseen acceptable and unacceptable risk(s), exceptions and conditions shall be unambiguously defined in the relevant Tender Technical Evaluation Strategy.		

### 3.1 TECHNICAL EVALUATION THRESHOLD

The minimum weighted final score (threshold) required for a tender to be considered from a technical perspective is 70%.

### 3.2 TET MEMBERS

The technical evaluation team will be composed of a minimum of three members (Civil Engineering) from the table below with at least three being professionally registered.

**Table 3: TET Members**

<b>TET number</b>	<b>TET Member Name</b>	<b>Designation</b>
TET 1	Clarissa Chetty	Civil engineering discipline
TET 2	Doctor Nkosi	Civil engineering discipline

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### 3.3 MANADATORY TECHNICAL EVALUATION CRITERIA

Gatekeepers identified in the tender document will be “must meet” criteria identified in tabular questionnaire form. The *Contractor(s)* tender will be assessed based upon questionnaire seeking **YES** or **NO** response from the *Contractor(s)* with no point scores or weighted averaged assigned to the response.

Response of **NO** against any criteria will be elimination of the *Contractor(s)* tender for further consideration or short listing for detailed technical evaluation. Gatekeepers will be minimum criterion elements with most significant and critical parameters applicable to the successful execution of the RFP. Table 4 lists the mandatory gatekeeper questionnaires identified for the subject RFQ.

**Table 4: Mandatory Technical Evaluation Criteria**

	<b>Mandatory Technical Criteria Description</b>	<b>Reference to Technical Specification / Tender Returnable</b>	<b>Motivation for use of Criteria</b>
1.	Consultant must be equipped/appoint a Pr. Eng./ Pr. Tech registered with ECSA and specializing in structures	Scope of Work [1]  ECSA registration certificate and number of Pr.Eng/Pr.Tech specialising in Structures must be submitted	Relevant expertise to minimize the risk and be compliant with good industry practices



**Qualitative Technical Evaluation Criteria**

**Table 5: Qualitative Technical Evaluation Criteria**

	<b>Qualitative Technical Criteria Description</b>		<b>Reference to Technical Specification / Tender Returnable</b>	<b>Criteria Weighting (%)</b>	<b>Criteria Sub Weighting (%)</b>
<b>1.</b>	<b>Detailed Visual Inspections and Structural Condition Assessment of both Smoke Stacks and associated flues at Tutuka Power Station</b>		<b>Technical returnables document</b>	60%	
	1.1	<p>Has the Consultant submitted detailed method statement proposal demonstrating the Visual Inspections and Structural Condition Assessment of Chimneys at Tutuka Power Station (Indicating Scope to be undertaken, compliance with required detailed inspections, investigations, assessments, tests, life expectancy, and 3D laser scan). This is inclusive to specifying labour, tools, the equipment/machinery applicable to execution of the works</p> <ul style="list-style-type: none"> <li>• Technical proposal details fully how scope will be met and provides comprehensive methodology of approach <b>(5/5 points)</b></li> <li>• Technical proposal does not contain methodology of approach but contains high level descriptions of how detailed inspections will be conducted or Technical proposal reiterates scope of works <b>(2/5 points)</b></li> <li>• No Method statement/ Not satisfactory <b>(0/5 points)</b></li> </ul>	Detailed method statement/technical proposal as per as per Scope of Work [1]		30%
	1.2.	<p>Consultant's number of similar reinforced structures where detailed inspections, investigations, assessments, tests, life expectancy, 3D laser scan were previously performed. List of verifiable references signed off by the clients serviced must be provided.</p> <ul style="list-style-type: none"> <li>• 5 or above relevant detailed visual inspections, structural condition assessment, tests and 3D Survey projects completed <b>(5/5 points)</b></li> <li>• 3 to 4 relevant detailed visual inspections, structural condition assessment, tests and 3D Laser scan projects completed <b>(4/5 points)</b></li> </ul>	Previous work experience and signed references aligning with Scope of Work [1]		20%

		<ul style="list-style-type: none"> <li>2 to 1 relevant detailed visual inspections, structural condition assessment, tests and 3D Laser scan projects completed <b>(2/5 points)</b></li> <li>Not submitted/No Consulting experience/Consulting experience not relevant <b>(0/5 points)</b></li> </ul>			
	1.3	<p>CV of Pr.Eng/Pr.Tech registered with ECSA and specialising in Structures is submitted.</p> <ul style="list-style-type: none"> <li>Above 10 years' relevant Structural Engineering experience + ECSA registered <b>(5/5 points)</b></li> <li>5 to 9 years' relevant Structural Engineering experience + ECSA registered <b>(4/5 points)</b></li> <li>1 to 4 years' relevant Structural Engineering experience + ECSA registered <b>(2/5 points)</b></li> <li>Not submitted/Structural Engineering experience not relevant/Not ECSA registered <b>(0/5 points)</b></li> </ul> <p>The Pr.Eng/Pr.Tech Structural Engineer must submit reference of minimum two similar work experience conducted List of verifiable references clients serviced and similar works conducted must be included in the CV submission.</p>	Compliance to Scope of Work [1]		35%
	1.4	<p>Secondment of one Tutuka Civil Engineer to the designer's office to gain design experience. A letter accepting this criteria and confirmation of available facilities at the Consultants offices must be supplied as a tender returnable. The letter must be signed by the Director of the company.</p> <ul style="list-style-type: none"> <li>Letter submitted and signed by Director of the Company <b>(5/5 points)</b></li> <li>Letter not submitted/Not signed by director <b>(0/5 points)</b></li> </ul>	Compliance to Scope of Work [1]		15%
<b>2.</b>	<b>General</b>		<b>Technical returnables document</b>	40%	
	2.1	Submit schedule baseline programme/plan detailing how the works will be executed.	Schedule/programme as per Scope of Work [1]		35%

		<ul style="list-style-type: none"> <li>Schedule baseline plan/programme detailing activities as well as start and finish dates <b>(5/5 points)</b></li> <li>Schedule baseline plan/program submitted but not complete <b>(2/5 points)</b></li> <li>Schedule baseline plan/program not submitted <b>(0/5 points)</b></li> </ul>			
	2.2.	<p>An organogram for the core crew, in particular the names and qualifications of the Lead/Specialist Structural Engineer and his supporting staff that will be involved with executing the works.</p> <ul style="list-style-type: none"> <li>Organogram submitted showing the names and qualifications of Lead/Specialist Structural Engineer, Senior and/or Junior Engineer/s, Draughtsman or any other personnel that will be involved with the execution of the works <b>(5/5 points)</b></li> <li>Organogram not submitted <b>(0/5 points)</b></li> </ul>	Project organogram as per Scope of Work [1]		35%
	2.3	<p>QCP showing the Consultant's proposed QCP/ITP with Holding, Witness, and Surveillance points for Employer and Consultant. QCP/ITP</p> <ul style="list-style-type: none"> <li>QCP/ ITP submitted <b>(5/5 points)</b></li> <li>QCP/ ITP submitted, but not complete <b>(2/5 points)</b></li> <li>QCP/ ITP <u>NOT</u> submitted <b>(0/5 points)</b></li> </ul>	QCP/ITP as per Scope of Work [1] [10]		30%
				<b>TOTAL: 100</b>	

### 3.4 TET MEMBER RESPONSIBILITIES

**Table 6: TET Member Responsibilities**

Mandatory Criteria Number	TET 1	TET 2
1	X	X
Qualitative Criteria Number	TET 1	TET 2
1.1	X	X
1.2	X	X
1.3	X	X
1.4	X	X
2.1	X	X
2.2	X	X
2.3	X	X

### 3.5 FORESEEN ACCEPTABLE / UNACCEPTABLE QUALIFICATIONS

#### 3.5.1 Risks

**Table 7: Acceptable Technical Risks**

Risk	Description
1.	None

**Table 8: Unacceptable Technical Risks**

Risk	Description
1.	Lead or Structural Specialist Engineer not registered with ECSA as Pr.Eng/Tech
2.	Consultant's inability to execute the required works as per scope of work issued [1]
3.	Using equipment that has no/expired calibration certificates
4.	Coring or altering a structure by any means whatsoever without the Employer's approval
5.	Failing to execute the works within the specified duration

#### 3.5.2 Exceptions / Conditions

**Table 9: Acceptable Technical Exceptions / Conditions**

Risk	Description
1.	None

**Table 10: Unacceptable Technical Exceptions / Conditions**

Risk	Description
1.	Consultant's inability to execute the required works as per scope of work issued [1]

#### 4. AUTHORISATION

This document has been seen and accepted by:

Name	Designation
Clarissa Chetty	Tutuka Civil Engineer
Sipho Thango	Tutuka Senior Civil Engineer
Nompumelelo Dlamini	Tutuka Civil Engineering Manager
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#### 5. REVISIONS

Date	Rev.	Compiler	Remarks
July 2019	0.1	Koos Radebe	First draft for comments
July 2019	1.0	Koos Radebe	Final Document
July 2020	2.0	Kyle Enslin	<ul style="list-style-type: none"><li>Standards added.</li><li>Changes to qualitative criteria</li></ul>
August 2021	3.0	Andile James	<ul style="list-style-type: none"><li>Reviewed final document inclusive of recommended changes</li></ul>

#### 6. DEVELOPMENT TEAM

The following people were involved in the development of this document:

Name	Designation
Koos Radebe	Civil Plant Engineer
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#### 7. ACKNOWLEDGEMENTS

N/A

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