



## Tender

**EXTENSIONS TO YANFENG MANUFACTURING FACILITY  
IN ZONE 1A OF THE ELIDZ**

**AT THE**

**EAST LONDON INDUSTRIAL DEVELOPMENT ZONE**

**CONTRACT NO: ASP/YANFENG/EXT/11/09/Z1A**

**EXTENSIONS TO YANFENG MANUFACTURING  
FACILITY IN ZONE 1A OF THE ELIDZ**

**ENVELOPE A: TECHNICAL PROPOSAL**

**VOLUME 1 OF 2**

East London IDZ  
Contact Person: A Mgwaza  
Fax No: 086 605 0942  
Email: anathi@elidz.co.za

Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

## **PART T1: TENDERING PROCEDURES**

**CONTRACT NO: ASP/YANFENG/EXT/11/09/Z1A**

**EXTENSIONS TO YANFENG MANUFACTURING  
FACILITY IN ZONE 1A OF THE ELIDZ**

## **T1.1: TENDER NOTICE AND INVITATION TO TENDER**



## T.1.1.1: TENDER NOTICE AND INVITATION TO TENDER

### **INVITATION: FOR THE EXTENSIONS TO YANFENG MANUFACTURING FACILITY IN ZONE 1A OF THE EAST LONDON INDUSTRIAL DEVELOPMENT ZONE**

The East London Industrial Development Zone SOC Ltd is the operator of the East London Industrial Development Zone (ELIDZ), an entity which exists to help manufacturers to become globally competitive through the development and efficient management of a modern, purpose built industrial location, which offers investing industries a streamlined business environment enhanced by a range of supporting services. The zone is already operational and currently houses a number of manufacturers that supply products for the local and international markets.

#### **SCOPE OF WORK**

Tenders are hereby invited by the East London Industrial Development Zone SOC Ltd from suitably qualified and experienced Building Contractors to undertake the Extensions to the Yanfeng Manufacturing Facility in Zone 1A of the East London Industrial Development Zone, located at our facilities within the West Bank area of the Buffalo City Metropolitan Municipality.

The successful tenderer will be required to enter into a Contract to undertake the construction.

<b>Tender Reference No.</b>	<b>Tender Description / Name</b>	<b>Closing Date / Time</b>
<b>ASP/YANFENG/EXT/11/09/Z1A</b>	<b>Extensions to Yanfeng Manufacturing Facility in Zone 1A of the ELIDZ</b>	<b>04 September 2020 at 12h00</b>

The scope of the works includes the extension to Yanfeng manufacturing facility comprising of the following:

New mezzanine platform	1620 m <sup>2</sup>
New foaming cell enclosure	589 m <sup>2</sup>
Existing despatch area to be converted to a receiving area	268 m <sup>2</sup>
Upgrade to an existing export CUN despatch area	66 m <sup>2</sup>
New Roller-shutter door into tugger route	1

#### **BRIEFING MEETING (VIRTUAL):**

It is **compulsory** for interested contractors to **register** with the ELIDZ as a **potential tenderer**.

Such registration as a potential tenderer must be effected by sending an email to Anathi Mgwaza at the ELIDZ, confirming your interest in tendering. Your email is to be received by no later than **19 August 2020 at 09h00**.

Please make use of the following e-mail address for such registration:  
[anathi@elidz.co.za](mailto:anathi@elidz.co.za)

Interested contractors who have **not** registered by the due date and time will **not** be entitled to submit a tender.

A Zoom meeting request (with link) will be emailed to all registered potential tenderers by no later than **19 August 2020 at 10h00**.

A virtual **Tender Clarification Meeting** with representatives of the Employer will take place with the **registered potential tenderers** on the Zoom platform on **19 August 2020 starting at 11h00**.

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

## BID CONDITIONS:

- ❑ Tenderers are required to submit a Valid SARS Tax Clearance Certificate with their tender or SARS PIN number.
- ❑ Tenderers should submit a Valid original or certified B-BBEE certification. Companies with annual turnover less than R10 million to submit an accountant or SARS letter confirming turnover or DTI Affidavit
- ❑ Tenderers to provide a certified copy of Company Registration Certificate.
- ❑ The tenderer or any of its directors is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector.
- ❑ The Tenderer is not insolvent, in receivership, under Business Rescue as provided for in chapter 6 of the Companies Act, 2008, bankrupt or being wound up, has his affairs administered by a court or a judicial officer, has suspended his business activities, or is subject to legal proceedings in respect of any of the foregoing.
- ❑ The tenderer has a bank rating equal to and or better than a C. (Note letter from Bank to exclude tendered amount).
- ❑ The Tenderer has not abused the Employer's Supply Chain Management System.
- ❑ The Tenderer has not failed to perform on any previous contract and has been given a written notice to this effect.
- ❑ The Tenderer complies with the legal requirements, stated in the Tender Data.
- ❑ Tenderers to provide Letter of Good Standing from Compensation Commissioner.
- ❑ Tenderers must submit technical and financial proposals in two separate envelopes clearly marked "Envelope A -Technical Proposal" and "Envelope B – Financial Proposal". The financial proposal will only be opened should the technical proposal be deemed responsive.
- ❑ Non-signed "Form of Offer" the financial proposal in "Envelope B" submission will result in the disqualification of the Tenderer.
- ❑ Inclusion of Price Offer and / or any other price related details in "Envelope A -Technical Proposal" will result in the disqualification of the Tenderer.
- ❑ The successful Tenderer will be required to have sufficient and competent staff available to commence full time operations in accordance with the contract with effect from the Commencement Date, failing which the contract will be awarded to the next most preferred Tender.
- ❑ Registration with the CIDB in the category **7 GB** is compulsory for companies wishing to submit tenders
- ❑ All returnable documents and schedules as listed in T2.1 of Volume 2 of 2: List of Returnable Documents.
- ❑ A registered operational office within the Buffalo City Metropolitan Municipality boundaries and the Eastern Cape Province will be given preference.
- ❑ Proof of registration on CSD – MAAA number.
- ❑ Submit signed declaration of 100% Local content and production, for Steel and Steel components.
- ❑ The successful tenderer must **sub-contract a minimum of 30%** of the value of the contract to designated SMME from within the BCMM area. SMME profile must meet **51% Black ownership**. Database for selection provided by ELIDZ.
- ❑ Submit signed declaration to **sub-contract a minimum of 30%** of the value of the contract to designated SMME from within the BCMM area. SMME profile must meet **51% Black ownership**.
- ❑ ELIDZ encourages contractors to joint venture between registered contractors or to those tenderers that particularly have lower contractor grading designations and are registered as potentially emerging contractors.

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

- It is an objective of the ELIDZ, a public entity, to utilize state resources to advance previously disadvantaged people as widely as possible. In pursuit of that objective, when the ELIDZ has more than one construction tender going out into the marketplace, it may use a rotation system on the following basis:
  - First, a tenderer who is the preferred tenderer for more than one project will be approved for the tender with the highest monetary value – in respect of those tenders where it was the preferred bidder.
  - Second, existing contractors who have previously been awarded two or more construction projects in one year for the work undertaken within the boundaries of the East London Industrial Development Zone for an accumulative contract value of R300 million (incl VAT)) will be excluded from tendering.

## **EVALUATION:**

Two envelope procedure:

### **Method 2: Functionality, Price and Preference**

In the case of a functionality, price and preference:

- 1) Score functionality, rejecting all tender offers that fail to achieve the minimum number of points for functionality as stated in the tender data.
- 2) No tender must be regarded as an acceptable tender if it fails to achieve the minimum qualifying score for functionality as indicated in the tender invitation.
- 3) Tenders that have achieved the minimum qualification score for functionality must be evaluated further in terms of the preference points.

The evaluation will be guided by the ELIDZ Procurement Policy. Points will be awarded on the basis of Price and BBEE.

Score breakdown:

- 80 Points for Price
- 20 Points for BBEE

All tenders not providing compulsory responsive documentation and with functionality scoring less than 75 points, will not be considered for the next stage of tender evaluation

## **TENDER DOCUMENT & SUBMISSION:**

The RFP document will be available for download at no cost from **14 August 2020 at 12h00** from the East London Industrial Development Zone website: **www.elidz.co.za** under **Opportunities >> Tenders**.

The tender must be returned in two separate sealed envelopes clearly marked "Envelope A - Technical Proposal" and "Envelope B - Financial Proposal" with each marked "Confidential" and with the name/address of the submitting company and the tender reference number on each envelope. Both envelopes are to be deposited in the Tender Box at the offices of East London Industrial Development Zone SOC Ltd Corporate Head Office, Lower Chester Road, East London on or before **12h00 on 04 September 2020**. Late or incomplete tenders will not be considered. ELIDZ will not be responsible for tenders placed in an incorrect tender box.

ELIDZ will not be responsible for tenders placed in an incorrect tender box.

No late tenders will be accepted. The complete set of tender documentation must be returned with the submission and only original intact tenders will be considered.

Telegraphic, telephonic, telex, facsimile and e-mail tenders will not be accepted.

## **TENDER ENQUIRIES:**

Queries relating to the issue of these documents may be addressed to Ms. Anathi Mgwaza, by email at [anathi@elidz.co.za](mailto:anathi@elidz.co.za).

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

**T1.2: TENDER DATA**

<b>Project title:</b>	<b>EXTENSIONS TO YANFENG MANUFACTURING FACILITY IN ZONE 1A OF THE ELIDZ</b>		
<b>Contract No:</b>	<b>ASP/YANFENG/EXT/11/09/Z1A</b>		
<b>Advertising date:</b>	<b>14 August 2020</b>	<b>Closing date:</b>	<b>04 September 2020</b>
<b>Closing time:</b>	<b>12h00</b>	<b>Validity period:</b>	<b>120 Days</b>
<b>Clause number</b>			
	<p>The Conditions of Tender applicable to this contract are the Standard Conditions of Tender as contained in Annexure F of the <u>CIDB Standard for Uniformity in Construction Procurement (10 July 2015)</u> as published in Government Gazette No. 38960, Board Notice 136 of 2015. This Annexure is reproduced hereafter as an Appendix for the convenience of Tenderers.</p> <p>The Standard Conditions of Tender make several references to the Tender Data for details that apply specifically to this tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the standard conditions of tender.</p> <p>Each item of data given below is cross-referenced to the clause in the Standard Conditions of Tender to which it mainly applies.</p>		
F.1.1	The employer is the East London Industrial Development Zone SOC Ltd		
F.1.2	<p>The tender documents issued by the employer comprise:</p> <p><b>Envelope "A"</b></p> <p><b>Volume 1 of 2: TECHNICAL PROPOSAL</b></p> <p><b>Part T1: Tendering procedures</b></p> <p>T1.1 Tender Notice and Invitation to Tender</p> <p>T1.2 Tender Data</p> <p>T1.3 Functionality Scoring Criteria</p> <p>F Standard Conditions of Tender</p> <p><b>Part C3: Scope of work</b></p> <p>C3.1 Scope of Work</p> <p>C3.2 Design Specifications and Criteria</p> <p>C3.3 Health and Safety Specifications</p> <p>C3.4 Construction Environment Management Plan</p> <p>C3.5 HIV/AIDS Specification</p> <p>C3.6 National Treasury Designated Sectors Minimum Local Content Specification</p> <p>C3.7 SMME Specifications</p> <p><b>Part C4: Site information</b></p> <p>C4. Site Information</p> <p><b>Part C5: Geotechnical report</b></p> <p>C5. Geotechnical report</p> <p><b>Part D1: DRAWINGS</b></p> <p>D1. List of drawings included in the tender document</p> <p><b>Envelope "A"</b></p> <p><b>Volume 2 of 2: TECHNICAL PROPOSAL: RETURNABLE SCHEDULES</b></p> <p><b>Part T2: Returnable documents</b></p>		

Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

	T2.1	List of Returnable Documents
	T2.2	Returnable Documents (Compulsory Submissions)
	T2.3	Returnable Documents (Forms – Submissions for Evaluation)
	T2.4	Returnable Documents (For Functionality Scoring)
	<b>Envelope "B" FINANCIAL PROPOSAL</b>	
	<b>Part C1:</b>	<b>Agreements and contract data</b>
	C1.1	Contract Data
	C1.2	Form of Guarantee
	<b>Part C2:</b>	<b>Pricing data</b>
	C2.1	Pricing Instructions
	C2.2	Provisional Bills of Quantities
	C2.3	Schedule for Imported Material and Equipment
	C2.4	Guarantor Proforma Letter of Intent
	C2.5	Form of Offer and Acceptance
	C2.6	Declaration Certificate for Local Production and Content for Designated Sectors
F.1.4	The Employer's Agent is	
	Name:	Louis Fourie
	Address:	17 St Andrews Road Selborne 5201
	Tel:	043 722 5864
	Fax:	086 520 6942
	E-mail:	Email: louis@newground.co.za
F.2.1	<p>The following tenderers who are registered with the <u>CIDB</u>, or are capable of being so registered prior to submissions, are eligible to submit tenders:</p> <p>a) Contractors who have a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a <b>7 GB</b> class of construction work.</p> <p>Joint Ventures are eligible to submit tenders providing that:</p> <p>Every member of the JV is registered with the <u>CIDB</u> the joint venture contractors are to comply with Table 9 of the <u>CIDB</u> Regulations.</p>	

F.2.7	<p>Tender briefing meeting:</p> <p>It is compulsory for participants to register by sending an email to <a href="mailto:anathi@elidz.co.za">anathi@elidz.co.za</a> by no later than <b>19 August 2020 at 09h00</b>. Tenderers who did not registered by the due date and time will not be allowed to submit a tender. A virtual Briefing or Tender Clarification Meeting with representatives of the Employer will take place via the Zoom virtual platform on <b>19 August 2020 starting at 11h00</b>.</p> <p>Compulsory registration: Send email with company information, contact name and contact number to <a href="mailto:anathi@elidz.co.za">anathi@elidz.co.za</a>.</p> <p>Registration due date: <b>19 August 2020 at 09h00</b></p> <p>Virtual briefing: Zoom virtual platform</p> <p>Zoom invitation: Email invitations with Zoom link will be forwarded by <b>19 August 2020 at 10h00</b> to all registered participants</p>
F.2.10.5	<p>Add the following Clause:</p> <p>Tenderers are to submit a fully completed schedule of rates with their tender, failure to do so will result in the tender being deemed non-responsive and disqualified.</p>
F.2.12.1	Alternative tender offer NOT permitted.
F2.13.2	The tender document, fully completed by hand in black ink, is to be deposited in the tender box in East London Industrial Development Zone SOC Ltd Corporate Head Office.
F2.13.3	Only the original tender submission is required.
F2.13.5	The original tender offer is to be placed in two sealed envelopes, marked Volume A and Volume B, and marked with the Tender Number and Description as well as the Tenderers Name and Address on both envelopes.
F2.13.6	A two-envelope procedure will be followed.
F2.14	The ELIDZ will disqualify any submission which is not suitably endorsed or which is not comprehensively completed.
F2.15.1	Submissions that are not received on or before the closing time will, in terms of the ELIDZ procurement policy, not be considered.
F.2.16.1	The tender offer validity period is 120 days.
F2.16.5	<p>Add the following Clause:</p> <p>Accept that should the Tenderer unilaterally withdraw his tender during this period, the Employer shall, without prejudice to any other rights he may have, be entitled to accept any less favourable tender for the Works from those received, or to call for fresh tenders, or to otherwise arrange for the execution of the Works, and the Tenderer shall pay on demand any additional expense incurred by the Employer on account of the adoption of the said courses, as well as either the difference in cost between the tender withdrawn (as corrected in terms of Clause 3.9 of the Conditions of Tender) and any less favourable tender accepted by the Employer, or the difference between the tender withdrawn (as corrected) and the</p>

Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

	cost of execution of the Works by the Employer as well as any other amounts the Employer may have to pay to have the Works completed.
F2.20	<p>Add the following to the Clause:</p> <p>Accept that the Employer or his Agent, reserves the right to approach the Tenderer's banker or guarantor(s) as indicated in the tender document, or the bankers of the individual members of any joint venture that is constituted for purposes of this Contract, with a view to ascertain whether the required guarantee will be furnished, and for purposes of ascertaining the financial strength of the Tenderer or of the individual member of such joint venture. Only guarantees that are submitted in the format provided will be accepted.</p>
F2.23	<p>The tenderer is required to submit with his tender:</p> <ul style="list-style-type: none"> <li>• Tenderers are required to submit a Valid SARS Tax Clearance Certificate with their tender or SARS PIN number.</li> <li>• Tenderers should submit a valid original or certified B-BBEE certification. Companies with annual turnover less than R10 million to submit an accountant or SARS letter confirming turnover or DTI Affidavit</li> <li>• Tenderers to provide certified copy of Company Registration Certificate</li> <li>• Tenderers to provide Letter of Good Standing from Compensation Commissioner.</li> <li>• Tenderers must submit technical and financial proposals in two separate envelopes clearly marked "Envelope A -Technical Proposal "and "Envelope B – Financial Proposal". Then the financial proposal will only be opened should the technical proposal be found to be acceptable.</li> <li>• Non- signed "Form of Offer" the financial proposal in "Envelope B" submission will result in the disqualification of the tender.</li> <li>• Inclusion of Price Offer and/ or any other price related details in "Envelope A -Technical Proposal "will result in the disqualification of the tender.</li> <li>• Proof of Registration with the CIDB in the category <b>7 GB</b>.</li> <li>• Proof of registration on CSD – MAAA number.</li> <li>• The tenderer must submit a bank rating equal to and or better than a C. (Note letter from Bank to exclude tendered amount).</li> <li>• All returnable documents and schedules as listed in T2.1of Volume 2 of 2: List of Returnable Documents.</li> <li>• Submit signed declaration of 100% Local content and production, for Steel and Steel components.</li> <li>• The successful tenderer must sub-contract a minimum of 30% of the value of the contract to designated SMME from within the BCMM area. SMME profile must meet 51% Black ownership. Database for selection provided by ELIDZ.</li> <li>• Submit signed declaration to sub-contract a minimum of 30% of the value of the contract to designated SMME from within the BCMM area. SMME profile must meet 51% Black ownership.</li> <li>• It is an objective of the ELIDZ, a public entity, to utilize state resources to advance previously disadvantaged people as widely as possible. In pursuit of that objective, when the ELIDZ has more than one construction tender going out into the marketplace, it may use a rotation system on the following basis: <ul style="list-style-type: none"> <li>○ First, a tenderer who is the preferred tenderer for more than one project will be approved for the tender with the highest monetary value – in respect of those tenders where it was the preferred bidder.</li> <li>○ Second, existing contractors who have previously been awarded two or more construction projects in one year for the work undertaken</li> </ul> </li> </ul>

Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_



	within the boundaries of the East London Industrial Development Zone for an accumulative contract value of R300 million (incl VAT)) will be excluded from tendering.
F3.4	Tender submissions will be opened at the offices the ELIDZ immediately after the closing time.
F3.11.1	<p>Method 2: Functionality, Price and Preference</p> <p>The procedure of the evaluation of tenders is the two-envelope system.</p> <p>In the case of a functionality, price and preference;</p> <ol style="list-style-type: none"> <li>1) Score functionality, rejecting all tender offers that fail to achieve the minimum number of points for functionality as stated in the tender data.</li> <li>2) No tender must be regarded as an acceptable tender if it fails to achieve the minimum qualifying score for functionality as indicated in the tender invitation.</li> </ol> <p>Tenders that have achieved the minimum qualification score for functionality must be evaluated further in terms of the preference points system.</p> <p>Tender evaluation will be carried out using the 80/20 preference point system, where:</p> <ul style="list-style-type: none"> <li>▪ A maximum of 80 points are allocated for financial offer.</li> <li>▪ A maximum of 20 points are allocated for preference.</li> </ul> <p>The above mentioned evaluation will be subject to offers being responsive and passing the functionality criteria prescribed in the attached schedule.</p>
<p><b><u>Financial Offer Evaluation</u></b></p> <p>The score achieved for financial offer will be determined using formula 2 (option 1) as follows:</p> $\text{Points awarded} = 80 \left[ 1 - \frac{P - P_m}{P_m} \right]$ <hr/> <p>Where P = the comparative offer of the tender offer under consideration P<sub>m</sub> = the comparative offer of the lowest responsive tender</p>	

### **Preference Evaluation Criteria**

- A maximum of twenty (20) points will be awarded to a tenderer for achieving BBEE objectives. BBEE points shall be computed using a relevant scorecard as guided by the company's annual turnover. This is in accordance with the new Codes of Good Practice. BBEE evaluation shall be done based only on the information submitted in the ELIDZ Procurement Handbook. No points will be awarded for achieving BBEE objectives if the total percentage scored for BBEE is less than 30%.
- The tender will be awarded to the bid with the highest number of points. A tender may be awarded to a bidder that did not score the highest number of points if reasonable and justifiable grounds exist.
- Any contract offered by the ELIDZ will be based on the correctness of information submitted by the service providers. Any misrepresentation of facts by a service provider may lead to disqualification. Should such misrepresentation be uncovered after the commencement of the contracted work, the ELIDZ reserves the right to terminate the contract and recover all payments made to that service provider and any costs that may have been incurred in the process.
- ELIDZ reserves the right to have the tenderer's Black Economic Empowerment Credentials verified by an independent agency. Returnable documents ELIDZ Procurement Handbook must be fully completed and supplementary information may be forwarded to reflect on empowerment initiatives not covered in the form.
- In instances of a joint venture, each participating person and/or company and/or firm must complete and submit the enclosed ELIDZ Procurement Handbook (copies available on request) with the proposal together with all profit sharing percentage information.

F3.13.1	<p>Tender offers will only be considered if:</p> <ol style="list-style-type: none"> <li>a) The tenderer has in his or her possession an original valid Tax Clearance Certificate issued by the South African Revenue Services.</li> <li>b) The tenderer or any of its directors is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector.</li> <li>c) The tenderer is not insolvent, in receivership, under Business Rescue as provided for in chapter 6 of the Companies Act, 2008, bankrupt or being wound up, has his affairs administered by a court or a judicial officer, has suspended his business activities, or is subject to legal proceedings in respect of any of the foregoing.</li> <li>d) The tenderer complies with the legal requirements, stated in the Tender data,</li> <li>e) The tenderer has not: <ol style="list-style-type: none"> <li>i) abused the Employer's Supply Chain Management System; or</li> <li>ii) failed to perform on any previous contract and has been given a written notice to this effect.</li> </ol> </li> <li>f) Proof of registration with the Compensation Commissioner is submitted with this tender.</li> <li>g) Proof of Company Registration is submitted with this tender.</li> <li>h) Proof of of Registration with the <u>CIDB</u> in the category <b>7 GB</b> is submitted with this tender.</li> <li>i) The tenderer has a bank rating equal to and or better than a C. (Note letter from Bank to exclude tendered amount).</li> <li>j) The successful Tenderer will be required to have sufficient and competent staff available to commence full time operations in accordance with the contract with effect from the Commencement Date, failing which the contract will be awarded to the next most preferred Tender.</li> </ol>
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	k) Proof of registration on CSD – MAAA number. l) All returnable documents and schedules as listed in T2.1 of Volume 2 of 2: List of Returnable Documents have been completed and submitted with this document.
F.3.18	The number of paper copies of the signed contract to be provided by the employer is 1 (one).

**T1.3: FUNCTIONALITY SCORING CRITERIA**

## T1.3: FUNCTIONALITY SCORING CRITERIA

Tenderers scoring less than 75 points for Functionality will not be considered further and the envelope containing their Financial Proposal will be returned unopened.		
Tenderers are to submit information in respect of the following criteria upon which they will be scored for Functionality. Provision is made for Tenderers to submit this information in Envelope A Technical Proposal, Volume 2 of 2 - Returnable Schedules. Failure to submit the relevant information will result in zero scores in the applicable categories.		
<b>DETAILED BREAKDOWN OF FUNCTIONALITY POINTS</b>		
Details	Points Score	Max. Points
<b>Criteria 1: Approach</b>		<b>20</b>
<b>1.1 Construction Programme</b>		
Draft a Detailed Construction Programme (MS Projects) relevant to the Scope of Work. The Programme must demonstrate the Tenderer's approach and allocation of resources to achieve activities within timeframes:		
<b>Good</b> (Submitted a construction programme acceptable for approval by the Principal Agent with innovative programming interventions to accelerate project objectives.)		10
<b>Acceptable</b> (Provided a detailed and convincing construction programme and demonstrated implementability to meet project objectives.)		7.5
<b>Poor</b> (Provided a construction programme but details are missing.)		2.5
<b>Unacceptable</b> (Does not demonstrate basic programming techniques & capabilities to meet project objectives.)		0
<b>1.2 Methodology and Execution Strategy</b>		
Tenderer demonstrates the ability to implement the Construction Programme in a live operational environment and have a work implementation strategy assigned to the respective tasks for the optimisation of resources and activities:		
<b>Good</b> (Submitted a methodology and execution strategy that demonstrates clearly how the project objectives will be met along with a clear risk management plan. An innovative approach is to be presented that ensures successful implementation of critical activities.)		10
<b>Acceptable</b> (Provided a detailed methodology and execution strategy with associated activities and resource optimization synchronized to meet the project objectives. A multi-disciplinary approach is to be documented with special emphasis on the management of all subcontractors and the accommodation of direct contractors. The methodology is to include a schedule of required construction plant and resources required for the successful implementation of the project.)		7.5
<b>Poor</b> (Provided a basic implementation strategy but lacks a clear understanding of the project scope and detailed deliverables (multi-disciplinary).)		2.5
<b>Unacceptable</b> (Does not demonstrate a basic implementation strategy linked with the construction programme and project objectives.)		0

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Criteria 2: Tenderer's Expertise and Resources		50
<b>2.1 Management Organogram and Key Staff</b>		
2.1.1 Provide an adequately resourced project organogram with supporting CV's and qualifications:		
<b>Good</b> (Submitted an organogram and including the necessary mechanisms to ensure that staff performs at the required levels. The plan is to demonstrate that all disciplines, activities and sub-contractors will be managed and implemented successfully. Key team members are to have performed work of a similar nature.)		5
<b>Acceptable</b> (Provided a detailed organogram with appropriately qualified and experienced key team members. The project team is to be able to implement a multi-disciplinary project including management of domestic, selected and direct subcontractors. Key team members are to have performed work of a similar nature.)		4
<b>Poor</b> (Provided a basic project organogram but are not convincing that the project team is capable of meeting the project objectives. Comprehensive CV's and qualifications of key team members are not adequate.)		2
<b>Unacceptable</b> (Does not demonstrate that the project organogram and project team will be able to meet the project objectives.)		0
2.1.2 Contractor Contracts Manager (CCM) (10 years minimum post registration experience):		
If CPM has $\geq 20$ years' appropriate experience and has completed similar projects successfully in the last 5 years.		10
If CPM has $\geq 15$ years' appropriate experience and has completed similar projects successfully in the last 5 years.		8
If CPM has $\geq 10$ years' appropriate experience and has completed similar projects successfully in the last 5 years.		4
If CPM has $\geq 10$ years' appropriate experience but has NOT completed a similar project in last 5 years, regardless of other experience.		0
2.1.3 Site Agent (7 years minimum experience):		
If SA has $\geq 15$ years' appropriate experience and has completed similar projects successfully in the last 5 years.		10
If SA has $\geq 10$ years' appropriate experience and has completed similar projects successfully in the last 5 years.		8
If SA has $\geq 7$ years' appropriate experience and has completed similar projects successfully in the last 5 years.		6
If SA has $\geq 7$ years' appropriate experience but has NOT completed a similar project in the last 5 years, regardless of other experience.		0

<b>2.3 Relevant Experience (Principal Contractor)</b>		
5 points to a maximum of 15 points can be scored for each confirmed similar (size, type and timeframes) project in progress or carried out in the last 5 years: <b>Project Requirements:</b> Construction work in the automotive or similar industrial environment. It must be demonstrated that the tenderer was able to work within a live operational environment and that the work was performed within time and quality parameters.		15
If no similar successful projects in the last 5 years.		0
<b>2.4 Relevant Experience (Domestic Sub-contractors)</b>		
The mezzanine is a highly intricate project with minimal tolerances. The following domestic sub-contractors are to demonstrate that they have successfully completed similar works each and that they have the required skills to do so: <ul style="list-style-type: none"> <li>• Structural Steel</li> <li>• Timber mezzanine floors</li> </ul> 5 points to a maximum of 10 points can be scored for each confirmed similar project in progress or carried out in the last 5 years <b>Project Requirements:</b> Construction work in the automotive or similar industrial environment. It must be demonstrated that the tenderer was able to work within a live operational environment and that the work was performed within time and quality parameters.		10
If no similar successful projects in the last 5 years.		0
<b>Criteria 3: Health, Safety and Environment</b>		<b>10</b>
OHS and CEMP performance:		
<b>Acceptable</b> (Over and above the abovementioned the Tenderer submitted a Health and Safety File adequate for approval by the ELIDZ's OHS Agent.)		10
<b>Unacceptable</b> (Does not demonstrate a basic OHS and CEMP implementation strategy linked with the construction programme and project objectives.)		0
<b>Criteria 4: Local Operational Office</b>		<b>20</b>
<b>5.1 Local Operation Office</b>		
Office to consist of fully functional office, adequate administrative staff and adequate equipment. Yard to consist of functional workshop and functional supporting infrastructure. Above facilities are to be adequate for relevant CIDB tender grade. The ELIDZ reserves the right to visit the premises prior to scoring.		
Proof of a local operational office within the confines of the BCM Municipal area		20
Proof of an operational office within the confines of the Eastern Cape area		10
No local office in operation		0
<b>TOTAL EVALUATION SCORE FOR FUNCTIONALITY</b>		<b>100</b>
<b>TENDERERS WITH A SCORE OF LESS THAN 75 OUT OF 100 WILL NOT BE CONSIDERED FURTHER</b>		

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**F: STANDARD CONDITIONS OF TENDER**



## F: STANDARD CONDITIONS OF TENDER



### CIDB Standard Conditions of Tender

(July 2015 edition)

As published in Annex F of the CIDB Standard for Uniformity in Construction Procurement in Board Notice 136 Government Gazette No 38960 of 10 July 2015

#### F.1 General

##### F.1.1 Actions

**F.1.1.1** The employer and each tenderer submitting a tender offer shall comply with these conditions of tender. In their dealings with each other, they shall discharge their duties and obligations as set out in F.2 and F.3, timeously and with integrity, and behave equitably, honestly and transparently, comply with all legal obligations and not engage in anticompetitive practices.

**F.1.1.2** The employer and the tenderer and all their agents and employees involved in the tender process shall avoid conflicts of interest and where a conflict of interest is perceived or known, declare any such conflict of interest, indicating the nature of such conflict. Tenderers shall declare any potential conflict of interest in their tender submissions. Employees, agents and advisors of the employer shall declare any conflict of interest to whoever is responsible for overseeing the procurement process at the start of any deliberations relating to the procurement process or as soon as they become aware of such conflict, and abstain from any decisions where such conflict exists or recuse themselves from the procurement process, as appropriate.

*Note: 1) A conflict of interest may arise due to a conflict of roles which might provide an incentive for improper acts in some circumstances. A conflict of interest can create an appearance of impropriety that can undermine confidence in the ability of that person to act properly in his or her position even if no improper acts result.*

*2) Conflicts of interest in respect of those engaged in the procurement process include direct, indirect or family interests in the tender or outcome of the procurement process and any personal bias, inclination, obligation, allegiance or loyalty which would in any way affect any decisions taken.*

**F.1.1.3** The employer shall not seek and a tenderer shall not submit a tender without having a firm intention and the capacity to proceed with the contract.

##### F.1.2 Tender Documents

The documents issued by the employer for the purpose of a tender offer are listed in the Tender data.

##### F.1.3 Interpretation

**F.1.3.1** The tender data and additional requirements contained in the tender schedules that are included in the returnable documents are deemed to be part of these conditions of tender.

**F.1.3.2** These conditions of tender, the tender data and tender schedules which are only required for tender evaluation purposes, shall not form part of any contract arising from the invitation to tender.

**F.1.3.3** For the purposes of these conditions of tender, the following definitions apply:

a) **conflict of interest** means any situation in which:

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- i) someone in a position of trust has competing professional or personal interests which make it difficult to fulfil his or her duties impartially;
  - ii) an individual or organisation is in a position to exploit a professional or official capacity in some way for their personal or corporate benefit; or
  - iii) incompatibility or contradictory interests exist between an employee and the organisation which employs that employee.
- b) **comparative offer** means the price after the factors of a non-firm price and all unconditional discounts it can be utilised to have been taken into consideration;
- c) **corrupt practice** means the offering, giving, receiving or soliciting of anything of value to influence the action of the employer or his staff or agents in the tender process;
- d) **fraudulent practice** means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the employer, including collusive practices intended to establish prices at artificial levels;
- e) **organization** means a company, firm, enterprise, association or other legal entity, whether incorporated or not, or a public body; and
- f) **functionality** means the measurement according to the predetermined norms of a service or commodity designed to be practical and useful, working or operating, taking into account quality, reliability, viability and durability of a service and technical capacity and ability of a tenderer.

#### **F.1.4 Cancellation and Re-Invitation of Tenders**

Each communication between the employer and a tenderer shall be to or from the Principal Agent only, and in a form that can be readily read, copied and recorded. Communications shall be in the English language. The employer shall not take any responsibility for non-receipt of communications from or by a tenderer. The name and contact details of the Principal Agent are stated in the tender data.

#### **F.1.5 The employer's right to accept or reject any tender offer**

**F.1.5.1** An organ of state may, prior to the award of the tender, cancel a tender if:

- a) due to changed circumstances, there is no longer a need for the services, works or goods requested; or
- b) funds are no longer available to cover the total envisaged expenditure; or I no acceptable tenders are received.

**F1.5.2** The decision to cancel a tender must be published in the CIDB website and in the government Tender Bulletin for the media in which the original tender invitation was advertised.

#### **F.1.6 Procurement procedures**

##### **F.1.6.1 General**

Unless otherwise stated in the tender data, a contract will, subject to F.3.13, be concluded with the tenderer who in terms of F.3.11 is the highest ranked or the tenderer scoring the highest number of tender evaluation points, as relevant, based on the tender submissions that are received at the closing time for tenders.

##### **F.1.6.2 Competitive negotiation procedure**

**F.1.6.2.1** Where the tender data require that the competitive negotiation procedure is to be followed, tenderers shall submit tender offers in response to the proposed contract in the first round of submissions. Notwithstanding the requirements of F.3.4, the employer shall announce only the names of the tenderers who make a submission. The requirements of F.3.8

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relating to the material deviations or qualifications which affect the competitive position of tenderers shall not apply.

**F.1.6.2.2** All responsive tenderers, or not less than three responsive tenderers that are highest ranked in terms of the evaluation method and evaluation criteria stated in the tender data, shall be invited in each round to enter into competitive negotiations, based on the principle of equal treatment and keeping confidential the proposed solutions and associated information. Notwithstanding the provisions of F.2.17, the employer may request that tenders be clarified, specified and fine-tuned in order to improve a tenderer's competitive position provided that such clarification, specification, fine-tuning or additional information does not alter any fundamental aspects of the offers or impose substantial new requirements which restrict or distort competition or have a discriminatory effect.

**F.1.6.2.3** At the conclusion of each round of negotiations, tenderers shall be invited by the employer to make a fresh tender offer, based on the same evaluation criteria, with or without adjusted weightings. Tenderers shall be advised when they are to submit their best and final offer.

**F.1.6.2.4** The contract shall be awarded in accordance with the provisions of F.3.11 and F.3.13 after tenderers have been requested to submit their best and final offer.

### **F.1.6.3 Proposal procedure using the two stage-system**

#### **F.1.6.3.1 Option 1**

Tenderers shall in the first stage submit technical proposals and, if required, cost parameters around which a contract may be negotiated. The employer shall evaluate each responsive submission in terms of the method of evaluation stated in the tender data, and in the second stage negotiate a contract with the tenderer scoring the highest number of evaluation points and award the contract in terms of these conditions of tender.

#### **F.1.6.3.2 Option 2**

**F.1.6.3.2.1** Tenderers shall submit in the first stage only technical proposals. The employer shall invite all responsive tenderers to submit tender offers in the second stage, following the issuing of procurement documents.

**F.1.6.3.2.2** The employer shall evaluate tenders received during the second stage in terms of the method of evaluation stated in the tender data, and award the contract in terms of these conditions of tender.

## **F.2 Tenderer's obligations**

### **F.2.1 Eligibility**

**F.2.1.1** Submit a tender offer only if the tenderer satisfies the criteria stated in the tender data and the tenderer, or any of his principals, is not under any restriction to do business with employer.

**F.2.1.2** Notify the employer of any proposed material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used by the employer as the basis in a prior process to invite the tenderer to submit a tender offer and obtain the employer's written approval to do so prior to the closing time for tenders.

### **F.2.2 Cost of tendering**

**F.2.2.1** Accept that, unless otherwise stated in the tender data, the employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer comply with requirements.

**F.2.2.2** The cost of the tender documents charged by the employer shall be limited to the actual cost incurred by the employer for printing the documents. Employers must attempt to

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make available the tender documents on its website so as not to incur any costs pertaining to the printing of the tender documents.

### **F.2.3 Check documents**

Check the tender documents on receipt for completeness and notify the employer of any discrepancy or omission.

### **F.2.4 Confidentiality and copyright of documents**

Treat as confidential all matters arising in connection with the tender. Use and copy the documents issued by the employer only for the purpose of preparing and submitting a tender offer in response to the invitation.

### **F.2.5 Reference documents**

Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are not attached but which are incorporated into the tender documents by reference.

### **F.2.6 Acknowledge addenda**

Acknowledge receipt of addenda to the tender documents, which the employer may issue, and if necessary apply for an extension to the closing time stated in the tender data, in order to take the addenda into account.

### **F.2.7 Clarification meeting**

Attend, where required, a clarification meeting at which tenderers may familiarize themselves with aspects of the proposed work, services or supply and raise questions. Details of the meeting(s) are stated in the tender data.

### **F.2.8 Seek clarification**

Request clarification of the tender documents, if necessary, by notifying the employer at least five working days before the closing time stated in the tender data.

### **F.2.9 Insurance**

Be aware that the extent of insurance to be provided by the employer (if any) might not be for the full cover required in terms of the conditions of contract identified in the contract data. The tenderer is advised to seek qualified advice regarding insurance.

### **F.2.10 Pricing the tender offer**

**F.2.10.1** Include in the rates, prices, and the tendered total of the prices (if any) all duties, taxes (except Value Added Tax (VAT), and other levies payable by the successful tenderer, such duties, taxes and levies being those applicable 14 days before the closing time stated in the tender data.

**F.2.10.2** Show VAT payable by the employer separately as an addition to the tendered total of the prices.

**F.2.10.3** Provide rates and prices that are fixed for the duration of the contract and not subject to adjustment except as provided for in the conditions of contract identified in the contract data.

**F.2.10.4** State the rates and prices in Rand unless instructed otherwise in the tender data. The conditions of contract identified in the contract data may provide for part payment in other currencies.

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## **F.2.11 Alterations to documents**

Do not make any alterations or additions to the tender documents, except to comply with instructions issued by the employer, or necessary to correct errors made by the tenderer. All signatories to the tender offer shall initial all such alterations.

## **F.2.12 Alternative tender offers**

**F.2.12.1** Unless otherwise stated in the tender data, submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted as well as a schedule that compares the requirements of the tender documents with the alternative requirements that are proposed.

**F.2.12.2** Accept that an alternative tender offer may be based only on the criteria stated in the tender data or criteria otherwise acceptable to the employer.

**F.2.12.3** An alternative tender offer may only be considered in the event that the main tender offer is the winning tender.

## **F.2.13 Submitting a tender offer**

**F.2.13.1** Submit one tender offer only, either as a single tendering entity or as a member in a joint venture to provide the whole of the works, services or supply identified in the contract data and described in the scope of works, unless stated otherwise in the tender data.

**F.2.13.2** Return all returnable documents to the employer after completing them in their entirety, either electronically (if they were issued in electronic format) or by writing legibly in non-erasable ink.

**F.2.13.3** Submit the parts of the tender offer communicated on paper as an original plus the number of copies stated in the tender data, with an English translation of any documentation in a language other than English, and the parts communicated electronically in the same format as they were issued by the employer.

**F.2.13.4** Sign the original and all copies of the tender offer where required in terms of the tender data. The employer will hold all authorized signatories liable on behalf of the tenderer. Signatories for tenderers proposing to contract as joint ventures shall state which of the signatories is the lead partner whom the employer shall hold liable for the purpose of the tender offer.

**F.2.13.5** Seal the original and each copy of the tender offer as separate packages marking the packages as "ORIGINAL" and "COPY". Each package shall state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.

**F.2.13.6** Where a two-envelope system is required in terms of the tender data, place and seal the returnable documents listed in the tender data in an envelope marked "financial proposal" and place the remaining returnable documents in an envelope marked "technical proposal". Each envelope shall state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.

**F.2.13.7** Seal the original tender offer and copy packages together in an outer package that states on the outside only the employer's address and identification details as stated in the tender data.

**F.2.13.8** Accept that the employer will not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.

**F.2.13.9** Accept that tender offers submitted by facsimile or e-mail will be rejected by the employer, unless stated otherwise in the tender data.

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#### **F.2.14 Information and data to be completed in all respects**

Accept that tender offers, which do not provide all the data or information requested completely and in the form required, may be regarded by the employer as non-responsive.

#### **F.2.15 Closing time**

**F.2.15.1** Ensure that the employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data. Accept that proof of posting shall not be accepted as proof of delivery.

**F.2.15.2** Accept that, if the employer extends the closing time stated in the tender data for any reason, the requirements of these conditions of tender apply equally to the extended deadline.

#### **F.2.16 Tender offer validity**

**F.2.16.1** Hold the tender offer(s) valid for acceptance by the employer at any time during the validity period stated in the tender data after the closing time stated in the tender data.

**F.2.16.2** If requested by the employer, consider extending the validity period stated in the tender data for an agreed additional period with or without any conditions attached to such extension.

**F.2.16.3** Accept that a tender submission that has been submitted to the employer may only be withdrawn or substituted by giving the Principal Agent written notice before the closing time for tenders that a tender is to be withdrawn or substituted.

**F.2.16.4** Where a tender submission is to be substituted, submit a substitute tender in accordance with the requirements of F.2.13 with the packages clearly marked as "SUBSTITUTE".

#### **F.2.17 Clarification of tender offer after submission**

Provide clarification of a tender offer in response to a request to do so from the employer during the evaluation of tender offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors by the adjustment of certain rates or item prices (or both). No change in the competitive position of tenderers or substance of the tender offer is sought, offered, or permitted.

**Note:** *Sub-clause F.2.17 does not preclude the negotiation of the final terms of the contract with a preferred tenderer following a competitive selection process, should the Employer elect to do so.*

#### **F.2.18 Provide other material**

**F.2.18.1** Provide, on request by the employer, any other material that has a bearing on the tender offer, the tenderer's commercial position (including notarized joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the employer for the purpose of a full and fair risk assessment. Should the tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the employer's request, the employer may regard the tender offer as non-responsive.

**F.2.18.2** Dispose of samples of materials provided for evaluation by the employer, where required.

#### **F.2.19 Inspections, tests and analysis**

Provide access during working hours to premises for inspections, tests and analysis as provided for in the tender data.

#### **F.2.20 Submit securities, bonds, policies**

If requested, submit for the employer's acceptance before formation of the contract, all securities, bonds, guarantees, policies and certificates of insurance required in terms of the

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conditions of contract identified in the contract data.

#### **F.2.21 Check final draft**

Check the final draft of the contract provided by the employer within the time available for the employer to issue the contract.

#### **F.2.22 Return of other tender documents**

If so instructed by the employer, return all retained tender documents within 28 days after the expiry of the validity period stated in the tender data.

#### **F.2.23 Certificates**

Include in the tender submission or provide the employer with any certificates as stated in the tender data.

### **F.3 The employer's undertakings**

#### **F.3.1 Respond to requests from the tenderer**

**F.3.1.1** Unless otherwise stated in the tender Data, respond to a request for clarification received up to five working days before the tender closing time stated in the Tender Data and notify all tenderers who drew procurement documents.

**F.3.1.2** Consider any request to make a material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used to prequalify a tenderer to submit a tender offer in terms of a previous procurement process and deny any such request if as a consequence:

- a) an individual firm, or a joint venture as a whole, or any individual member of the joint venture fails to meet any of the collective or individual qualifying requirements;
- b) the new partners to a joint venture were not prequalified in the first instance, either as individual firms or as another joint venture; or
- c) in the opinion of the Employer, acceptance of the material change would compromise the outcome of the prequalification process.

#### **F.3.2 Issue Addenda**

If necessary, issue addenda that may amend or amplify the tender documents to each tenderer during the period from the date that tender documents are available until three days before the tender closing time stated in the Tender Data. If, as a result a tenderer applies for an extension to the closing time stated in the Tender Data, the Employer may grant such extension and, shall then notify all tenderers who drew documents.

#### **F.3.3 Return late tender offers**

Return tender offers received after the closing time stated in the Tender Data, unopened, (unless it is necessary to open a tender submission to obtain a forwarding address), to the tenderer concerned.

#### **F.3.4 Opening of tender submissions**

**F.3.4.1** Unless the two-envelope system is to be followed, open valid tender submissions in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data. Tender submissions for which acceptable reasons for withdrawal have been submitted will not be opened.

**F.3.4.2** Announce at the meeting held immediately after the opening of tender submissions, at a venue indicated in the tender data, the name of each tenderer whose tender offer is opened and, where applicable, the total of his prices, number of points claimed for its BBEE status level and time for completion for the main tender offer only.

**F.3.4.3** Make available the record outlined in F.3.4.2 to all interested persons upon request.

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### **F.3.5 Two-envelope system**

**F.3.5.1** Where stated in the tender data that a two-envelope system is to be followed, open only the technical proposal of valid tenders in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data and announce the name of each tenderer whose technical proposal is opened.

**F.3.5.2** Evaluate functionality of the technical proposals offered by tenderers, then advise tenderers who remain in contention for the award of the contract of the time and place when the financial proposals will be opened. Open only the financial proposals of tenderers, who score in the functionality evaluation more than the minimum number of points for functionality stated in the tender data, and announce the score obtained for the technical proposals and the total price and any points claimed on BBBEE status level. Return unopened financial proposals to tenderers whose technical proposals failed to achieve the minimum number of points for functionality.

### **F.3.6 Non-disclosure**

Not disclose to tenderers, or to any other person not officially concerned with such processes, information relating to the evaluation and comparison of tender offers, the final evaluation price and recommendations for the award of a contract, until after the award of the contract to the successful tenderer.

### **F.3.7 Grounds for rejection and disqualification**

Determine whether there has been any effort by a tenderer to influence the processing of tender offers and instantly disqualify a tenderer (and his tender offer) if it is established that he engaged in corrupt or fraudulent practices.

### **F.3.8 Test for responsiveness**

**F.3.8.1** Determine, after opening and before detailed evaluation, whether each tender offer properly received:

- a) complies with the requirements of these Conditions of Tender,
- b) has been properly and fully completed and signed, and
- c) is responsive to the other requirements of the tender documents.

**F.3.8.2** A responsive tender is one that conforms to all the terms, conditions, and specifications of the tender documents without material deviation or qualification. A material deviation or qualification is one which, in the Employer's opinion, would:

- a) detrimentally affect the scope, quality, or performance of the works, services or supply identified in the Scope of Work,
- b) significantly change the Employer's or the tenderer's risks and responsibilities under the contract, or
- c) affect the competitive position of other tenderers presenting responsive tenders, if it were to be rectified

Reject a non-responsive tender offer, and not allow it to be subsequently made responsive by correction or withdrawal of the non-conforming deviation or reservation.

### **F.3.9 Arithmetical errors, omissions and discrepancies**

**F.3.9.1** Check the highest ranked tender or tenderer with the highest number of tender evaluation points after the evaluation of tender offers in accordance with F.3.11 for:

- a) the gross misplacement of the decimal point in any unit rate;
- b) omissions made in completing the pricing schedule or bills of quantities; or
- c) arithmetic errors in:

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- i) line item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or
- ii) the summation of the prices.

**F.3.9.2** The employer must correct the arithmetical errors in the following manner:

- a) Where there is a discrepancy between the amounts in words and amounts in figures, the amount in words shall govern.
- b) If bills of quantities or pricing schedules apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern, and the unit rate shall be corrected.
- c) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall govern and the tenderer will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices.

Consider the rejection of a tender offer if the tenderer does not correct or accept the correction of the arithmetical error in the manner described above.

### **F.3.10 Clarification of a tender offer**

Obtain clarification from a tenderer on any matter that could give rise to ambiguity in a contract arising from the tender offer.

### **F.3.11 Evaluation of tender offers**

#### **F.3.11.1 General**

Appoint an evaluation panel of not less than three persons. Reduce each responsive tender offer to a comparative offer and evaluate them using the tender evaluation methods and associated evaluation criteria and weightings that are specified in the tender data.

#### **F.3.11.2 Method 1: Price and Preference**

In the case of a price and preference:

- a) Score tender evaluation points for price
- b) Score points for BBBEE contribution
- c) Add the points scored for price and BBBEE.

#### **F.3.11.3 Methods 2: Functionality, Price and Preference**

In the case of a functionality, price and preference:

- 1) Score functionality, rejecting all tender offers that fail to achieve the minimum number of points for functionality as stated in the Tender Data.
- 2) No tender must be regarded as an acceptable tender if it fails to achieve the minimum qualifying score for functionality as indicated in the tender invitation.
- 3) Tenders that have achieved the minimum qualification score for functionality must be evaluated further in terms of the preference points system prescribed in paragraphs 4 and 4 and 5 below.
- 4)(a)(i) The following formula must be used to calculate the points for price in respect of tenders (including price quotation) with a rand value equal to, or above R 30 000 and up to Rand value of R 50 000 000 ( all applicable taxes included):

$$P_s = 80 \left( 1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$$

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

Where

$P_s$  = Points scored for price of tender under consideration;  
 $P_t$  = Price of tender under consideration; and  
 $P_{min}$  = Price of lowest acceptable tender.

4)(a)(ii) An employer of state may apply the formula in paragraph (i) for price quotations with a value less than R30 000, if and when appropriate:

4)(b) Subject to subparagraph(4)(c), points must be awarded to a tender for attaining the BBBEE status level of contributor in accordance with the table below:

B-BBEE Status Level of Contributor	Number of points
1	20
2	18
3	14
4	12
5	8
6	6
7	4
8	2
Non-compliant contributor	0

4)l A maximum of 20 points may be allocated in accordance with subparagraph (4)(b).

4)(d) The points scored by tender in respect of B-BBEE contribution contemplated in subparagraph (4) (b) must be added to the points scored for price as calculated in accordance with subparagraph (4)(a).

4)l Subject to paragraph 4.3.8 the contract must be awarded to the tender who scores the highest total number of points.

90/10 system for requirements with a Rand value above R 50 million (all applicable taxes included).

5)(a) The following formula must be used to calculate the points for price in respect of tenders with a Rand value above R50 000 000 (all applicable taxes included):

$$P_s = 90 \left( 1 - \frac{P_t - P_{min}}{P_{min}} \right)$$

Where

$P_s$  = Points scored for price of tender under consideration;  
 $P_t$  = Price of tender under consideration; and  
 $P_{min}$  = Price of lowest acceptable tender.

5)(b) Subject to subparagraph(5)(c), points must be awarded to a tender for attaining the BBBEE status level of contributor in accordance with the table below:

B-BBEE Status Level of Contributor	Number of points
1	10
2	9
3	6
4	5
5	4
6	3
7	2
8	1
Non-compliant contributor	0

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- 5)l A maximum of 10 points may be allocated in accordance with subparagraph (5)(b).
- 5)(d) The points scored by tender in respect of B-BBEE contribution contemplated in subparagraph (5) (b) must be added to the points scored for price as calculated in accordance with subparagraph (5)(a).
- 5)l Subject to paragraph 4.3.8 the contract must be awarded to the tender who scores the highest total number of points.

### F.3.11.6 Decimal places

Score price, preference and functionality, as relevant, to two decimal places.

### F.3.11.7 Scoring Price

Score price of remaining responsive tender offers using the following formula:

$$N_{FO} = W_1 \times A$$

Where  $N_{FO}$  is the number of tender evaluation points awarded for price.

$W_1$  is the maximum possible number of tender evaluation points awarded for price as stated in the Tender Data.

A is a number calculated using the formula and option described in Table F.1 as stated in the Tender Data.

**Table F.1: Formulae for calculating the value of A**

Formula	Comparison aimed at achieving	Option 1 <sup>a</sup>	Option 2 <sup>a</sup>
1	Highest price or discount	$A = (1 + \frac{(P - P_m)}{P_m})$	$A = P / P_m$
2	Lowest price or percentage commission / fee	$A = (1 - \frac{(P - P_m)}{P_m})$	$A = P_m / P$
<sup>a</sup> $P_m$ is the comparative offer of the most favourable comparative offer. $P$ is the comparative offer of the tender offer under consideration.			

### F.3.11.8 Scoring preferences

Confirm that tenderers are eligible for the preferences claimed in accordance with the provisions of the tender data and reject all claims for preferences where tenderers are not eligible for such preferences.

Calculate the total number of tender evaluation points for preferences claimed in accordance with the provisions of the tender data.

### F.3.11.9 Scoring functionality

Score each of the criteria and sub criteria for quality in accordance with the provisions of the Tender Data.

Calculate the total number of tender evaluation points for quality using the following formula:

$$N_Q = W_2 \times S_O / M_S$$

where:  $S_O$  is the score for quality allocated to the submission under consideration;

$M_S$  is the maximum possible score for quality in respect of a submission; and

$W_2$  is the maximum possible number of tender evaluation points awarded for the quality as stated in the tender data.

### **F.3.12 Insurance provided by the employer**

If requested by the proposed successful tenderer, submit for the tenderer's information the policies and / or certificates of insurance which the conditions of contract identified in the contract data, require the employer to provide.

### **F.3.13 Acceptance of tender offer**

Accept the tender offer, if in the opinion of the employer, it does not present any risk and only if the tenderer:

- a) is not under restrictions, or has principals who are under restrictions, preventing participating in the employer's procurement,
- b) can, as necessary and in relation to the proposed contract, demonstrate that he or she possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise and the personnel, to perform the contract,
- c) has the legal capacity to enter into the contract,
- d) is not insolvent, in receivership, under Business Rescue as provided for in chapter 6 of the Companies Act, 2008, bankrupt or being wound up, has his affairs administered by a court or a judicial officer, has suspended his business activities, or is subject to legal proceedings in respect of any of the foregoing,
- e) complies with the legal requirements, if any, stated in the tender data, and
- f) is able, in the opinion of the employer, to perform the contract free of conflicts of interest.

### **F.3.14 Prepare contract documents**

**F.3.14.1** If necessary, revise documents that shall form part of the contract and that were issued by the employer as part of the tender documents to take account of:

- a) addenda issued during the tender period,
- b) inclusion of some of the returnable documents, and
- c) other revisions agreed between the employer and the successful tenderer.

**F.3.14.2** Complete the schedule of deviations attached to the form of offer and acceptance, if any.

### **F.3.15 Complete adjudicator's contract**

Unless alternative arrangements have been agreed or otherwise provided for in the contract, arrange for both parties to complete formalities for appointing the selected adjudicator at the same time as the main contract is signed.

### **F.3.16 Notice to unsuccessful tenderers**

**F.3.16.1** Notify the successful tenderer of the employer's acceptance of his tender offer by completing and returning one copy of the form of offer and acceptance before the expiry of the validity period stated in the tender data, or agreed additional period.

**F.3.16.2** After the successful tenderer has been notified of the employer's acceptance of the tender, notify other tenderers that their tender offers have not been accepted.

**F.3.17 Provide copies of the contracts**

Provide to the successful tenderer the number of copies stated in the Tender Data of the signed copy of the contract as soon as possible after completion and signing of the form of offer and acceptance.

**F.3.18 Provide written reasons for actions taken**

Provide upon request written reasons to tenderers for any action that is taken in applying these conditions of tender, but withhold information which is not in the public interest to be divulged, which is considered to prejudice the legitimate commercial interests of tenderers or might prejudice fair competition between tenderers.

**F.3.19 Transparency in the procurement process**

**F.3.19.1** The CIDB prescripts require that tenders must be advertised and be registered on the CIDB Tender system.

**F.3.19.2** The employer must adopt a transparency model that incorporates the disclosure and accountability as transparency requirements in the procurement process.

**F.3.19.3** The transparency model must identify the criteria for selection of projects, project information template and the threshold value of the projects to be disclosed in the public domain at various intervals of delivery of infrastructure projects.

**F.3.19.4** The client must publish the information on a quarterly basis which contains the following information:

- Procurement planning process
- Procurement method and evaluation process
- Contract type
- Contract status
- Number of firms tendering
- Cost estimate
- Contract title
- Contract firm(s)
- Contract price
- Contract scope of work
- Contract start date and duration
- Contract evaluation reports

**F.3.19.5** The employer must establish a Consultative Forum which will conduct a random audit in the implementation of the transparency requirements in the procurement process.

**F.3.19.6** Consultative Forum must be an independent structure from the bid committees.

**F.3.19.7** The information must be published on the employer's website.

**F.3.19.8** Records of such disclosed information must be retained for audit purposes.

**PART C3: SCOPE OF WORK**

## **C3.1: SCOPE OF WORK**

## C3.1: SCOPE OF WORK

### 1. DESCRIPTION OF THE WORKS

#### 1.1. Employer's objectives

The Employer wishes to make available to the ELIDZ tenants the most up to date manufacturing facilities and is desirous of engaging a suitably competent Building Contractor to construct the **EXTENSIONS TO YANFENG MANUFACTURING FACILITY** at the East London Industrial Development Zone.

#### 1.2. Overview of the works

The proposed works comprises the extensions to an existing manufacturing facility.

#### 1.3. Extent of the works

The scope of the works includes the extensions to an existing manufacturing facility comprising of the following:

- Construction of a new foam cell enclosure approximately 589 sqm.
  - The foam cell to have controlled temperature system
  - Fire protection and detection systems to be included
- Construction of new mezzanine platform 1620 sqm.
  - Platform to include 2 lifts
  - Load bearing capacity of 550kg
- Upgrade to an existing export CUN dispatch area 66 sqm
  - Relocate existing dock leveller for containers
  - Existing mezzanine platform to be extended for buffer stock with fence
- Conversion of existing dispatch facility to receiving area 286 sqm
  - Enclose area to weatherproof and raise truck parking bay by 200mm
  - Mechanized roller shutter doors to be installed
- New access door to tugger route 3x3.5m
  - Mechanized roller shutter door

#### 1.4. Extent of the works

The scope of the works includes the extensions to an existing manufacturing facility comprising of the following:

New Foaming cell enclosure	589 m <sup>2</sup>
New Mezzanine platform	1620 m <sup>2</sup>
Existing dispatch area to be converted to a receiving area	268 m <sup>2</sup>
Upgrade to an existing export CUN dispatch area	66 m <sup>2</sup>
New Roller-shutter door in to Tugger	1

#### 1.5. Location of the Works

Zone 1A of the East London Industrial Development Zone situated on the West Bank.

#### 1.6. Temporary works

The Contractor must price for re-instating the dedicated contractors site area.

The dedicated Contractor site is also to house the office for the Clerk of Works and Resident Engineers as well as the office accommodation for meetings. Please refer to the following sketch highlighting the site establishment, offices and storage of materials demarcated area:

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Furthermore, the Contractor must allow for all necessary temporary hoardings, hoardings with gantries, fans, safety screens, barriers, access gates, covered gangways, walkways, overhead protection against falling objects and materials, security fences, etc. for the enclosure of the works and elements thereof for the protection of the public and others as required by the Construction Regulations 2014 issued in terms of Occupational Health and Safety Act 1993, any other Laws and Regulations and/or demanded by his own site requirements.

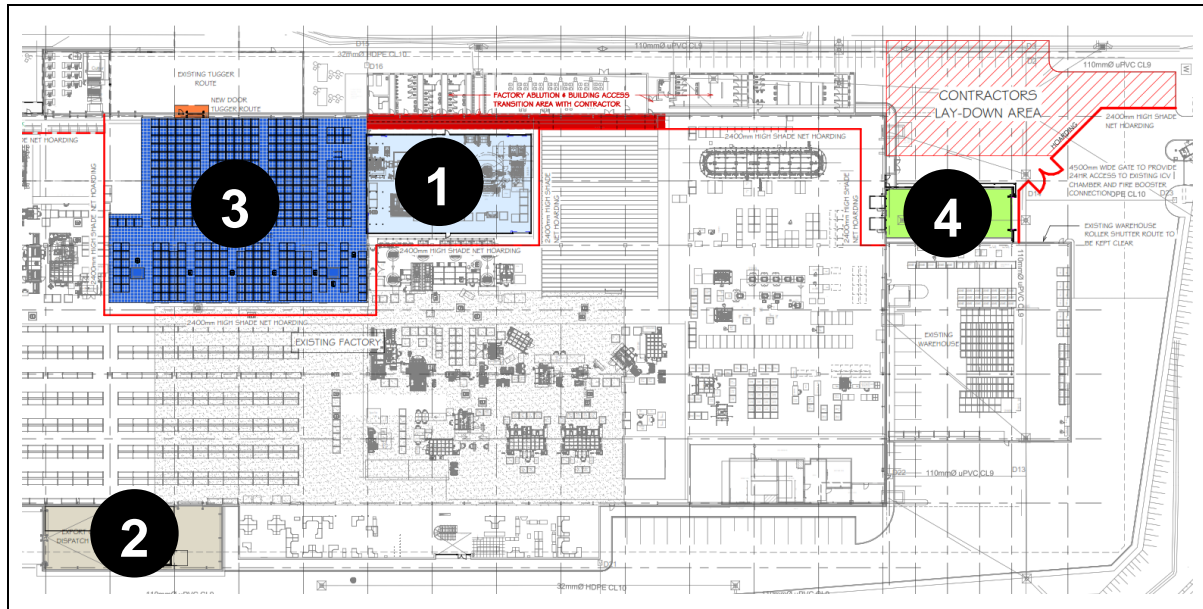
Description	Application
2.40m high formed of shade net hoarding	Applicable to: <b>Section 1,3,4</b> Duration: <b>Section 1,3,4</b> Description: <b>■ ■ ■ ■ ■</b>

### 2.1. Sectional Completion

- **Section 1:** Foaming cell enclosure
- **Section 2:** Export CUN despatch area (dock leveller and platform extension)
- **Section 3:** Mezzanine platform, New access door to tugger route
- **Section 4:** Despatch receiving area conversion

## 2.2. Sectional Completion Boundaries

Please refer to the following sketch highlighting the Sectional Completion Boundaries.



## 2.3. Detailed Description of Sections

The table hereunder is to be read in conjunction with the above drawing.

Sectional Completion Items	Section 1	Section 2	Section 3	Section 4
Construction of a foaming cell enclosure complete with HVAC, electrical and fire services	✓			
Mezzanine floor complete with 2 lifts for AGV			✓	
CUN export dock leveler complete with extended mezzanine platform.		✓		
Existing despatch area converted to receiving and enclosed from weather				✓
New access door to tugger route			✓	

## 2.4. Sectional Completion Dates

- Refer to ENVELOPE B
- Part C1.1: CONTRACT DATA – EMPLOYER
- Item 4.2

Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

## **C3.2: PARTICULAR SPECIFICATIONS CONSTRUCTION WORKS**

- **C3.2.1: Civil and Structural Specifications**
- **C3.2.2: AC&V Specifications**
- **C3.2.3: Electrical Specifications**
- **C3.2.4: Fire Detection Specifications**
- **C3.2.5: Fire Protection Specifications**
- **C3.2.6: Dock Leveller Specifications**

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Tenderer \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_ Employer \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_

### **C3.2.1: Civil and Structural Specifications**

### C3.2.1: Civil and Structural Specifications



**CONTRACT NO: ASP/YANFENG/EXT/11/09/Z1A**

**EXTENSIONS TO YANFENG MANUFACTURING FACILITY IN  
ZONE 1A OF THE ELIDZ**

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## A. GENERAL

The following SANS 1200 Standardised Specifications apply to this contract:

SABS 1200 C	:	Site Clearance
SABS 1200 D	:	Earthworks
SABS 1200 DB	:	Earthworks (Pipe Trenches)
SABS 1200 DM	:	Earthworks (Roads, subgrade)
SABS 1200 GA	:	Concrete (Small Works)
SABS 1200 L	:	Medium-Pressure Pipelines
SABS 1200 LB	:	Bedding (Pipes)
SABS 1200 LC	:	Cable Ducts
SABS 1200 LD	:	Sewers
SABS 1200 LE	:	Stormwater Drainage
SABS 1200 M	:	Roads (General)
SABS 1200 ME	:	Subbase
SABS 1200 MF	:	Base
SABS 1200 MK	:	Kerbing and Channeling
SABS 1200 MM	:	Ancillary Roadworks
SABS 1200 MJ	:	Segmented Paving

1. These notes to be read in conjunction with the drawings and project specifications.
2. All structural drawings to be read in conjunction with the relevant architectural, civil, mechanical & electrical engineers' drawings, the specifications and the tender documentation. Any errors, omissions & discrepancies to be brought to the attention of the engineer immediately.
3. Where conflicting specifications between the drawings & bill of quantities occur, the drawing specifications will take preference over the specifications in the bill of quantities. The specifications on the drawings will also take preference over specifications in this document.
4. It is the contractor's responsibility to ensure that all material shall comply and all workmanship shall be executed in strict accordance with the details and specifications shown in the drawings, the latest revisions of SANS 10400, SANS 1200, the National Building Regulations (NBR) and the latest editions of the relevant SANS codes of practice and standard methods, irrespective whether the Engineer has inspected the works on site or not. Where a SABS code has been replaced by a SANS code it is deemed that the latest version of the relevant code is applicable.
5. The contractor shall check all project dimensions on site beforehand. All dimensions are also to be checked against the architect's drawings. Any discrepancies shall immediately be reported to the engineer immediately. No work shall commence nor any material ordered until the Engineer is notified accordingly.
6. All existing dimensions and levels are to be checked on site and correlated with the Engineer's and the Architect's drawings by the contractor. All bench mark levels to be correlated with each other for correctness. Any discrepancies or variations from the drawings shall be reported to the engineer immediately. No work shall commence nor any material ordered until the Engineer is notified accordingly.
7. No scaling of dimensions is permitted on these drawings. Only written dimensions which, unless noted otherwise (u.n.o.), are given in millimeters, may be deemed to be correct. If any dimension seems doubtful, the Engineer shall be consulted.
8. Where new construction tie into existing structures, the Contractor shall cross check and confirm all critical dimensions and levels related to existing structures, before any construction or manufacturing commences.

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

9. An isolation joint must be provided between all new and existing structures, unless noted otherwise (u.n.o.) on drawings. Stability requirements of elements over joints must be met.
10. All waterproofing to be according to architect's details and specifications unless noted otherwise (u.n.o.) on drawings.
11. The most recent version of the SABS/SANS specifications mentioned in the notes, on the drawings and in the project specifications shall be available on site at all times.
12. All instructions from the engineer shall be written in the triplicate site instruction book provided by the Contractor.
13. Products different to those specified may be used but only with the engineer's prior written approval.
14. The contractor shall ensure that waterproofing materials are not damaged during backfilling operations and fixing of steel. Any repair work for the contractor's account.
15. The contractor is responsible to control storm water and dewatering on the site to prevent damage to the structure, banks, excavations, or any other works for the duration of the contract period.
16. These designs and/or drawings are not sold, and are subject to recall. Reproduction or copying rights are reserved solely to BVi Consulting Engineers under copyright law. These drawings have been delivered and received on the following express conditions:
  - a) they are not to be used in any way which may be construed as being against the interests and/or benefits of BVi Consulting Engineers;
  - b) and all copies shall be returned to BVi Consulting Engineers immediately on demand;
  - c) all information disclosed by these drawings shall be deemed to be confidential and treated as such.
17. The "Engineer" means the director of BVi Consulting Engineers or duly authorized personnel appointed by BVi Consulting Engineers to supervise and take charge of the contract.
18. This document is not a legal document and must therefore be construed in the language of the construction industry.

## **B. FOUNDATIONS AND EARTHWORKS**

1. All earthworks shall be in accordance with the latest SANS 1200 D specifications.
2. All excavations must be inspected and approved by the Geotechnical Engineer or Engineer before placing of any concrete foundation, blinding, waterproofing or geofabric membrane.
3. All excavations sides to be either sloped or shored unless otherwise instructed by the Geotechnical Engineer or the Engineer.
4. Levels of bases as shown are preliminary and have to be confirmed by the Geotechnical Engineer or Engineer on site to obtain the specified bearing pressure. Where excavation levels have to be lowered, the top level of the base should be kept as shown and the blinding layer thickened. Size and reinforcing may be altered by the engineer if required.
5. No foundation shall be cast on either non-engineered fill or backfill material. Portions that are over-excavated beyond the depth required by the geotechnical engineer, to be filled with mass concrete (10MPa / 38mm) at contractor's expense.
6. A 50mm thick blinding layer of 15 MPa/19mm shall be cast under all reinforced foundations. No blinding layer needs to be cast for unreinforced brickwork and mass concrete foundations.

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

7. All foundations are placed symmetrically below columns and brickwork unless otherwise shown.
8. Retaining wall and column foundations shall be cast directly against the vertical faces of the excavation, unless noted otherwise (u.n.o.) on drawings.
9. No backfilling behind retaining walls is to be done before concrete has reached its 28-day strength. Where applicable, backfilling shall be done simultaneously on both sides of walls to minimize the relative height difference in soil levels.
10. Manual compaction of soil is to take place within 500mm of walls.

**C. BRICKWORK & BLOCKWORK:**

1. All brickwork / blockwork shown on engineer's drawings are load bearing u.n.o.
2. All loadbearing, hollow block work to be filled with grade 15 MPa/19mm mass concrete.
3. All setting out of brickwork / blockwork to be done from architect's drawings.
4. Refer to the architect's drawings for general layout of brickwork or blockwork and control joints in brickwork or blockwork.
5. Masonry units shall comply with the following specifications:
  - SANS 227: burnt clay masonry units
  - SANS 285: calcium silicate masonry units
  - SANS 1215: concrete masonry blocks
6. Brickwork and blockwork shall be built according to SANS 10164 and SANS 10400.
7. All brickwork, blockwork, anchors, wall ties and straps shall be in accordance with the latest SANS 10400 and SANS 10164 specifications.
8. The minimum crushing strength of all loadbearing brickwork/blockwork shall be 14MPa u.n.o.
9. The minimum crushing strength of all non-loadbearing brickwork/blockwork shall be 7MPa u.n.o.
10. The minimum crushing strength of mortar shall be as for Class II mortar in accordance with SANS 10164 Table 1 unless noted (u.n.o.) otherwise on drawings.
11. The contractor shall confirm the type of load-bearing bricks planned to use and get approval from the Engineer in writing prior to ordering.
12. The use thereof and type of maxi type brickwork; including data sheets specifying the crushing strength, shall be submitted to the engineer for approval prior to any building work being carried out.
13. Brickforce:
  - 13.1. All brickforce shall be galvanized.
  - 13.2. Load bearing brickwork shall be reinforced with an approved brickforce every second layer and all non-loadbearing brickwork every fourth layer, u.n.o. on drawings.
  - 13.3. Load bearing blockwork shall be reinforced with an approved brickforce every layer and all non-loadbearing blockwork every second layer, u.n.o. on drawings.
  - 13.4. In addition, continuous brickforce is required in every layer for the first four layers above and below the top of foundations & slabs, as well as windows and over door openings, extending at least 1m beyond both sides of the opening. Minimum laps to be 300mm. Outside wire of brickforce to be continuous at corners.
14. All brick anchors, wall ties and straps shall be galvanized.



15. Where brickwork / blockwork and concrete join, V-joints are to be made through the total thickness of the plasterwork.
16. Non-load bearing brickwork / blockwork may not be built closer than 10mm from the soffits and sides of beams and slabs (unless otherwise shown) and only after all props have been removed. The joint shall be filled with "Jointex", or similar approved, and sealed on both sides with 2-part polysulphide. Any specific waterproofing requirements to architect's details.
17. Loadbearing brickwork over slabs is to be completed before the non-loadbearing brickwork under slabs.
18. Place 2 layers of 3-ply Malthoid between slab soffits and load bearing brickwork.
19. Refer to architect's drawings for positions of expansion joints in brickwork / blockwork.
20. Where joints are indicated in slabs and beams, corresponding joints shall also be constructed in brick/block walls.
21. All brick/blockwork shall be fixed to concrete & steel columns by means of hoop iron to line up with brickforce layer.
22. Provide 10mm Isolation joint around all concrete columns, steel columns and against brick and concrete walls. After concrete has set, Jointex to be raked out 10mm deep and sealed with an approved sealant (refer standard details).
23. In cavity walls, wall ties shall join the leaves uniformly spaced and shall be embedded in masonry joints at right angles to the leaves as the work progresses.
24. The number of wall ties per m2 of walling shall be:
  - 75mm > Cavity: 3.7 ties/m<sup>2</sup>
  - 75mm < Cavity < 100mm: 4.5 ties/m<sup>2</sup>
  - 100mm < Cavity < 150mm: 5,0 ties/m<sup>2</sup>
25. Additional ties shall be provided at openings, discontinuities (e.g. control joints) spaced at intervals not exceeding 300mm vertically, or, where deemed necessary or as shown on the drawings such as at external angles.
26. Butterfly galvanized ties of 3,15mm diameter shall be used u.n.o.
27. For high-lift grouted walls, ties complying with the requirements of SANS 10164 Part 2 Annex A (14) shall be spaced at intervals not exceeding 900mm horizontally and not exceeding 300mm vertically, with each layer staggered by 450mm.
28. Ensure that each tie is embedded to a depth of at least 50mm in the mortar joint of each leaf.
29. For cavity widths not exceeding 75mm. Ensure that the wall ties used comply with the relevant requirements of SANS 28 subject to the provision that ties of the single wire type shall not be used.
30. For cavity widths exceeding 75mm but not exceeding 150mm. Ensure that wall ties used are of the vertical twist type (butterfly), or any similar type having at least the equivalent strength and stiffness.
31. Cavity openings shall be left open by omitting brick on the external side until all masonry work was completed. Cavities to be cleaned out properly prior to replacing the omitted brick and the slots to be kept un-grouted.
32. Clay bricks to be wetted before being used.
33. Concrete bricks and blocks to be kept dry before being used.

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

34. All chases shall be vertical and shall not be greater than 25mm deep by 40mm wide. A maximum of 750mm long horizontal chase will be accepted. No diagonal chases will be accepted.
35. For curved brick/block work construction, refer to the drawings for reinforcing details.
36. All clay brick for general building work below damp-proof course or under damp conditions or below ground level; plastered or un-plastered, shall be 14MPa NFX (Non-Facing Extra) bricks.

**D. CONCRETE:**

1. All concrete work shall be carried out strictly in accordance with SANS 1200 G (Structural).
2. All drawings to be read in conjunction with the relevant architectural, concrete drawings as well as the Bill of Quantities and any discrepancy to be brought to the attention of the engineer immediately.
3. No concrete shall be poured until the excavation, blinding formwork and/or reinforcement etc. has been inspected and approved in writing by the Engineer. Engineer to be given a minimum of 48-hours' notice of such an inspection.
4. All casting procedures, construction methods and positions of construction joints shall be submitted to the engineer prior to the commencement of the project.
5. Minimum concrete strength at 28 days shall be as listed below or as indicated on drawings or schedules.

Blinding	-	15 MPa / 19mm
Mass	-	10 MPa / 38 mm
Foundations	-	25 MPa / 26mm
Ground beams	-	30 MPa / 19mm
Columns	-	40 MPa / 19mm
Walls	-	30 MPa / 19mm
Cavity wall infill	-	20 MPa / 19mm
Beams	-	30 MPa / 19mm
Slabs (suspended)	-	30 MPa / 19mm
Surface beds	-	35 MPa / 19mm
External Hard stand	-	30 MPa / 38mm
Stairs	-	30 MPa / 19mm

6. Aggregate used for concrete shall comply with SANS 1083. Slag aggregate shall not be used unless approved in writing by the Engineer.
7. Curing of concrete shall be carried out strictly in accordance with SANS 1200 G clause 5.5.8. The Contractor to provide a method statement, to be approved by engineer, for the curing procedures of the various elements concerned but all surfaces to be kept continuously damp for at least 7 days after casting. Concrete slabs to be covered with moist sand or covered with plastic membrane during this period. Concrete columns to be wrapped in a plastic membrane during this period.
8. Stripping times of shuttering and propping shall be in accordance with SANS 1200 G clauses 5.2.5 and table 2 as reproduced in the table below. No loading shall commence or props removed before the concrete has reached 28-day strength.

Type of structural member or formwork	Type of cement used								
	Portland cement (PC) and PC 15		Rapid-hardening PC* and rapid hardening PC 15				Portland blast-furnace cement		
	Weather								
	Hot or normal	Cool	Cold	Hot or normal	Cool	Cold	Hot or normal	Cool	Cold
a) Beam sides, walls, and unloaded columns	0.75	+	1.5	0.5	+	1	2	+	4
b) Slabs with props left underneath	4	+	7	2	+	4	6	+	10
c) Beam soffits with props left underneath, and ribs of a fibbed-floor construction	7	+	12	3	+	5	10	+	17
d) Slab props incl. cantilevers	10	+	17	5	+	9	10	+	17
e) Beam props incl. cantilevers	14	+	21	7	+	12	14	+	21
* Shorter periods may be used for sections of thickness 300mm or more + In cool weather stripping times shall be determined by interpolation between the periods specified for normal and cold weather									
Cold weather: Weather conditions in which the ambient temperature is 5°C or less. Cool weather: Weather conditions in which the ambient temperature is higher than 5°C but less than 15°C. Normal weather: Weather conditions in which the ambient temperature is higher than 15°C but not higher than 32°C. Hot weather: Weather conditions in which the ambient temperature is higher than 32°C.									

9. All suspended slabs and beams to be back-propped for two (2) completed levels below the propped level of the relevant beam or slab.
10. Propping underneath slabs and beams shall be completely removed before brickwork is built. All bricks required for brick walls on a specific slab panel should be stacked evenly onto that specific slab panel before walls are being built.
11. The contractor must co-ordinate all services drawings for details and positions of openings and sleeves required for stormwater, sewerage, drainage, electrical, mechanical and other services. Discrepancies to be brought to the attention of engineer and other relevant parties.
12. The contractor must co-ordinate concrete drawings with the architect's drawings, for details and positions of rain water pipes in concrete and other architectural cast-in items. Any discrepancy to be reported to the Engineer immediately.
13. The contractor must obtain permission from the engineer before any openings or services, which are not indicated on the drawings, may be introduced through any structural element or close to any column.
14. All pipes (conduiting, water piping, etc.) passing through expansion joints must be provided with an approved flexible joint.
15. All cast-in items to be hot-dipped galvanized, clean and free of oil, dirt or any other material which may impair the bond with concrete. Tolerance for placing according to SANS 1200 GB clause 6.2.

Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

16. All stormwater down pipes cast into concrete to be minimum class 6 high pressure uPVC pipes.
17. The live loads for which the structures have been designed for are as follows:
- |             |                        |      |                                 |
|-------------|------------------------|------|---------------------------------|
| Office area | live                   | 300  | kg/m <sup>2</sup>               |
|             | brickwork              | 2300 | kg/m <sup>3</sup>               |
|             | screed                 | 2.3  | kg/m <sup>2</sup> /mm thickness |
|             | special floor finishes | 3.0  | kg/m <sup>2</sup> /mm thickness |
| Roof        | live                   | 30   | kg/m <sup>2</sup>               |
|             | services               | 45   | kg/m <sup>2</sup>               |
| Balconies   | live                   | 300  | kg/m <sup>2</sup>               |
|             | screed                 | 2.3  | kg/m <sup>2</sup> /mm thickness |
|             | special floor finishes | 3.0  | kg/m <sup>2</sup> /mm thickness |
18. Slagment is to be used in concrete mix only if approved in writing by the Engineer.
19. Concrete cube crushing tests per 50m<sup>3</sup> (minimum of one set per day's casting) shall made as below and to SANS 5861 and tested by an approved, accredited laboratory:
- No off cubes shall be crushed at 7-day strength
  - No off cubes shall be crushed at 28-day strength
20. The type, size and fixing method of spacers used shall be discussed in advance with and approved in writing by the Engineer. Spacer blocks made of concrete shall have the strength of at least equal to the strength of the element cast.
21. Downstand and upstand beam dimensions are given as a x b where:
- a = total depth of beam including slab thickness
- b = width of beam
- 100mm kickers for columns and walls have been allowed for in the reinforcing lengths. They shall be cast with the same strength as the concrete elements below them and thoroughly compacted and cured.
22. All exposed concrete work to be off shutter finish u.n.o.
23. Concrete finishes are to be as per Engineer's drawings with 20x20mm chamfers to all visible edges u.n.o.
24. Concrete poured in excess of three meters high will not be accepted without prior written approval of the Engineer.
25. All grouts and epoxies to be used strictly in accordance with the manufacturer's specification.
26. Concrete tolerance to be degree of accuracy No. II as specified in SANS 1200G as reproduced in table below.

A. Reinforcement				
		Permissible deviation		
1	Spacing between two adjacent bars	± 25	± 20	± 15
2	Longitudinal location of bends and ends of bars	± 40	± 30	± 20
3	Cover to reinforcement (see (e) below)	-0+20	-0+20	-0+10
B.	<b>Formwork: Formwork shall be so constructed as to ensure that the position of the finished work will be as specified, subject to the relevant: permissible deviation given in (c) or (d) below, as applicable.</b>			

<b>C.</b>	<b>Foundations: Mass and reinforced concrete</b>			
1	Position on plan of any edge of surface measured from the nearest grid line or agreed centre line	± 50	± 35	± 20
2	Linear dimension on plan cast against excavation sides	± 60	± 40	± 20
3	Linear dimension on plan cast against formwork	± 30	± 20	± 10
4	Level of underside of concrete	-40+20	-30+15	-20+10
5	Surface level (i.e. top of foundation) (excluding floor slabs)	-30+15	-20+10	-10+5
<b>D.</b>	<b>Elements or components above foundations (Administrative and Service Buildings)</b>			
1	Position on plan of any edge or surface measured from the nearest grid line or agreed centre line	± 25	± 15	± 5
2	Linear (other than cross section) dimensions	± 30	± 20	± 10
3	Cross section dimensions	-10+20	-5+15	±5
4	Level (deviation from designed level with reference to the nearest transferred datum (TD) of the upper or lower surface, as may be specified, of any slab or other element or component)	-20+10	-15+5	-10+0
5	Verticality, per meter of height Subject to a maximum of	5 70	5 50	2 30
6	Out of squareness of a corner or an opening or an element such as a column (see 6.1.2 c) for short side of length i) Up to and including 0.5m ii) Over 0.5m, up to and including 2m iii) Over 2m up to and including 4m	±10 ±20 ±25	±5 ±15 ±20	±3 ±10 ±15
7	Exposed concrete surface: i) Flatness of plane surface ii) Abrupt changes in a continuous surface	10 10	5 5	3 2
8	Exposed concrete surface to be plastered: i) Flatness of plane surface ii) Abrupt changes in a continuous surface	15 10	10 5	* *
<b>D1.</b>	<b>Elements and Components above foundations (factory floors)</b>			
	FM3 Floor Finish			
<b>E.</b>	<b>Cover to reinforcement</b>			
	No deviation from the minimum cover of concrete over reinforcement specified in 5.1.3 (a) will be permitted.			
<b>F.</b>	<b>Location of holding down bolts</b>			
1	The centre line of a holding down bolt from its designated location in plan	*	+3	*
2	The top of the bolt from its designated elevation	*	-3+5	*
<b>G.</b>	<b>Constituents in concrete mix (including water)</b>			
	PD of quantities from approved or designated or prescribed mix, as applicable.	±5	±5	±5

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Tolerances not stated and those for bow, camber, and twist, and for slipform concrete and precast concrete will be staged in the project specification where applicable.

27. FAIR FACED CONCRETE:

27.1 Designation

Fair-faced concrete will be indicated as such with the code FF-S<sub>xx</sub>-F<sub>x</sub>, where:

27.1.1 FF - Fair-faced finish

27.1.2 S<sub>xx</sub> - Structure class, see below for further details

27.1.3 F<sub>x</sub> - Color Class, see below for further details

27.2 Formwork requirements:

27.2.1 All formwork to have non-porous linings. Non-porous linings are deemed to be any of the following.

27.2.1.1 Film coated or sealed plywood

27.2.1.2 Coated boards

27.2.1.3 Steel linings

27.2.1.4 Plastic linings

27.2.2 Joints in the formwork are to be sealed and rendered smooth.

27.2.3 All formwork to be water tight to prevent grout loss.

27.2.4 The formation and arrangement of the formwork on all visible areas (e.g. direction of the formwork boards, joints joint sealing, tie positions, formwork openings and blockouts) are to be shown systematically. The drawings are to be submitted to the engineer and architect for comment and/or approval in good time.

27.2.5 All fair-faced formwork is to be provided to 300mm below ground level.

27.2.6 Ties on concrete surfaces remaining visible are to be arranged to a regular grid pattern. Their number is to be restricted by suitable design of the formwork where possible.

27.2.7 Tie holes are to be carefully plugged with fine concrete of a fitting color, cleanly inserted, or with deeply bonded plugs. The proposed type is to be agreed with the architect.

27.2.8 Ties in cornices and mouldings are not permitted, unless specified otherwise.

27.2.9 A form without longitudinal joints is to be used for cornices and mouldings.

27.2.10 Board formwork:

27.10.1 Prepared boards are to be at least 22mm thick.

27.10.2 Board joints are to be staggered.

27.10.3 Joints to be either (1) tongued and grooved, or (2) wedge-shaped rebated.

27.3 Panel formwork:

27.3.1 The joints of panel formwork must be adjusted in their grid pattern to the shape of the building and also cut to the slope where necessary.

27.3.2 Supplements through board strips or wedges are not permitted on visible surfaces.

27.3.3 Only stiff panels of the same type may be used as formwork panels.

- 27.3.4 Only thin panels of the same type may be used on stiff base formwork.
- 27.4 Release agents:
- 27.4.1 Only proven release agents that leave no spots on the concrete may be used.
- 27.4.2 All agents to be used strictly as specified by the relevant manufacturer.
- 27.4.3 Timber formwork is to be treated with release agent in such good time that it has penetrated into the timber when the reinforcement is fixed. Reinforcement and/or pre-stressing steel may not be soiled by the release agents.
- 27.4.4 New formwork not coated with plastic is to be treated with cement slurry before the first use and to be cleaned and sprayed / painted with release agent at least twice.
- 27.4.5 Concrete requirements:
- 27.4.5.1 Only self compacting concrete (SCC) is to be used.
- 27.4.5.2 Refer to the relevant drawings for the required minimum concrete strengths.
- 27.4.5.3 All concrete mixes are to be designed by a specialist ready-mix supplier.
- 27.4.5.4 Visible surface pores:
- 27.4.5.6.1 The total area of open pores on the concrete surface measured within a test area of at least 500mm x 500mm, may amount to a maximum of 0.3 % of this area; pores below 1mm in diameter are not to be taken into account.
- 27.4.5.6.2 The pores are to be determined on two test areas for each test.
- 27.4.5.6.3 The test areas are to be decided by the architect and/or the engineer.
- 27.4.5.6.4 At least one test is to be done for each representative pour.
- 27.4.5.5 Concrete structure to be Class S2 (u.n.o. on drawings), where
- 27.4.5.6.1 Concrete structure classes are:
- Class S1**
- Smooth, plugged concrete surface
- The joints between neighbouring formwork units must be tightly sealed, so that a maximum of 10mm wide nibs can occur on the surface of the otherwise smooth concrete, by means of the exit cement slurry and/or fine mortar.
- Nibs caused by this are permitted.
- Class S2**
- As Class S1, but joints are to be so tight between neighbouring units that practically no cement slurry and/or fine mortar can escape.
- Nibs are not permitted.
- Class S1A**

As S1, but using a specific type of formwork according to the information in the specification.

**Class S2A**

As Class S2, but using a specific type of formwork according to the information in the specification.

**Class S3**

Structured or plastically designed concrete surface according to the type demanded.

The joints are to be so tight between neighbouring units that practically no cement slurry and/or fine mortar can escape.

Any other special concrete surface finishes to architect's details & specification. Special finishes will be referred to as **Class S4**.

- 27.4.5.6 Concrete colour uniformity to be Class F1 (u.n.o on drawings), where

27.4.5.6.1 The concrete colour classes are:

**Class F1**

Discolouration over an area caused by: rust; different types and previous improper treatment of the form lining; improper subsequent treatment of the concrete; aggregates from different sources; as well as lines of discolouration (reinforcement marks) are not permitted.

Further demands on the uniformity are not made.

**Class F2**

In addition to the requirements of F1, discolourations that are to be attributed to cement of different types or origin, or to different aggregates are not permitted.

Unavoidable differences in the colour when maintaining these conditions and with careful concrete placement are permitted.

Special colouring / pigment requirements to be specified by the architect.

Special requirements will be referred to as **Class F3**.

27.5 Samples:

- 27.5.1 Representative sample panels of each required finish is to be identified on existing buildings in the region, or
- 27.5.2 If no suitable sample exists a sample panel is to be constructed on site. The panel should preferably form part of a normal concrete panel, i.e. not originally deemed fair-faced.
- 27.5.3 The distance of observation is to be agreed by all parties concerned, and documented.
- 27.5.4 Suitable digital photographic evidence of the sample panel is to be kept on record by the contractor.

27.6 Defective concrete & remedial works:

- 27.6.1 Defective concrete to the engineer's immediate attention in writing.
- 27.6.2 No remedial work may be done without written consent from the engineer.



- 27.6.3 Visible honey combing will not be permitted.
- 27.6.4 All concrete forming part of the pour containing visible honeycombing will be demolished and rebuilt at the contractor's expense.
- 27.6.5 No protruding reinforcement will be permitted.
- 27.6.6 All blows are to be filled using durarep FC (by abe Construction chemicals or similar approved), if deemed necessary by the architect and/or engineer.
- 28. Construction joints:
  - 28.1. All horizontal and vertical construction joints shall be cleaned of all dirt and loose particles. All intersections of construction joints with concrete surfaces, which will be exposed to view, shall be made straight and level or plumb.
  - 28.2. The surface of concrete to be prepared shall be between 6h and 12h old after completion of placing and shall be "blown off" using a high-pressure water jet until all dirt and laitance is removed, and particles of clean coarse aggregate are exposed sufficiently to produce a rough keyed surface. (The success of this method of preparation is dependent on selection of the correct time and equipment to suit the cement type and atmospheric conditions).
  - 28.3. The prepared surfaces shall be saturated with fresh clean water for a period of 4 hours prior to the adjoining pour.
  - 28.4. Prior to the placement of concrete, the surface condition shall be saturated, yet surface dry – no ponding or standing of water.
- 29. Concrete surfaces
  - 29.1 When a wood-floated / Mechanical Pan float finish is specified, the surface shall first be treated as follows:
    - 29.1.1 Immediately after placing and compaction, the concrete shall be levelled with true straight edged equipment working between forms or other guides set accurately to line and level.
    - 29.1.2 No mortar shall be added to depressions and proud aggregate shall be tamped level.
    - 29.1.3 After the concrete has hardened sufficiently, it shall be floated to a uniform surface, free from trowel marks with a wooden float.
    - 29.1.4 Within 2hrs of final set, curing of the concrete shall commence.
  - 29.2 When a steel-floated finish is specified, the surface shall be treated as specified for a wood-floated finish above. In addition, the following is to be done:
    - 29.2.1 When the bleed water has disappeared and the concrete has hardened sufficiently to prevent the migration of laitance foam to the surface, the leveled surface shall be floated with a steel trowel.
    - 29.2.2 Firm uniform pressure shall be applied to provide a dense, smooth, uniform surface free from any irregularities.
  - 29.3 When a power-floated finish is specified, the surface shall be treated as specified for a wood-floated finish above, in addition the following is to be done:
    - 29.3.1 The leveled concrete surface shall be power-floated to provide a dense surface.
    - 29.3.2 After the bleed water has disappeared and the concrete has hardened sufficiently the float-blades shall be replaced with trowel-blades.
    - 29.3.3 The Surface will be power-trowelled with a single pass to provide a dense, smooth, uniform surface free from irregularities.

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29.4 When a power-trowelled finish is specified, the surface shall be treated as specified for power-floated finish above. In addition, the following is to be done:

29.4.1 After fitting the trowelled-blades the surface shall be continually burnished to provide a dense, smooth, high quality polished surface free from all irregularities.

**E. SURFACE BEDS:**

1. Provide 10mm isolation joints (IJ) around all concrete columns, steel columns and against brick and concrete walls. After concrete has set, Jointex to be raked out 10mm deep and sealed with approved joint sealant – refer to Standard Details.
2. Concrete class: Refer section D: Concrete to be 35/19 MPa to receive Micro Fibre at a rate of 600g – 900g/m<sup>3</sup>.
3. Finishes: FM3 Finish with a Mechanical power pan floated finish followed by a mechanical grind to expose aggregate, in order to apply an impact and chemically resistant self-levelling, HACCP certified Polyurethane-urea cement screed min 4mm or as per the manufacturer's specification. u.n.o.
4. Damp proofing membrane to be installed under surface beds 250 Micron, u.n.o.
5. Saw-cut joints shall be done as soon as concrete is firm enough not to damage the edges, usually between 6 to 16 hours but not later than 48 hours. Joints to be repeated in finished surfaces in panels of 4m c/c.
6. Preparing and sealing of joint to be carried out by specialist.
7. Sealants: All sealants as per the drawings. The preparation, quantities used and application procedure to be in strict compliance with the manufacturers' recommendations and specifications.
8. Dowels: To be hot dip galvanized. Utmost care to be taken when dowels are placed, straight and true in position. Dowel ends at sliding end to be free of burrs.
9. Method statement for pouring of surface bed panels to be approved by the engineer.

**F. REINFORCEMENT:**

1. Reinforcement shall be manufactured and fixed to comply with the tolerances as specified in SANS 1200 G and/or the project specification.
2. Reinforcement tolerance to be degree of accuracy No. II as specified in SANS 1200 G (as reproduced in table in Section D: Concrete).
3. Bending of reinforcement shall be in accordance with SANS 282.
4. The contractor shall inspect and approve the fixed reinforcement with spacers and cover blocks, services and confirm that the shuttering is clean before the engineer is notified. All reinforcement shall be inspected and approved by the engineer before casting of concrete may commence. Engineer to be given a minimum of 48-hours' notice of such an inspection.
5. The Contractor is to maintain the reinforcing steel in position after placing and during concreting. If additional spacers and chairs are required, (other than those detailed) they are to be provided by the contractor at his expense.
6. Reinforcing must be thoroughly cleaned of all dirt, grease, bituminous material, scale and loose rust.
7. The lap lengths of reinforcing bars are to be as specified or a minimum of 40 bar diameters for mild steel and 50 bar diameters for high tensile deformed bars.
8. No heat treatment or cutting of steel without the written approval of the engineer shall be allowed.

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

9. Bend-out bars at construction joints shall be bent out with a suitable pipe so that no kink is formed in the bar.
10. Minimum concrete cover to reinforcing to be allowed for to be as follows (u.n.o.):
 

Foundations	-	75mm
Columns (under damp course)	-	30mm to stirrups
Columns (above damp course)	-	30mm to stirrups
Beams	-	30mm to stirrups
Slabs (internal)	-	30mm
Slabs and roof slabs (external)	-	30mm
Retaining walls (against soil)	-	40mm
Retaining walls (other faces)	-	40mm
Raft foundations	-	75mm
11. The following grouts may be used for dowel bars (or similar products prior approved by the Engineer) u.n.o. Grouts to be used strictly in accordance with the manufacturers' specifications:
 

Vertical dowels	-	Hilti HIT-HY 150 or Sika similar
	-	ABE Epidermix 395
	-	Sikadur 31
	-	Pro-Struct 618/632
Horizontal dowels	-	Hilti HIT-HY 150 or Sika similar
	-	ABE Epidermix 396
	-	Sikadur 31
	-	Pro-Struct 617
Vertical dowels upside down	-	Sikadur 31
	-	Pro-Struct 617

#### **G. STRUCTURAL STEELWORK:**

1. All structural steelwork shall be fabricated and erected in accordance with SANS 1200 H (Structural steelwork) and SANS 10162 (Structural use of Steel).
2. Steel surfaces of all steel shall be prepared to a preparation grade P3 (very thorough preparation) according to SANS 8501-3:2008 irrelevant of the type of corrosion protection specified.
3. All dimensions and levels shall be checked on site in order to confirm shop drawings. Any discrepancies shall be brought to the attention of the engineer.
4. All structural steel drawings to be read in conjunction with the relevant architectural, concrete drawings as well as the Tender Documents and any discrepancy to be brought to the attention of the engineer.
5. A complete set of shop drawings shall be submitted to the engineer for approval before fabrication commences. Shop drawings will only be checked for compliance with design intent. No dimensional checks, checks on cleats, bolts, welds and gussets will be done. Only sizes of structural members, connections and splices will be checked also with regard to design intent. Final dimensions and the correct fitting of members shall remain the responsibility of the contractor.
6. Structural steelwork shall be completed by the manufacturer (i.e. cleaned and coated with the specified primer in the workshop or hot dip galvanized with/without a duplex) before transportation to site.

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

7. All hot rolled, plates, sections and CHS (Circular Hollow Sections) structural steelwork shall be grade S355JR or grade 350WA. Cold-formed steel sections used for girts and purlins, shall have a minimum yield stress of 240 MPa. Tensile strength testing results must be provided for each batch of steel.
8. No steel of grade Q345 shall be accepted.
9. All pre-hot dip galvanized sheeting shall be minimum grade Z275 to SANS 4998:2007 Continuous hot dip zinc coated carbon steel sheet or structural quality.
10. A certificate from the steel manufacturer in which the grade of the structural steel is verified shall be handed to the engineer for approval prior to any manufacturing commences.
11. The contractor is responsible for stabilizing the structure and maintaining it in the correct position during erection. Where temporary bracing or propping is required, the contractor shall be responsible for the design, erection, maintenance and removal (where necessary) of such supports. If splices in trusses are required for transport restrictions, proposals of this shall be submitted to the engineer at an early stage for written approval.
12. The contractor shall, at the commencement of the project, acquaint himself with the availability and delivery time of the products and steel profiles specified on the drawings so that such material can be ordered ahead of time.
13. Welds:
  - 13.1 Welding shall be done in accordance and comply with regulations set out in AWS D1.1 American Welding Society: Structural Welding Code – Steel.
  - 13.2 The welding symbols used are in accordance with AWS D1.1 as reproduced in Table 6.32 & 6.33 of the Structural Steel Tables published by the SAISC (SA Institute of Steel Construction).
  - 13.3 Welds shall conform to SANS 10167 and AWS D1.1 specification.
  - 13.4 Where no weld sizes are shown, the minimum weld size (throat thickness) shall be that of the thickest plate of the connecting plates/elements or 6mm minimum. Unless otherwise shown the intention of connections are to transfer the full force that can be developed in connecting members through the connection.
  - 13.5 When using SMAW (Shielded metal arc welding), all electrodes shall be E7018. For any other welding process to be used, the contractor shall apply, in writing, for the approval from the engineer for the electrodes to be used.
  - 13.6 All butt welds shall develop the full strength of the elements joined.
  - 13.7 All splices shall develop the full strength of the elements joined.
  - 13.8 Welding shall only be performed by coded welders and certificates shall be supplied to the engineer.
  - 13.9 Suitably qualified and experienced welders using proper equipment in a good condition shall do all site welding.
  - 13.10 The contractor shall design all welds and, where necessary, gussets of sufficient strength shall be provided to obtain the required weld length to ensure the full strength of the connection.
  - 13.11 In joints with groove welds, the edges of the elements to be connected shall be cut (“prepared”) to allow for the weld to penetrate into the groove and the elements.

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

Table 3.3 of the AWS D1.1 as reproduced in Table 6.25 of the Structural Steel Tables published by the SAISC, provides prequalified edge preparations for SMAW welding.

14. Quality control on welding shall be ensured as follows:
  - 14.1 Quality control of welding will be done by qualified external consultants; u.n.o.; and the cost associated therewith shall be included in the tendered amount for the project.
  - 14.2 The following methods shall be used during quality control:
    - 12.2.1 Visual Inspection: All welds shall be inspected using visual aid and individual weld passes shall be inspected for signs of arc strikes, spatter, porosity, slag inclusion, undercut, crater cross section and any welding cracks. Bead size, shape and sequences will also be observed, as well as possible signs that may point to lack of base metal fusion and incomplete penetration.
    - 12.2.2 100% of all butt welds shall be tested using ultrasonic non-destructive tests. The requirement; under the approval of the engineer and recommendation from the consultant; may be reduced when confidence in the quality provided by the welder(s) has been developed.
    - 12.2.3 10% of all fillet welds shall be tested using magnetic particle non-destructive tests. The requirement; under the approval of the engineer and recommendation from the consultant; may be reduced to 5% of all fillet welds when confidence in the quality provided by the welder(s) has been developed.
    - 12.2.4 100% of all welds on crane or crawl beams shall be tested using ultrasonic non-destructive tests.
13. All structural bolts shall be hot-dipped-galvanized grade 8.8 u.n.o.
14. Where HSFG bolts are specified, the following shall apply:
  - 14.1 All contact surfaces at HSFG bolt splices shall be free from oil, grease, rust, scale, paint or any other impurities at the time of bolting.
  - 14.2 The tightening of high strength friction-grip bolts shall be done according to the turnof-the-nut method as specified in clause 5.3.1(a) of SANS 10094

or

where HSFG bolts have been specified, the contractor shall use "coronet"-type load indicating washers in conjunction with such bolts.
15. Fabricator to ensure that centers of gravity of members intersect at node points, except where eccentricities are specified on engineer's drawings. Where slotted holes for bolts occur, the nut shall be hand tightened and a lock-nut be provided (u.n.o.).
16. Paint and hot dip galvanizing specifications to be adhered to as specified by Section H and K of this document.
17. Allow for all bolts to be hot dip galvanized and be painted 3 days in advance of needing them for erection. Refer to hot dip galvanizing and paint specification of bolts in Section H and K of this document.
18. Where applicable, cementitious non-shrink grout shall be provided under base plates before any primary loads are applied to the structure. Hot-dip galvanized, laminated finger shaped packing to be provided under base plates. The following grouts, u.n.o., may be used (or similar products approved by the Engineer). Grouts to be used strictly in accordance with the manufacturers' specifications:

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

General application:

- SikaGrout 212
- Pro-Struct 618/22 Epoxy mortar & tile grouting compound

Dynamic load application (resin, self-leveling)

- Sikadur-42 ZA
- Pro-Struct 501 Five Star epoxy Grout
- Pro-Struct 638 Pourable Epoxy Grout

## **H. CORROSION PROTECTION: HOT DIP GALVANIZING:**

### **H1: General**

1. The hot dip galvanized coatings shall conform in every respect to the standards contained in the South African National Standards, SANS 121 (ISO 1461) Hot dip galvanizing coatings on fabricated iron and steel articles and SANS 32 (EN 10240) Internal and/or external protective coatings for steel tubes, Hot Dip Galvanizing specification for products other than continuously galvanized sheet and wire as well as the SANS1200HC or latest edition of the relevant specification.
2. All pre-hot dip galvanized sheeting shall be minimum grade Z275 to SANS 4998:2007 Continuous hot dip zinc coated carbon steel sheet or structural quality and all wire to SANS 675:2009: Specification for coated fencing wire.
3. The galvanizer shall be an accredited member of the Hot Dip Galvanizers Association Southern Africa (HDGASA) and shall issue a certificate of conformance to ISO 10474 or if registered as a South African Bureau of Standards (SABS) Mark Scheme Galvanizer, a SABS certificate of conformance. (A list of approved members is available on the Association web site, [www.hdgasa.org.za](http://www.hdgasa.org.za)).
4. All structural steel shall be minimum grade of S355JR (350WA) and shall be certified with a Silicon content between 0.15% and 0.23% and Phosphorus content <0.02%. The contractor to supply the certificate as proof of the above requirements prior to the manufacturing of any structures.
5. For this project all steelworks shall not be hot dip galvanized U.N.O. on drawings.
6. It is the contractor's responsibility to ensure that all steel to be hot dip galvanized shall be designed and fabricated in accordance with ISO 14713: 2011 Part 1: General principles of Hot dip Galvanizing and ISO 14713: 2011 Part 2: - Design for hot dip galvanizing.
7. The hot dip galvanizer shall provide a quality management plan detailing inspection procedures, which will include inspection of steel prior to galvanizing, inline inspection during surface preparation and galvanizing and final inspection prior to dispatch. Where fabrication defects are identified prior to galvanizing, e.g. burrs, poor welding or excessive weld spatter, such components shall be placed on hold and a non-conformance report submitted to the fabricator.
8. Double end dipping shall be permitted provided that it will not result in distortion of the product and an acceptable surface finish of the coating is achieved.
9. Bolts and nuts of gr 4.8 and gr 8.8 shall be hot dip galvanized to SANS 121 (ISO 1461) and high tensile fasteners from grade 10.9 and above, shall be hot dip galvanized in conformance to ISO 10684. The hot dip galvanizer shall issue a certificate of compliance with this requirement. All fasteners shall be supplied by a SABS approved manufacturer.
10. Zinc electroplated (electro-galvanizing) bolts and nuts are unacceptable.
11. All welds to be full length seal weld.

Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

12. Any coating repairs undertaken on the galvanizers premises or later on site, e.g. touch up of small-uncoated surfaces (black spots), shall be strictly limited both in dimension and quantity as stipulated in the relevant SANS 121 (ISO 1461) specification.
- 12.1. Uncoated areas and defects shall be repaired according to the site repair instructions below of this. The repaired surface shall not be accepted or dispatched until the repaired surface coating has cured.
- 12.2. Where coating defects exceed the specified permissible limit, which qualifies for touch-up repairs after galvanizing, affected items shall be rejected and re-galvanized or, if applicable, a repair method may be approved in writing by the engineer.
- 12.3. Final inspection: Following satisfactory completion of the final inspection and provided prior arrangements have been made as per clause 1, the galvanizers' inspectorate shall issue a certificate stating that the applied coating conforms to the requirements of SANS 121 (ISO 1461) or SANS 32 (EN 10240) as applicable.
13. Quality surveillance:
- 13.1. For the purpose of carrying out quality surveillance, the engineer or its QA / QC Consultant shall be granted access to any part of the galvanizer's premises relevant to the work being carried out, at any reasonable time. The galvanizer shall provide, at his own cost, any equipment or labour necessary to gain access to surfaces which are coated, to be coated or are in the process of being coated.
- 13.2. The Engineer may remove any reasonable samples of materials to be used in the coating application. Rejection of the sample will place a hold on the use of material of the same batch number and may lead to rejection of all that batch of material and the reworking of any components that have already been coated with rejected material.
- 13.3. The Engineer may carry out reasonable destructive tests to ascertain compliance with the specification. The contractor, to the satisfaction of The Engineer and at no additional cost, shall repair areas thus damaged.
- 13.4. The cost of quality surveillance will be borne by the Engineer, except where surveillance results in rejection of the work or when notice by the contractor results in a fruitless trip, in which case the contractor shall carry the cost of surveillance.
14. Handling and storage:
- 14.1. Handling: All coated components shall be handled using soft slings or specially positioned lifting points provided for such handling.
- 14.2. Loading and off-loading: All hot dip galvanized and/or duplex coated components to be transported shall be loaded on suitable dunnage and lashed to avoid chafing and steel to steel contact. Plastic "Spaghetti strips" must be used to protect smaller items of steel and angles (5mm spaghetti plastic coil). Coated steel shall be secured on the truck preferably with nylon securing straps. Where chains must be used, suitable rubber insertion pads must be placed between the coated steel and chains at all contact points.
- 14.3. Cover: Coated items shall be stored under cover where possible. Items not stored under cover shall be stored in such a manner as to avoid retention of water and allow good circulation. Items shall be stored on timber or on trestles fitted with timber to raise the product to at least 100mm off the ground.
- 14.4. Stacking: Items shall be stacked using timber packaging or other approved means to avoid coating-to-coating contact. Sufficient bearing area of packing shall be used to avoid damage to coatings.

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

15. Site repairs/defects/uncoated areas:

- 15.1. Any coating repairs undertaken on the galvanizers premises or later on site, e.g. touch up of small-uncoated surfaces (black spots), shall be strictly limited both in dimension and quantity as stipulated in the relevant SANS 121 (ISO 1461) specification.
- 15.2. Any uncoated areas, modifications, transportation and erection damage, shall be repaired by abrading with 80 grit sand paper and painting with Zincfix, GalvPatch or equal and approved twin pack zinc rich epoxy paint, achieving an overlap of 5mm onto the surrounding sound zinc coating and to a minimum thickness of 100µm. When a duplex coating system has been specified the DFT of the repair coating shall be equal to that of the surrounding hot dip galvanized coating in terms of SANS 121 (ISO 1461). Steel shall not be accepted until the repaired surface has cured. Furthermore, in priority and as approved by the Engineer:
- 15.2.1. Black steel utilized in modifications with hot dip galvanized steel shall be dispatched for hot dip galvanizing. Any areas that are to be subsequently welded should either be masked prior to hot dip galvanizing or suitably cleaned of zinc in order to prevent possible weld metal embrittlement or zinc residue inclusions, prior to welding on site.
- 15.2.2. Alternatively, black steel utilized in modification with galvanized steel shall be abrasive blast cleaned to Standard SA 2½ to obtain a surface profile of 40 to 70 microns. Once the surface profile has been inspected and certified, apply zinc thermal sprayed coating to a minimum thickness of 120µm.
- 15.2.3. Alternatively, black steel utilized in modifications with hot dip galvanized steel shall be abrasive blast cleaned to Standard SA 2½ per International Standard ISO 8501-1 – 1988 to obtain a surface profile of 40 to 70 microns. Once the surface preparation has been inspected and certified, apply one coat of Zincfix, GalvPatch or equal and approved twin pack zinc rich epoxy paint, achieving a overlap of 5mm onto existing sound hot dip galvanized coating where black steel is welded to hot dip galvanized components. Dry film thickness shall be 100µm. When a duplex coating system has been specified the DFT of the repair coating shall be equal to that of the surrounding hot dip galvanized coating.
- 15.3. Where site modifications by means of welding of a hot dip galvanized surface is required, all traces of the hot dip galvanized coating shall be ground-off prior to welding. Removal of the zinc coating from surfaces to be welded is necessary in order to prevent possible weld metal embrittlement or zinc residue inclusions. Repair to be done to all welds as per above instructions.

**I. CORROSION PROTECTION: PAINT**

**I1: General**

1. The preparation of the substrate and all paint work shall conform in every respect to the standards contained in the South African National Standards, the SANS1200HC or latest edition of the relevant specification.
2. All work to comply with the project specifications.
3. Carefully inspect each coat for misses and carry out dry film thickness (DFT) testing. No single DFT reading may be less than the minimum or greater than the maximum. The mean of the readings shall equal or exceed the nominal.
4. All critical areas, edges, welds, etc. to be given extra stripe coats. All coats to be in contrasting shades.

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_



5. Surface preparation shall be done by sweep blasting to Sa2½ according to ISO 8501-1 for this project. Chemical cleaning shall only be done on written approval of the Engineer. (Sa2½ - Very thorough blast-cleaning = When viewed without magnification, the surface shall be free from visible oil, grease, and dirt, and from mill scale, rust, paint coatings and foreign matter. Any remaining traces of contamination shall show only as slight stains in the form of spots or stripes. The term "foreign matter" may include water soluble salts and welding residues. These contaminants cannot always be completely removed from the surface by dry-blast cleaning, hand tools and power tool cleaning or flame cleaning: wet blasting may be necessary)
6. **Warning:** Sweep blasting shall be undertaken strictly in accordance with the procedures as specified in the code, with particular reference to the selection of the appropriate abrasive, blasting nozzle pressure and angle of deflection of the blasting media.
7. A hold or witness point should be established after sweep blasting has taken place before painting is commenced where the contractor to give the Engineer 48 hours' notice for inspection.
8. Recoating intervals must be taken into account with transportation and erection times on site and the paint coats done at the place of manufacturing.

#### INDEX / SCOPE OF PAINT SPECIFICATION

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1	INLAND	Mild, structural and industrial steel	Plascon Wall & All	Water based	5
2	COASTAL	Hot dip galvanized mild, structural and industrial steel	Plascon Wall & All	Water based	5
3	INLAND	Mild, structural and industrial steel going into the ground	Plascon Plascotuff Epoxy Coal Tar	Solvent based	5
4	INLAND & COASTAL	Insides of hot dip galvanized steel gutters plus hot dip galvanized structural steel going into the ground	Plascon Plascotuff Epoxy Coal Tar	Solvent based	5
5	INLAND & COASTAL: WATERPROOFING	Plastered parapet walls, around hot dip galvanized box gutters & tops of steel roof overlaps	Plascon Plascotuff Epoxy Coal Tar (EPD 100)	Solvent based	-
6	INLAND & COASTAL: WELDS ON GALVANIZED STEEL	Painting welds on hot dip galvanized steel.	GalvPatch or ZinkFix Plascon Wall & All	Zink rich epoxy Water based	6
7	INLAND/COASTAL: ALUMINIUM	Painting Aluminium	Plascon Wall & All	Water based	6
8	INLAND: BOLTS	Painting mild steel bolts	Plascon Wall & All	Water based	6

Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

EXTENSIONS TO YANFENG MANUFACTURING FACILITY IN ZONE 1A OF THE ELIDZ -  
ASP/YANFENG/EXT/11/09/Z1A

SPEC. SHEET NO	AREA	SCOPE OF WORK	PRODUCT & PRODUCT CODE	WATER/SOLVENT BASED TEXTURE/FINISH	MAINT. CYCLE (years)
9	COASTAL: BOLTS	Painting hot dip galvanized bolts	Plascon Wall & All	Water based	6

**SPECIFICATION SHEET NO: 1**

**INLAND: PAINTING MILD, STRUCTURAL AND INDUSTRIAL STEEL**

(6-year life expectancy before first maintenance)

**NEW WORK/REPAINT:** NEW WORK - INLAND

**SUBSTRATE:** Mild Steel

**PAINT FINISH:** Plascon Wall & All

**PRODUCT CODE:** **WAA**

(Smooth finish – water based, premium pure acrylic - sheen)

**COLOUR:** **As per Architect's specification**

**ENVIRONMENT:** As per ISO 12944 part 2: Maintenance Cycle (Years)

C1 - Inland	6
C3 - Industrial	6

Coating System	Application Method	Theoretical Spreading Rate / m <sup>2</sup>	DFT / WFT µm Max –Min	Reducer/ Cleaner	Overcoating time, @ 25°C	Technical Data Sheet No:
<b>1<sup>st</sup> Coat:</b> Plascon Epiwash Strontium Chromate Primer (AW255)	B or S	@ 25 µm Theo – 10 Prac – 5	WFT 109152 DFT 25 - 35	GP Epoxy Reducer (EPT 1)	4	E-17
<b>2nd Coat:</b> Plascon Wall & All (WAA)	B, R or S	@ 30 µm Theo – 13 Prac – 7	WFT 63 - 88 DFT 25 - 35	Water	2	L-19
<b>3rd Coat:</b> Plascon Wall & All (WAA)	B, R or S	@ 30 µm Theo – 13 Prac – 7	WFT 63 - 88 DFT 25 - 35	Water	2	L-19
			<b>Minimum DFT 75 µm</b>			

Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

**SPECIFICATION SHEET NO 1:**

**INLAND: PAINTING MILD, STRUCTURAL AND INDUSTRIAL STEEL  
SURFACE PREPARATION**

**Rust Free**

Surfaces must be clean, dry and rust free. Remove surface contaminants using Plascon Aquasolv Degreaser (GR 1), scrubbing with bristle brush or broom, or using Scotch Brite pads. Rinse thoroughly with tap water while brushing or hydroblast to remove all traces of Plascon Aquasolv Degreaser (GR1) to achieve a water break-free surface. Dry surface rapidly to prevent flash rust formation. Cleaned surface must be painted within 4 hours.

**Rusted**

After degreasing sand off rust with coarse emery paper or wire brush to ISO 8501 - 01: 1988 - St3 to attain a bright metal finish. Remove dust.

**Millscale & Rust**

Alternatively, remove millscale and rust by abrasive blast cleaning to ISO 8501 - 01: 1988 - Sa2½. Remove dust by vacuum cleaning. Prime within 4 hours.

---

**APPLICATION FOR PRIMER: PLEASE NOTE POWER MIXING IS ESSENTIAL BEFORE  
USE FOR PRODUCT CONSISTENCY**

**Step 1: Primer**

Apply one coat of Plascon Epiwash Strontium Chromate Primer (AW255) to achieve a continuous film. Allow 4 hours to dry.

**APPLICATION FOR PRIMER AND FINAL COATS**

**Step 2: Final Coats**

Apply two full coats of Plascon Wall & All (WAA) to achieve complete obliteration, allowing 2 hours drying between coats.

---

**TABLE REFERENCES:**

- Technical Data Sheet (TDS): User must always ensure that the latest issue is used.
- Power mixing using a variable speed mixer is preferable.
- All two component materials need to be mixed (Component A & B) as per data sheet or as per instructions on the packaging
- Pot life varies as per temperature gradient.
- Over coating intervals are critical for good inter coat adhesion

**SPECIFICATION SHEET NO. 4:**

**INLAND AND COASTAL: PAINTING INSIDES OF HOT DIP GALVANISED BOX  
GUTTERS PLUS HOT DIP GALVANIZED STEEL GOING INTO THE GROUND**

(5 year life expectancy before first maintenance)

**NEW WORK/REPAINT:** NEW WORK – EXTERIOR – INLAND & MARINE AND  
COASTAL AREAS WITH HIGH SALINITY

**SUBSTRATE:** Hot dippes galvanizing (preferably non-passivated)

**PAINT FINISH:** Topcoats: Plascotuff Epoxy Coal Tar

**PRODUCT CODE:** **EPD 100**

**COLOUR:** Black

**ENVIRONMENT:** As per ISO 12944: Maintenance Cycle (Years)  
C5 - Coastal/Marine 5

Coating System	Application Method	Theoretical Spreading Rate / m <sup>2</sup>	DFT / WFT $\mu$ m Max –Min	Reducer/Cleaner	Overcoating time, @ 25°C	Technical Data Sheet No:
<b>Stripe Coat &amp; Full Primer Coat:</b> Plascon Plascotuff 3000 (PEX 3000/PEH3	Spray Recommend	@150 $\mu$ m Theo – 5.3 Prac -	WFT125-250 DFT 100-200	Epoxy Reducer (EPT 2)	Min.16 hours Max 4 weeks	PC-4
<b>1<sup>ST</sup> Coat</b> Plascotuff Epoxy Coal Tar (EPD100 black)	Apply first layer at 85 $\mu$ m dft.	@80 $\mu$ m Theo – 7.4 Prac-	WFT118-152 DFT 70-90	G.P. Epoxy Reducer (EPT1)	3 -4 hrs.	PC-22
<b>1<sup>ST</sup> Coat</b> Plascotuff Epoxy Coal Tar (EPD100 black)	Apply first layer at 85 $\mu$ m dft.	@80 $\mu$ m Theo – 7.4 Prac-	WFT118-152 DFT 70-90	G.P. Epoxy Reducer (EPT1)	3 -4 hrs.	PC-22
			<b>Minimum DFT 240 <math>\mu</math>m</b>			

Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

**SPECIFICATION SHEET NO. 4:**

**INLAND AND COASTAL: PAINTING INSIDES OF HOT DIP GALVANISED BOX  
GUTTERS PLUS HOT DIP GALVANIZED STEEL GOING INTO THE GROUND**

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**SURFACE PREPARATION:** Also refer Section H: Corrosion protections: Hot dip Galvanizing

**Step 1: Degreasing**

Apply Plascon Galvanized Iron Cleaner (GIC1) to all bare galvanized areas by brush, broom or spray. Allow to react for 1 minute. Rinse off with tap water using "Scotch Brite" pads to remove all surface contaminants. Check if surface is water-break free. If not, repeat the cleaning process. Allow to dry completely.

**OR PREFEREABLY**

**Sweep Blasting Hot Dipped Galvanizing.**

Abrasive sweep blast at reduced pressure and using "Garnet Mica" as a blast media to achieve a blast profile of 20 - 30 µm (micrometres). Vacuum clean all debris from the substrate

**Step 2: Soluble Salts / Chlorides Test**

By means of the Wattman Paper, Weber Reilly or similar test method ensure that the Soluble Salts/ Chloride content to comply with SANS 5770.

---

**APPLICATION FOR PRIMER:** please note power mixing is essential before use for product consistency

**Step 1 Primer**

**NOTE: Stripe coat all welds and edges prior to applying a full primer coat.**

Premix both components of the Plascotuff 3000 (PEX 3004 Grey/PEH 3) using a power mixer for 3 minutes and then apply (preferably) by airless spray, conventional spray, roller or brush (small areas only) to a minimum DFT of 100 – 200 µm or WFT of 125 – 250 µm @ a theoretical spread rate of 5.3 m<sup>2</sup> / lt.

Allow a minimum of 16 hours curing @ 25°C and a maximum of 4 weeks prior to over coating.

Dependent on the mode of application, multiple coats may be required to achieve specified DFT and or full obliteration.

**APPLICATION FOR TOP COATS** please note power mixing is essential before use for product consistency

**Step 2: Apply top coat in multi -coat layers:**

Mix base and hardener of Plascotuff Epoxy Coal Tar (EPD100) individually using a power mixer then add together the Base and Hardener and mix until homogeneous. The mixture must be allowed to stand for at least 20 minutes before use. Mix only sufficient material for the area to be coated within the next 3-4hrs. Material becomes unusable after about 8 hrs. at 25°C.

Note: Brush and roller application: The material once mixed and having stood for 20 minutes is ready for application.

Thinning is not recommended.

Spray: For application thin as required using Plascon G.P. Epoxy Reducer (EPT1).

---

Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

Apply by brush or roller, in multicoated layers, Plascotuff Epoxy Coat Tar (EPD 100) to achieve a dry film thickness of 170um.

NOTE: Using a brush application, more than one coat may be required to achieve the specified dry film thickness (dft).

**NOTE: EPOXY COAL TAR: do not overcoat with itself once fully cured**

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**TABLE REFERENCES:**

- Technical Data Sheet (TDS): User must always ensure that the latest issue is used.
- Power mixing using a variable speed mixer is preferable.
- All two component materials need to be mixed (Component A & B) as per data sheet or as per instructions on the packaging
- Pot life varies as per temperature gradient.
- Over coating intervals are critical for good inter coat adhesion

**SPECIFICATION SHEET NO: 5**

**INLAND AND COASTAL: WATERPROOFING OF PAINTED PARAPET WALLS,  
AROUND HOT DIP GALVANIZED BOX GUTTES & STEEL ROOF OVERLAPS**

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**NEW WORK/REPAINT:** NEW WORK – EXTERIOR

**SUBSTRATE:** Metals – Hot dip galvanized Steel, Mild Steel, Chromadek  
Masonry – Plastered Parapet Walls

**WATERPROOFING PRODUCT:** Professional Waterproofing Compound  
PRODUCT CODE: PWC 520  
**or Plascon Multiseal**  
PRODUCT CODE: WSS 2

**COLOUR:** As per Architect's specification

**SURFACE PREPARATION:** Also refer Section H: Corrosion protections: Hot dip Galvanizing

- Step 1:** Ensure that the surfaces are clean, dry and sound.
- Step 2:** Ensure that the substrate has been pre-primed with the appropriate primer as specified and allowed to dry.
- Step 3:** APPLICATION OF WATERPROOFING COMPOUND
- Masonry parapet walls and surrounds of box gutters to be sealed with Professional Waterproofing Compound (PWC520) or Plascon Multiseal (WSS2) including tops of Chromadek canopy overlaps.
- Three coats must be applied at a wet film thickness of 650µm per coat to achieve the recommended dry film thickness of 1000µm (1mm thick). Allow 4 hours drying at 23°C between coats. (1,7lt/m<sup>2</sup> for all three coats at 1000µm dry film thickness).

---

**TABLE REFERENCES:**

- Technical Data Sheet (TDS): User must always ensure that latest issue is used.
- B = Brush (ready for use), R = Roller (synthetic, min. 10mm pile) (ready for use), S = Airless spray (ready for use).
- Theoretical spreading rate quoted is for smooth non-porous substrates and does not include allowance for surface profile, porosity, wastage and uneven film application. Suitable allowance should be made according to type of work, method and skill of applicator. Practical spreading rate quoted is an average guide only - actual must be determined by user - see Preamble for formulation how to calculate.
- Overcoating times are at 23°C and 75% relative humidity. Longer times must be allowed under cooler and moist conditions. DO NOT paint during inclement weather and when temperature is below 10°C.
- Fading and chalking will occur to a greater or lesser degree depending on pigmentation and generic binder type.
- NB: Life expectancy may vary, depending on environmental conditions and stresses, within the macro/micro climate of the project.



**SPECIFICATION SHEET NO: 9**

**COASTAL: PAINTING HOT DIP GALVANIZED BOLTS**

(6 year life expectancy before first maintenance)

**NEW WORK/REPAINT:** NEW WORK - COASTAL

**SUBSTRATE:** Hot dip galvanized

**PAINT FINISH:Plascon** Wall & All  
(Smooth finish – water based, premium pure acrylic - sheen)

**PRODUCT CODE:** WAA

**COLOUR:** As per Architect's specification

**ENVIRONMENT:** As per ISO 12944 part 2: Maintenance Cycle (Years)  
C5 M Coastal / Marine 6

Coating System	Application Method	Theoretical Spreading Rate / m <sup>2</sup>	DFT / WFT µm Max – Min	Reducer/Cleaner	Overcoating time, @ 25°C	Technical Data Sheet No:
<b>1st Coat:</b> Plascotuff 3000 (PEX 3004 Grey / PEH 3 Hardener) <b>Mixing Ratio: 4:1 by volume</b>	Airless Spray, Conventional Pressure Pot Spray or Brush	6.4 m <sup>2</sup> / lit @ 125 µm	WFT:125 – 250  DFT:100 – 200	Epoxy Reducer (EPT 2)	Min 16hrs Max 4 weeks	PC - 4
<b>2nd Coat:</b> Plascon Wall & All (WAA)	B, R or S	@ 30 µm Theo – 13 Prac – 7	WFT 63 - 88 DFT 25 - 35	Water	2	L-19
<b>3rd Coat:</b> Plascon Wall & All (WAA)	B, R or S	@ 30 µm Theo – 13 Prac – 7	WFT 63 - 88 DFT 25 - 35	Water	2	L-19
			<b>Minimum DFT 150 µm</b>			

Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

**SPECIFICATION SHEET NO. 9:**  
**COASTAL: PAINTING HOT DIP GALVANIZED BOLTS**

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**SURFACE PREPARATION** Also refer Section H: Corrosion protections: Hot dip Galvanizing

**Step 1: Degreasing**

Apply Plascon Galvanized Iron Cleaner (GIC1) to all bare galvanized areas by brush, broom or spray. Allow to react for 1 minute. Rinse off with tap water using "Scotch Brite" pads to remove all surface contaminants. Check if surface is water-break free. If not, repeat the cleaning process. Allow to dry completely.

---

**APPLICATION FOR PRIMER** please note power mixing is essential before use for product consistency

**Step 1: Primer**

Premix both components of the Plascotuff 3000 (PEX 3004 Grey/PEH 3) using a power mixer for 3 minutes and then apply (preferably) by airless spray, conventional spray, roller or brush (small areas only) to a minimum DFT of 100 – 200 µm or WFT of 125 – 250 µm @ a theoretical spread rate of 5.3 m<sup>2</sup> / lt.

Allow a minimum of 16 hours curing @ 25°C and a maximum of 4 weeks prior to over coating.

Dependent on the mode of application, multiple coats may be required to achieve specified DFT and or full obliteration.

**APPLICATION OF FINAL COATS**

**Step 2: Final Coats**

Apply two full coats of Plascon Wall & All (WAA) to achieve complete obliteration, allowing 2 hours drying between coats.

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**TABLE REFERENCES:**

- Technical Data Sheet (TDS): User must always ensure that the latest issue is used.
- Power mixing using a variable speed mixer is preferable.
- All two component materials need to be mixed (Component A & B) as per data sheet or as per instructions on the packaging
- Pot life varies as per temperature gradient.
- Over coating intervals are critical for good inter coat adhesion

### **C3.2.2: AC&V Specifications**

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Tenderer \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_ Employer \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_



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## **YANFENG, EAST LONDON INDUSTRIAL DEVELOPMENT ZONE**

### **AIR CONDITIONING & VENTILATION INSTALLATION**

**PROJECT No. : 2019-348**

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Schedule of Quantities

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## **DRAWING SCHEDULE**

The following drawings are issued with this Tender Document :

2019-348 / CE2 – 11 -000 : Air-conditioning and Ventilation Layout (Revision 0)

2019-348 / CE2 – 11 -001 : Air-conditioning and Ventilation Layout (Revision 0)

# **PART 1**

## **THE SCHEDULES**

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**PART 1A****PARTICULARS RELATING TO TENDERER**

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Air-conditioning and Ventilation Installation)**

1. The registered and trading names, physical and postal address, and contact numbers for the tendering entity.

Registered Name : .....

Trading Name : .....

Physical Address : .....

Postal Address : .....

Telephone No. : .....

Facsimile No. : .....

2. The full first and surnames of their partners and/ or directors and their domiciles and addresses.

Full Name (1) : .....

Address (1) : .....

Full Name (2) : .....

Address (2) : .....

Full Name (3) : .....

Address (3) : .....

3. The names and addresses of the local agents, firms, or representatives who are interested in any manner whatsoever in the tender.

Full Name (1) : .....

Address (1) : .....

Full Name (2) : .....

Address (2) : .....

4. Bank Details Bank Name : .....

Branch & Code : .....

Account Number : .....

Contact Person : .....

Telephone No. : .....

.....  
Name

.....  
Signature

.....  
Date



**PART 1B****VARIATIONS TO SUB-CONTRACT**

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Air-conditioning and Ventilation Installation)**

These rates are to be used in the event work is not readily measurable in terms of the attached Schedule of Quantities or Schedule of Rates

I / We agree that any variations to the agreement (not priced elsewhere in this Tender Document) will be priced strictly in accordance with the rates submitted below. The rates (exclusive of VAT) shall be calculated as specified below :

- Cost shall mean the nett cost of equipment or materials supplied to site with all discounts offered
- The labour rates shall include all personnel insurance costs, holidays with pay and travelling time payments, incentive bonuses and overtime premiums, except for overtime payment when overtime is authorised in writing by the Consulting Mechanical Engineers
- Percentage and labour rates shall include profits, overheads, financing, insurance, guarantee (with free maintenance) costs, engineering and management

1. for the supply of equipment over and above that originally required by the specifications and drawings Cost Plus \_\_\_\_\_ %
2. equipment deleted will be at the price entered in the price schedule or at the supplier's selling price, unless a fixed price for deletion of an item is specified elsewhere in the Tender Document
3. for substituted equipment, the percentage reflected in item (1) above will only apply to the difference in the supplier's price arising from the substitution
4. for the supply of all labour, charges will be levied at the selling rate (for normal time) of :

Foreman	_____ per hour
Commissioning Engineer	_____ per hour
Tradesman	_____ per hour
Journeyman	_____ per hour
Labourer	_____ per hour
Other specialists / hour	Cost Plus _____ %

5. If pricing by team work is the standard practise of the Contractor, the team shall comprise :
 

	persons / team members at	selling price per hour
--	---------------------------	------------------------
6. Overtime rates
 

	Night (after 19h00)	_____ times normal time
	Saturday	_____ times normal time
	Sunday and Public Holidays	_____ times normal time
	Other (specify)	_____ times normal time
7. Transport charges
 

	Car	_____ Rand per km
	LDV (under 2 tonnes)	_____ Rand per km
	Truck ( between 2 and 5 tonnes)	_____ Rand per km
	Other (specify)	_____ Rand per km

\_\_\_\_\_  
Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

## PART 1C

## PRICE ADJUSTMENT SCHEDULE

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Air-conditioning and Ventilation Installation)**

Does your Tender Price include forward cover for foreign exchange variations ?

YES		NO	
-----	--	----	--

The tenderer shall detail all adjustments to which the prices and rates listed in this Tender Document are to be subjected to.

The tenderer shall enter NIL hereunder if prices are not subject to adjustment.

[illegible]

Name \_\_\_\_\_

Signature

Date \_\_\_\_\_

## PART 1D

## STATEMENT OF COMPLIANCE OR QUALIFICATION BY TENDERER

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Air-conditioning and Ventilation Installation)**

Does this Tender comply in every respect with the Conditions of Tender, Conditions of Contract, Schedules, Project Specifications, Schedule of Quantities and Drawings ?

YES		NO	
-----	--	----	--

If NO, detail qualifications hereunder. Failure to do so shall imply compliance.

QUALIFICATIONS :

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

---

Name
Signature
Date

## PART 1E

## SCHEDULE OF SUB-CONTRACTORS PROPOSED BY TENDERER

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Air-conditioning and Ventilation Installation)**

The Tenderer shall state hereunder the names and particulars of all Sub-contractors he proposes to employ on the Works. The Tenderer shall also define the duties and relevant experience of each Sub-contractor listed.

[illegible]

Name \_\_\_\_\_

Signature

Date \_\_\_\_\_

## SIMILAR INSTALLATIONS CARRIED OUT BY TENDERER

## SIMILAR INSTALLATIONS CARRIED OUT BY TENDERER

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Air-conditioning and Ventilation Installation)**

The Tenderer shall list below all similar works carried out by him including Client details and value of the Works. Failure to comply may invalidate the Tender.

[illegible]

Name

Signature

Date \_\_\_\_\_

PART 1G

SCHEDULE OF WORK IN HAND

PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Air-conditioning and Ventilation Installation)

The Tenderer shall detail below all Work currently in progress.

Client	Project Details	Project Value ( R )	Percentage Complete ( % )	Commencement and Completion Dates

## PART 1H

### SCHEDULE OF MATERIALS

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Air-conditioning and Ventilation Installation)**

The Tenderer shall detail below all materials proposed in order to complete the Works specified. (Failure to complete this schedule may invalidate the tender submission).

NB: Only one manufacturer's name to be inserted for each item.

#### **1 Air-conditioning**

##### **1.1 Serving**

##### **AHU-1**

Type Air Handling Unit

Quantity One (1)

Manufacture

Model Number

Cooling Capacity (kW)

Airflow (l/s)

Number of Phases / Voltage

Start Current / Running Current

Power Input (kW)

Country of Origin

Primary Filter (Type)

Secondary Filter (Type)

All Fire Dampers (Type)

Magnehelic Gauges

Control Type

Condenser Unit Manufacturer

Condenser Unit Capacity

Condenser Unit Control

Country of Origin

#### **2 Ventilation**

##### **2.1 Serving**

##### **EAF-1 & EAF-2**

Type Ø630 (10 blade or similar) Axial Extract Fan

Quantity Two (2)

Manufacture

Model Number

Airflow (l/s)

Number of Phases / Voltage

Start Current / Running Current

Static Pressure (Pa)

Country of Origin

##### **2.2 Serving**

##### **EAF-3**

Type Ø630 (10 blade or similar) Axial Extract Fan

Quantity One (1)

Manufacture

Model Number

Airflow (l/s)

Number of Phases / Voltage

Start Current / Running Current

Static Pressure (Pa)

Country of Origin

**2.3 Motor Control Centre (MCC Panel)**

**Control Panel**

Manufacture's Name	
Quantity	
Country of Origin	
Mounting	
Finish of Board	
Power Requirements	
Make and Type of Circuit Breaker	
Rating of Circuit Breaker in Amperes and Fault Level in kA	
Type of Control Equipment	
Make of Mains Isolator	
Type of Indicators for Protective Devices	
Is Battery Charging Automatic?	
Switch details	
Alarm Siren Details	
Timer Details	
Emergency Stop Button	



## PART 11

### SCHEDULE OF STAFF AVAILABLE

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Air-conditioning and Ventilation Installation)**

The Tenderer shall provide a list of all staff (from senior personnel to labourers) that will be made available to perform any duties for and on behalf of the Tenderer on this project. The Tenderer may attach a company organigram for information purposes.

The Tenderer shall note that a competent Accredited Person registered as an Installation Electrician shall be responsible for the Works and present on site at all times.

NAME	POSITION / DESIGNATION	YEARS OF RELEVANT EXPERIENCE	QUALIFICATION	REGISTRATION NUMBER*

\* These numbers shall be the those appearing on the certificates as required in terms of the Occupational Health and Safety Act No 85 of 1993

\_\_\_\_\_  
Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

## PART 1J

### AGREEMENT RELATING TO OCCUPATIONAL HEALTH & SAFETY ACT

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Air-conditioning and Ventilation Installation)**

Agreement between the Principal Contractor and the Mandatory (hereinafter referred to as the Sub-contractor) as envisaged in Section 37 (2) of the Occupational Health and Safety Act No 85 of 1993 as amended.

Background Information :

1. The Occupational Health and Safety Act comprises Sections 1 to 50 and all unrepealed Regulations promulgated in terms of the former Machinery and Occupational Safety Act No 6 of 1983 as amended as well as any other Regulations which may be promulgated from time to time in terms of the new Act.
2. The Mandatory as defined in the Act may be an agent, a contractor or a sub-contractor. This shall not derogate from the Contractors status as being the responsible employer on this particular Contract.
3. Section 37 of the Occupational Health and Safety Act has the potential of punishing Clients (Principals) for the unlawful acts or omissions of Contractors save where a written agreement has been concluded between the parties containing arrangements and procedures to ensure compliance with the said Act by the Contractor. This Agreement constitutes such a written agreement.
4. This Contract document forms an integral part of the Agreement.
5. To be able to perform in terms of the Agreement Contractors must be familiar with the relevant provisions of the Act.
6. The liability of the Contractor under this Agreement will commence on the day the site is handed over to the Contractor and terminate when the site is handed back to the Client.
7. Contractors who intend to utilise the services of Sub-Contractors and / or Nominated Sub-Contractors are advised to conclude a similar Agreement with their Sub-Contractors and / or Nominated Sub-Contractors.

I .....

representing.....(the Contractor)

hereby acknowledge that the Contractor is an employer in his own right with duties as prescribed in the Occupational Health and Safety Act No 85 of 1993 as amended. The Contractor undertakes to ensure that all work will be performed, and machinery and plant used, in accordance with the provisions of the said Act. The Contractor furthermore agrees to comply with the requirements of the Client as contained in the Contract documents and to liaise with the Client should he, for whatever reason, be unable to perform his duties in terms of this Agreement.

Signed at ..... (place) on ..... (date / month / year)

Signature on behalf of the Contractor (the Mandatory) .....

Signature on behalf of the East London Industrial Development Zone (the Client) .....

## PART 1K

### CERTIFICATES REQUIRED

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Air-conditioning and Ventilation Installation)**

The Tenderer shall submit proof of the following, namely :

#### Compulsory Documentation

1. Notice of Registered Office and Postal Address of Company, in terms of the Companies Act, 1973, including the Company Registration Document accompanied by Share Certificates, where applicable i.e. Cipro Certificate
2. Copies of the Identity Documents, for each of the respective Directors / Members / Partners / Shareholders/ Trustees, etc.
3. Tax Clearance Certificate, as issued by the South African Revenue Services
4. Accredited Valid Original or Certified B-BBEE Certificate
5. Declaration of Insurances : Workmen's Compensation Assurance  
: Unemployment Insurance Fund  
: Contractor's All Risks Insurance
6. Original Bank Stamped Letter or Cancelled Cheque as Proof of Bank Account
7. Licence of the Accredited Person registered as an Installation Electrician who will be responsible for the Works and the on-site supervision thereof (*where applicable*)
8. Licence of the Accredited Person registered as an Master Installation Electrician who will be responsible for the relevant portion of the Works and the on-site supervision thereof (*where applicable*)
9. Proof of registration of Company, and where applicable, the relevant persons, with the Private Security Industry Regulatory Authority (PSIRA) (*where applicable*)
10. Proof of registration of all persons who will be involved in this project with the South African Qualification & Certification Committee (SAQCC) for the Fire Industry (*where applicable*)
11. Proof of registration of Company with the Fire Detection Installers Association (FDIA) (*where applicable*)
12. Proof of registration as a "Gas Installer", in terms of the Government Gazette, number 32395, dated 15 July 2009, as amended (*where applicable*)
13. Proof of registration of Company with the Automatic Sprinkler Inspection Bureau (Pty) Ltd (ASIB) (*where applicable*)

#### Supplementary Documentation

14. Company Profile (Abridged Version)
15. Proof of Location of Office
16. Electrical Sub-contractors Association (ECA) Registration Certificate (for the associated electrical Works)
17. Proof of Central Supplier Database Registration

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Name

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Signature

---

Date

**PART 1L****FORM OF RESOLUTION**

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Air-conditioning and Ventilation Installation)**

This form is to be completed in full by the Tenderer. Failure to do so may invalidate the Tender.

At a meeting held by the Directors / Members / Partners / Trustees of

\_\_\_\_\_ (Tenderer's Name)  
 at \_\_\_\_\_ (Place)  
 on the \_\_\_\_\_ (Day / Month / Year)  
 it was resolved  
 that \_\_\_\_\_  
 in his / her capacity as their \_\_\_\_\_  
 is hereby authorised and empowered to sign the Tender and / or Contract Documents for the project known as the

**“Yanfeng, East London Industrial Development Zone  
(Air-conditioning and Ventilation Installation)”**

for and on behalf of the Tenderer.

Signed : \_\_\_\_\_ Signed : \_\_\_\_\_  
 Capacity : \_\_\_\_\_ Capacity : \_\_\_\_\_

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Air-conditioning and Ventilation Installation)**

This is to certify that I / we

the representative (s) of

(Tenderer's Name)

(address)

telephone number

facsimile number

certify that I / we have examined the site, drawings and tender documents and have made myself / ourselves fully conversant with all conditions and circumstances likely to influence the rates tendered.

Name of Tenderer's Representative

Signature of Tenderer's Representative

Name of Consulting Mechanical Engineers' Representative

Signature of Consulting Mechanical Engineers' Representative

## **PART 2**

### **PROJECT SPECIFICATION**

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## PART 2

### PROJECT SPECIFICATION

*Any requirement or statement made in this Project Specification section of the specification shall override the requirements of Part 3 : Standard Specifications and the Drawings.*

#### 2.1 General

This specification covers all Works necessary for the mechanical engineering (air-conditioning and ventilation) services installation of the project known as the “Additions and Alterations of Yanfeng Manufacturing Facility in building CE2 of ASP1, in the East London Industrial Development Zone (ELIDZ)”.

The project generally comprises the following Works at the Yanfeng Facility, namely :

- ❑ the construction and addition of a mezzanine storage floor withing the existing CE2 (Yanfeng) Facility
- ❑ the construction and addition of a Foam Cell Production room withing the existing CE2 (Yanfeng) Facility
- ❑ the construction and addition of a new Dispatch Area (W206) adjacent the existing CE2 (Yanfeng) Facility
- ❑ the alterations and addition of the existing Dispatch Area (CUN) within the existing CE2 (Yanfeng) Facility
- ❑ The above building Works generally includes a steel structure clad in aluminium roof and side sheeting, concrete raft floor slab, suspended isopanel ceilings and part mezzanine slab, etc.

At this stage, the order of the above Works is yet to be determined by the Client. The sequencing of the Works and the “unofficial” sectional completion requirements will be negotiated by the Client, Professional Team and Principal Contractor.

The Tenderer’s attention is specifically drawn to the fact that at Practical Completion the completion of specific sections must be such that the Client can actually move into the premises and commence conventional operational Factory-related activities.

Thus, programming for the Works must allow for the systematic clearance of all outstanding work and defects (save only latent defects) prior to the “Sectional” and “Practical” Completion circumstances required. The Works to be cleared are to include all electrical and mechanical installations including commissioning procedure and certificates of compliance etc., in addition to the building works.

Any works to the exterior of the building which do not impact on the conventional operational Factory-related activities could be exempted from this requirement regarding “Sectional” and “Practical” Completion.

#### 2.2 Scope of Work

##### 2.2.1 Principle Items of Work

The principle items of Work covered by this Sub-contract comprises the supply, delivery, installation, testing, commissioning and twelve (12) months guarantee (with free maintenance during the guarantee period) of the complete Works involved in the mechanical engineering (air-conditioning and ventilation) services installation, as further detailed below, namely :

- ❑ Preliminary & General Items
- ❑ Supply and installation of ducted air-conditioning systems within the Foam Cell Enclosure, including ducting, pipe-work, controls, drains, refrigerant piping, magnehelic gauges, VRV type condensers, primary / secondary etc.
- ❑ Supply and installation of ventilation systems to the battery charging bay, inclusive of fans, attenuators, extraction canopy, ducting, weather louvers, etc.
- ❑ Supply and installation of ventilation systems to the foaming machines, inclusive of fans, attenuators, extraction canopy, ducting, weather louvers, etc.
- ❑ Provisional Sums as detailed in the Schedule of Quantities
- ❑ Provision of Record Drawings and Operating and Maintenance manuals
- ❑ Provision of Certificates of Compliance for complete installation covered in this specification
- ❑ All other materials, equipment, labour and services necessary for the complete, safe and efficient operation of the Works in full accordance with the specifications as detailed in the “Project Specification”

- ❑ Maintenance during the twelve (12) months defects liability period i.e. if, during the defects liability period, the air-conditioning and ventilation installation is not in working order for any reason for which the Air-conditioning and Ventilation Sub-contractor is responsible, or if the installation develops any defects, the Air-conditioning and Ventilation Sub-contractor shall immediately upon being notified thereof take steps to remedy the defects

### **2.2.2 Works to be Carried out by Others**

A Principal Contractor shall be appointed for the building Works, as briefly explained in Clause 2.1.

The successful Air-conditioning and Ventilation Sub-contractor shall be appointed as a Domestic Sub-contractor to the appointed Principal Contractor.

The Air-conditioning and Ventilation Sub-contractor will be responsible for ensuring that the air-conditioning and ventilation sub-contract Works is completed in accordance with Principal Contract, with the necessary co-ordination between the parties.

The Principal Contractor shall, under separate contracts, employ various other parties for the supply, installation, testing and commissioning of various specialist equipment installations i.e. but not limited to, the following :

- ❑ Supply and installation of early warning detection and alarm installation, which shall be carried out by the Early warning detection and Alarm Sub-contractor, appointed as a Selected Sub-contractor to the Principal Contractor (conduits, wireways, power supplies, etc. by Electrical Sub-contractor)
- ❑ Supply and installation of the electrical installation, which shall be carried out by an Electrical Sub-contractor, appointed as a Selected Sub-contractor to the Principal Contractor (conduits, wireways, power supplies, etc. by appointed Electrical Sub-contractor)
- ❑ Supply and installation of elevators, escalators and goods hoists, (where applicable) which shall be carried out by the relevant Specialist Sub-contractors, appointed as Domestic, Nominated or Selected Sub-contractors to the Principal Contractor (conduits, wireways, power supplies, etc. by Electrical Sub-contractor)
- ❑ Supply and installation of fire protection services installation, which shall be carried out by either the Plumbing Sub-contractor, appointed as a Domestic Sub-contractor to the Principal Contractor or by a Fire Services Sub-contractor, appointed as a Nominated or Selected Sub-contractor to the Principal Contractor (conduits, wireways, power supplies, etc. by Electrical Sub-contractor)
- ❑ Supply and installation of hot and cold water services installation, which shall be carried out by the Plumbing Sub-contractor, appointed as a Domestic Sub-contractor to the Principal Contractor (conduits, wireways, power supplies, etc. by Electrical Sub-contractor)
- ❑ Supply and installation of smoke extraction services installation (where applicable), which shall be carried out by the Smoke Extraction Sub-contractor, appointed as a Domestic, Nominated or Selected Sub-contractor to the Principal Contractor (conduits, wireways, power supplies, etc. by Electrical Sub-contractor)
- ❑ Supply and installation of specialist telecommunications services (where applicable) i.e. telephone and data, access control and door security, closed circuit television, etc. which shall be carried out by respective Sub-contractors, appointed as either Domestic Sub-contractors to the Electrical Sub-contractor (conduits, wireways, power supplies, etc. by the Electrical Sub-contractor)
- ❑ Supply and installation of specialist equipment, furniture, fittings and appliances

The Air-conditioning and Ventilation Sub-contractor shall work in close liaison with the appointed Contracting Parties.

## **2.3 Inspection of Site**

The Consulting Mechanical Engineers will not hold a compulsory site inspection meeting.

The prospective Tenderers are advised to thoroughly acquaint themselves with the nature and extent of Work to be done and to make allowance for items obviously intended and necessary for the proper completion of the Works, although not specified.

By submitting a Tender it is accepted that the Tenderer is fully aware of all site conditions as well as the access to it, and has allowed for this in their Tender Price. Claims due to lack of knowledge will not be entertained.



## **2.4 Site Conditions**

### **2.4.1 Location**

The site is situated inside the East London Industrial Development Zone at the existing ASP1 : CE2 Facility (Yanfeng factory).

### **2.4.2 Access to Site**

The site is easily accessible from the existing Yanfeng factory.

Security on site is of utmost importance. The Air-conditioning and Ventilation Sub-contractor shall ensure that their workforce (site personnel) is aware thereof and acts accordingly.

### **2.4.3 Existing Services**

There are known existing electrical and mechanical services on site. Therefore, the Air-conditioning and Ventilation Sub-contractor shall take the necessary precaution.

The Principal Contractor shall provide a temporary water connection to the construction site for use by all Contracting Parties.

The Consulting Mechanical Engineers shall, under direction of the Client, provide details of the required temporary electricity service connection to the construction site for use by all Contracting Parties. A provisional sum has been allowed for the necessary Works.

Coverage from the main cellular phone communications networks is available on site.

## **2.5 Compliance with Regulations, Standards and Codes**

### **2.5.1 Health and Safety Regulations**

The Mechanical Sub-contractor shall, at all times, abide by the regulations in the schedule of section 43 of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) entitled “Construction Regulations, 2004”.

The Mechanical Sub-contractor will be required, amongst others, to :

- ☐ prove registration and good standing with the compensation fund or a licensed compensation insurer
- ☐ conduct risk assessments, develop and implement a documented health and safety plan
- ☐ ensure conformance with this health and safety plan by any Contractor (domestic or other)
- ☐ ensure that a health & safety file and register is maintained on site
- ☐ appoint a competent construction supervisor (full-time employee) and one or more competent employees to assist
- ☐ appoint a full-time or part-time construction safety officer
- ☐ ensure that all employees engaged on site undergo health and safety induction training
- ☐ appoint in writing a competent person to supervise works under the various disciplines (viz. excavations / demolitions / structures / formwork & support work / scaffolding / etc)
- ☐ submit tenders making provision for the costs of health and safety measures during the construction process

Note : No additional payment will be made to the Mechanical Sub-contractor in respect to his conformance with this legislation, and the requirements of this schedule shall be deemed to be included in his tendered rates.

The Mechanical Sub-contractor shall at all times ensure that their operations do not endanger any member of public, and that the complete Works are undertaken in accordance with the regulations stipulated in the Occupational Health and Safety Act.

### **2.5.2 Standards and Codes**

The entire installation shall be in full conformity with the latest of the following standards and codes, namely :

- ☐ South African National Standard : SANS 10400 - 2010 - Code of Practice for “The Application of the National Building Regulations” i.e. those included in the “National Building Regulations and Building

Standards Act, 1977 (Act 103 of 1977)”, as published in the Government Gazette, number 31084, dated 30 May 2008, which became effective as of 01 October 2008

- ❑ South African National Standard : SANS 10142-1: 2003 - The Wiring of Premises : Part 1 - Low-voltage Installations
- ❑ Relevant parts of the British Standard : EN 12101 - Smoke and Heat Control Systems
- ❑ Occupational Health and Safety Act, 1993 (Act 85 of 1993)
- ❑ Any other relevant by-laws of the Local Authorities

Further, the Air-conditioning and Ventilation Sub-contractor shall adhere to all the relevant regulations, standards and codes specified in Part 2 of this Tender Document.

All apparatus, components, parts, fittings and materials supplied and / or installed, whether specifically specified herein or not, shall conform in respect of quality, manufacture, tests and performance with the requirements of the appropriate current South African (SABS) or British Standard Specifications (BS) and Addenda thereto, except where otherwise required by this specification or permitted by approval of the Consulting Mechanical Engineers, in writing.

All materials and workmanship, which may, in the opinion of the Consulting Mechanical Engineers, be inferior to that specified for the Work, will be condemned. All condemned material and workmanship must be replaced or rectified as the case may be, to the satisfaction of the Consulting Mechanical Engineers.

Any fitting or item of equipment not specifically mentioned but obviously necessary for the successful completion of the installation is to be included so as to form a complete working installation.

## 2.6 Supervision

The Work shall at all times, for the duration of the contract, be carried out under the supervision of a competent representative of the Air-conditioning and Ventilation Sub-contractor, who should also be registered with the South African Qualification & Certification Committee (SAQCC) for the Gas Industry.

The associated electrical Works shall at all times, for the duration of the contract, be carried out under the supervision of a competent representative of the Air-conditioning and Ventilation Sub-contractor, who should also be an Accredited Person registered as an Installation Electrician in terms of the Occupational Health and Safety Act No. 85 of 1993, as amended.

Furthermore, and where applicable, the associated smoke extraction Works shall at all times, for the duration of the contract, be carried out under the supervision of a competent representative of the Air-conditioning and Ventilation Sub-contractor, who should also be an Accredited Person registered as Smoke Extraction / Ventilation Installer in terms of the Occupational Health and Safety Act No. 85 of 1993, as amended.

The afore-mentioned representatives of the Air-conditioning and Ventilation Sub-contractor shall be able and authorised to receive and carry out instructions on behalf of the Air-conditioning and Ventilation Sub-contractor.

## 2.7 Programme

The Principal Contractor shall prepare a Contract Construction Programme and all Sub-contractors shall be required to complete their respective Sub-contract Works in accordance with the programme.

The Air-conditioning and Ventilation Sub-contractor shall submit a programme for the Sub-contract Works, in accordance with the Principal Contractor's Contract Programme, within 7 days of receipt of the Principal Contractor's Contract Programme.

The cost of overtime, additional labour and plant necessary for the completion of the Works in accordance with the Principal Contractor's Contract Programme shall be included in the Tender Price.

## 2.8 Samples and Alternatives

The preferred manufacturer / makers of equipment and / or material are as described in either the Project Specification, the Standard Technical Specifications or as listed in the Schedule of Quantities.

The Client reserves the right to specify the equipment and / or materials utilised in the Works. No alternatives to equipment and / or materials are to be used unless written approval is obtained from the Client, or his Representative and / or the Consulting Mechanical Engineers.

## 2.9 Definitions

- ❑ Supply : To purchase, procure and deliver complete with all related specified accessories
- ❑ Erect : To place or mount and fix in position
- ❑ Install : To erect, connect up and commission, complete with related accessories
- ❑ Indicated shown, Noted : As indicated or shown on drawings
- ❑ Approved, Alternative : Approved in writing by the Consulting Mechanical Engineers
- ❑ Similar, Equal : Equal or better in efficiency of performance and compatibility

## 2.10 Conflict Between Specifications, Schedule of Quantities and Drawings

Should there be conflict between the Project Specifications, Schedule of Quantities, Drawings and / or Standard Technical Specifications, the sections shall be considered in the following order of priority :

- ❑ Project Specifications
- ❑ Schedule of Quantities
- ❑ Drawings
- ❑ Standard Technical Specifications

Should the Air-conditioning and Ventilation Sub-contractor note an inconsistency between the Project Specifications, Schedule of Quantities, Drawings and / or Standard Technical Specifications, he shall notify the Consulting Mechanical Engineers immediately and obtain clarification or instructions prior to ordering or installing equipment.

## 2.11 Deviations from Tender Documents

No deviations or alterations from that of the specification, schedules or drawings shall be made without first obtaining the written approval of the Department.

## 2.12 Drawings

Refer to the Drawing Schedule for the list of drawings relating to this Tender Document.

At no time is the Air-conditioning and Ventilation Sub-contractor to scale drawings or to make any assumptions regarding measurements / dimensions. If in doubt, the Air-conditioning and Ventilation Sub-contractor is to obtain clarification from the Consulting Mechanical Engineers.

## 2.13 Moving of Equipment

The Air-conditioning and Ventilation Sub-contractor shall investigate each space through which equipment must be moved. Where necessary, equipment shall be transported in sections of size suitable for moving through spaces available.

## 2.14 Miscellaneous

### 2.14.1 Labels

Labels shall be installed as required in terms of the relevant codes of practice and as further specified in this Tender Document.

All labels shall be in English with capital letters, in black and on a white background, and a minimum of 4 mm in height. All labels shall be of ivorine or plastic construction and riveted / screwed in place.

### 2.14.2 Safety Signage

The Air-conditioning and Ventilation Sub-contractor shall supply and install all danger, sub-station and safety notices and signs in terms of the relevant regulations.

All safety signage installed shall be in accordance with SABS 1186.

## **2.15 Installation Drawings**

Drawings shall be submitted in triplicate as soon as possible after the signing of the Sub-contract Agreement, but in ample time to allow the Consulting Mechanical Engineers to examine and approve before equipment manufacture is started, or material delivered to site.

Should the Consulting Mechanical Engineers require that any drawing be amended, the Air-conditioning and Ventilation Sub-contractor shall make the necessary alterations and re-submit the drawing within two weeks.

The Air-conditioning and Ventilation Sub-contractor shall provide the Principal Contractor and the Consulting Mechanical Engineers with complete layout, installation and shop drawings, together with any necessary descriptions and specifications. Sufficient details shall be given to permit a full appraisal of all parts of the installation and their relation to the building structure.

Drawings shall give full details of all foundations, ducts, chases, pits and openings and shall set out all lines and levels for the work.

Delays caused by the submission of drawings or by an error, omission or inadequacy in these drawings, shall not be considered a reason for an extension of the Sub-contract time.

## **2.16 Payment Valuations**

The Air-conditioning and Ventilation Sub-contractor shall be entitled to submit monthly payment claims to the Principal Contractor. The payment claims are to be submitted to the Consulting Mechanical Engineers for approval and recommendation, prior to submission to the Principal Contractor.

The payment claim shall be in the form of a copy of the Schedule of Quantities, indicating the tendered, claimed (supplied, installed and materials on / off site) and anticipated completion quantities, rates and values.

## **2.17 Variation Orders**

Variations orders shall be ordered and processed either by the issue of a revised drawing or by issue of a site instruction, by a duly authorised person.

The Air-conditioning and Ventilation Sub-contractor shall ensure that the above procedures have been followed prior to carrying out any work. Failure to comply may invalidate any claim for work done.

Unless otherwise agreed with the Consulting Mechanical Engineers, all claims for variation orders shall be approved prior to proceeding with the relevant Works. The Air-conditioning and Ventilation Sub-contractor shall submit variation order claims to the Consulting Mechanical Engineers for approval with the preceding monthly payment claim.

However, the Air-conditioning and Ventilation Sub-contractor shall only include the value of approved variation orders in any payment claim or invoice, once approved in writing by the Consulting Mechanical Engineers. Variation order claims, which have not been approved, but are included in the monthly payment claim, will be deducted from the payment claim in question.

## **2.18 Acceptance Testing and Commissioning**

The Air-conditioning and Ventilation Sub-contractor shall carry out all tests required in terms of the relevant Acts, SABS Codes of Practice and Local Authority requirements. The Air-conditioning and Ventilation Sub-contractor shall provide all the equipment and apparatus required for the purpose of carrying out all necessary tests.

The Air-conditioning and Ventilation Sub-contractor is responsible for carrying out all necessary tests and obtaining all necessary certificates for the installation and operation of the plant.

If any part of the Works fails the test, the Air-conditioning and Ventilation Sub-contractor shall be responsible for rectifying, at his own cost, the defective Works and the re-testing thereof to ensure compliance. If in consequence, the Consulting Mechanical Engineers are obliged to attend the further acceptance tests the additional costs incurred by the Engineers shall be payable by the Air-conditioning and Ventilation Sub-contractor.

The Works shall be deemed to be practically complete only when the Consulting Mechanical Engineers has approved all tests and inspections, and a Completion Advice Notice or other relevant completion notice is issued.

## **2.19 Commencement, Compliance and Completion Forms**

The Air-conditioning and Ventilation Sub-contractor shall submit the necessary commencement, compliance and completion forms for the installation as required in terms of the Occupational Health and Safety Act No. 85 of 1993, as amended, the relevant SABS Specifications and the requirements of the relevant Supply Authorities.

## **2.20 Operating Instructions, Maintenance Manuals and Record Drawings**

The Air-conditioning and Ventilation Sub-contractor shall supply, after approval by the Consulting Mechanical Engineers, three (3) bound sets of operating instructions, maintenance manuals and record drawings for the complete mechanical engineering services installation.

### **2.20.1 Operating Instructions and Maintenance Manual**

Failure to submit these manuals will result in the delay of the final inspection and acceptance of the Works by the Client.

The manuals shall be prepared within the Contract, and shall be particular to the project. All charges that may be required by manufacturers' suppliers for the provision of information and literature shall be included in the contract price.

The manual shall be arranged with an index and referencing system and a matching flysheet giving the names and address of principals involved on the project.

The covers shall be hardbound with a four-post loose-leaf system. The Contract details shall be embossed on the front cover. Numbered card dividers shall be inserted between the sections.

The format of the manual shall be in accordance with the following sections, after a preface and index. Any other data considered by the Client to be pertinent shall also be included.

#### **Section 1**

This shall comprise the introduction, abbreviations, and any warnings that may be required by the Machinery and Occupational Safety Act, Local Authorities, and other bodies.

#### **Section 2**

A full description of each system, together with the main plant components and locations, plus the mode of operation of automatic control systems associated with such system shall be reflected in this section.

#### **Section 3**

This shall comprise the complete plant technical data of each item of control equipment (e.g. manufacturer's name and address, type of unit, serial number. This information shall be derived from a site inspection of identification plates together with information obtained from manufacturers.

#### **Section 4**

This section shall describe in detail the operating procedures necessary for starting up, running, and shutting down each individual systems. This shall include the control panel starter and selection facilities together with any alarm and safety interlocks as identified on the control panel.

#### **Section 5**

This shall comprise the maintenance operations on a daily, weekly, monthly etc. basis for each item of plant. The preparation of this section shall be carried out by obtaining from the manufacturer his advice and recommendations for lubrication, adjustment and routine maintenance.

#### **Section 6**

This section shall comprise the emergency procedures to be adopted by personnel engaged on the operation and maintenance of the electrical and mechanical services with regard to fire, first aid, general failures, and call-out procedures during working hours and out of working hours.

#### Section 7

A recommended action on plant malfunction shall be detailed in this section. This is to assist both the user and maintenance engineer in the event of a fault developing in a system by indicating the nature of the fault and the recommended action.

#### Section 8

This shall comprise a list of recommended spares. The preparation of this section shall be carried out by obtaining the manufacturer's recommendations and also incorporate the Client's requirements regarding spares.

#### Section 9

A schedule of the record drawings or 'as-built' drawings for the new control systems shall be inserted in numerical order in this section. The drawings shall be bound into the manual.

#### Section 10

This section shall comprise test certificates and commissioning reports. It shall include reset schedules and temperature and pressure set points clearly for each item of control equipment.

#### Section 11

This shall comprise the manufacturers' literature, arranged in alphabetical order to match the list of manufacturers.

The names of the manufacturers (or their local representatives), addresses, and telephone numbers shall also be given.

### **2.20.2 Record Drawings**

A complete set of floor plans, in hard copy format, will be issued to the Air-conditioning and Ventilation Sub-contractor, for preparation of Record Drawings.

The Air-conditioning and Ventilation Sub-contractor shall prepare Record Drawings of the complete mechanical engineering services installation and return same to Consulting Mechanical Engineers.

### **2.21 Testing and Commissioning**

The Air-conditioning and Ventilation Sub-contractor is responsible for carrying out all necessary testing on, and commissioning of, the electrical installation, to ensure the full and proper operation of thereof.

Where relevant, all testing procedures carried out during the factory acceptance testing exercise, shall be carried out by the Air-conditioning and Ventilation Sub-contractor and witnessed, accepted and approved by the Consulting Mechanical Engineers.

### **2.22 Staff Training**

The Air-conditioning and Ventilation Sub-contractor shall provide comprehensive training of male and female operational staff and nominated maintenance personnel, to the approval of the Consulting Mechanical Engineers.

Training shall be comprehensive, covering all aspects of systems installed as part of these Works.

The Air-conditioning and Ventilation Sub-contractor shall provide a detailed training programme and a copy of the training documentation to the Consulting Electrical Engineer, for comment and review, no less than 4 weeks prior to the commencement of training.

No training will commence on site prior to the written approval of the Consulting Mechanical Engineers. Should the Consulting Mechanical Engineers not approve the training programme and documentation, the training programme and documentation will be referred back to the Electrical Sub-contractor for re-evaluation and re-submission to the Consulting Mechanical Engineers.

The number of staff to be trained is to the full discretion of the Client. However, the Air-conditioning and Ventilation Sub-contractor shall allow for 2 groups, each of up to 4 personnel. Each group shall receive a minimum of two 2-hour training sessions. One of these sessions shall be held after the commissioning of the generator set installation, and the other of these sessions, upon expiry of the defects liability period.

Training shall be adequate to ensure that the groups trained are :

- ☐ competent in the operation of systems
- ☐ adequately trained to carry out on-going training
- ☐ fully aware of the location of all equipment installed as part of this Sub-contract within their area of responsibility

The names of personnel attending the training shall be recorded and submitted to the Consulting Mechanical Engineers at the conclusion of training.

Maintenance staff shall demonstrate a complete understanding of the day-to-day operation of generator set.

All training aids and course notes necessary to conduct effective operational and maintenance training shall be supplied by the Air-conditioning and Ventilation Sub-contractor.

The training venue will be made available on site by the Client.

### **2.23 Defects Liability Period**

The defects liability period shall be twelve (12) months, which shall commence with the issue of the Works Completion Certificate (or Completion Advice Notice) in respect of the fully commissioned Works, by the Consulting Mechanical Engineers.

With effect from the date of the Works Completion Certificate, and for the duration of the defect's liability period, the Air-conditioning and Ventilation Sub-contractor shall be responsible for all routine inspections, services and maintenance-related tasks that are specified for each component of the installation by the relevant Manufacturer / Supplier.

Furthermore, the Air-conditioning and Ventilation Sub-contractor shall be responsible for the carrying out of the following inspections, services and maintenance-related tasks, namely :

Three month interval :

- ☐ check system functions for normal operations
- ☐ check air filters and change if dirty
- ☐ check that electrical loads drawn are within normal parameters
- ☐ using manual control check the operation of the refrigeration circuit
- ☐ ensure that there are no signs of ice formation on the evaporator coils
- ☐ inspect all fuses and thermal overload devices
- ☐ ensure that there are no obstructions in the path of the air supply to and from the unit
- ☐ check the condensate pipe for blockages
- ☐ check the operation of the compressor and consumption of current is normal
- ☐ inspect the fan motor(s) and bearings and condenser coil, cleaning dirt from between fins if necessary

Six month interval :

- ☐ all items listed above
- ☐ check fan speed
- ☐ ensure display panel lights and/or controls are functioning correctly

Nine month interval :

- ☐ all items listed in the Three-month interval above

Twelve month interval :

- ☐ all items listed above
- ☐ inspect fans, check that direction of rotation is correct and that bearings are not running hot
- ☐ check mains voltage
- ☐ check the surface temperature of the compressor housing
- ☐ check insulation on suction tubing

The Air-conditioning and Ventilation Sub-contractor shall ensure that the inspections, services and maintenance-related tasks are undertaken at intervals not greater than three months.

The Air-conditioning and Ventilation Sub-contractor shall ensure that each inspection, service and / or maintenance-related task is undertaken in the presence of a representative of either the Consulting Mechanical Engineers or the Client.

The Air-conditioning and Ventilation Sub-contractor shall ensure that the necessary documentation is completed and submitted to the Consulting Mechanical Engineers confirming the completion of the relevant tasks after each and every inspection, service and / or maintenance-related task milestone.

The Air-conditioning and Ventilation Sub-contractor shall also timeously attend to any defects, which may occur through the normal operation of the Works.

If, during the defects liability period, the installation is not in working order for any reason for which the Air-conditioning and Ventilation Sub-contractor is responsible, or if the respective installation develops a defect, the Air-conditioning and Ventilation Sub-contractor shall, immediately upon being notified thereof, take steps to remedy the defects and make any necessary adjustments.

Should such stoppages, however be so frequent as to become troublesome, or should the installation otherwise prove unsatisfactory during the said period the Air-conditioning and Ventilation Sub-contractor shall, if called upon by the Consulting Mechanical Engineers, at his own expense replace the whole of the installation, or such parts thereof, as the Consulting Mechanical Engineers may deem necessary with equipment specified by the Consulting Mechanical Engineers.

Upon completion of the defect's liability period, the Consulting Mechanical Engineers shall undertake the final inspection, service and / or maintenance-related task, as explained above and ensure that the necessary documentation is completed and submitted to the Consulting Mechanical Engineers on behalf of the Client.

## **2.24 Detailed Schedule of Work**

All parts of this installation shall require all equipment to be extensively cleaned for a hygienic system of operation.

It is to be noted that NO silicone is to be used within the facility due to the effect it has on the Tenant's production processes.

The Works will require finalization to each area, as the co-ordination with the Tenant services is yet to be finalised.

### **2.24.1 VRV Air-conditioning Installation**

VRV type air-conditioning units shall include indoor, outdoor units, multiconnection boxes, refrigerant pipes, fittings etc. for a complete working system.

#### **2.24.1.1 VRV Mid-wall Units**

VRV mid-wall units shall provide heating and cooling to a capacity (kW) as stated in the schedule of quantities and drawings attached.

The drain from the unit shall be connected to a nearest suitable drain point and shall have a fall of not less than 1:100 and be adequately supported (No bowing of the drains will be entertained).

All controllers are to be wired type and programmable (to lock temperature settings). The controllers shall be mounted adjacent the light switch position in the room or as confirmed with the Consulting Mechanical Engineer.

All chasing for the flush installation of drains and controls must be done before plastering of walls.

All refrigerant piping that is routed internally, shall be surface mounted and shall be enclosed in PVC trunking.

Refrigerant piping run in ceiling voids or externally shall be run in neatly erected, supported galvanized sheet metal trunking. External trunking shall be painted to architects' colour.

#### **2.24.1.2 VRV Round Flow Cassette Units / Fully Flat Cassette Units (600 x 600)**

VRV cassette units shall provide heating and cooling to a capacity (kW) as stated in the schedule of quantities and drawings attached.



The drain from the unit shall be connected to a nearest suitable drain point and shall have a fall of not less than 1:100 and be adequately supported (No bowing of the drains will be entertained).

All controllers are to be wired type and programmable (to lock temperature settings). The controllers shall be mounted adjacent the light switch position in the room or as confirmed with the Consulting Mechanical Engineer.

All chasing for the flush installation of drains and controls must be done before plastering of walls.

All refrigerant piping that is routed internally, shall be surface mounted and shall be enclosed in PVC trunking.

Refrigerant piping run in ceiling voids or externally shall be run in neatly erected, supported galvanized sheet metal trunking. External trunking shall be painted to architects' colour.

#### **2.24.1.3 VRV Ceiling Suspended Units**

VRV cassette units shall provide heating and cooling to a capacity (kW) as stated in the schedule of quantities and drawings attached.

The drain from the unit shall be connected to a nearest suitable drain point and shall have a fall of not less than 1:100 and be adequately supported (No bowing of the drains will be entertained).

All controllers are to be wired type and programmable (to lock temperature settings). The controllers shall be mounted adjacent the light switch position in the room or as confirmed with the Consulting Mechanical Engineer.

All chasing for the flush installation of drains and controls must be done before plastering of walls.

All refrigerant piping that is routed internally, shall be surface mounted and shall be enclosed in PVC trunking.

Refrigerant piping run in ceiling voids or externally shall be run in neatly erected, supported galvanized sheet metal trunking. External trunking shall be painted to architects' colour.

#### **2.24.1.4 VRV Concealed Ceiling Units**

VRV concealed ceiling units shall provide heating and cooling to a capacity (kW) as stated in the schedule of quantities and drawings attached. 20% of fresh air shall be introduced to the return air with a natural anodized aluminium weather louver and plenum box with washable filters.

All internal ducting shall be externally insulated with 25mm foil faced fiberglass.

The return air plenum box installation shall include standard removable washable filters. The return air louvers shall be hinged white louvers including removable washable filters.

The drain from the unit shall be connected to a nearest suitable drain point and shall have a fall of not less than 1:100 and be adequately supported (No bowing of the drains will be entertained).

All controllers are to be wired type and programmable (to lock temperature settings). The controllers shall be mounted adjacent the light switch position in the room or as confirmed with the Consulting Mechanical Engineer.

All chasing for the flush installation of drains and controls must be done before plastering of walls.

All refrigerant piping that is routed internally, shall be surface mounted and shall be enclosed in PVC trunking.

Refrigerant piping run in ceiling voids or externally shall be run in neatly erected, supported galvanized sheet metal trunking. External trunking shall be painted to architects' colour.

All parts of this installation shall require all equipment to be extensively cleaned for a hygienic system of operation.

#### **2.24.1.5 VRV Air-handling Unit**

The above unit shall be a MAXAIR Model MAH 12 VRV one piece packaged unit. 20% of fresh air shall be introduced through a flow damper on the unit and shall mix with the return air accordingly. The unit's condenser shall be a VRV type condenser.

The entire system shall be placed on the concrete plinth next to the Water Treatment Plant. All parts of the system are to be well insulated and corrosion resistant, as the unit will be open to the elements.

The ducting external to the building will be insulated with 50mm polystyrene insulation, flame retardant and vapour seal and externally clad with galvanised sheet metal with waterproofing to all joints. Back-flashing for the penetration through the factory sheeting wall to be allowed for, for a water tight installation.

All internal ducting shall be externally insulated with 25mm foil faced fibreglass. All external ducting shall be painted to the Architects detail.

The installation shall include standard Primary 50mm washable front filters (Removable) and Secondary filters 300mm deep.

The sound attenuators shall be clean seal type attenuators. Fire dampers shall be introduced where the ducting penetrates the roof slab or fire walls on the supply and return air ducting respectively. Additional to the fire dampers, an approved fire stop system shall be installed between the ducting / fire damper and the penetrated slab / wall to make sure that the fire rating of the fire divisional element is correct. Hilti Fire Stop Products are approved for this application.

All parts of this installation shall require all equipment to be extensively cleaned for a hygienic system of operation.

The drain from the unit shall be connected to a nearest suitable drain point and shall have a fall of not less than 1:100 and be adequately supported (No bowing of the drains will be entertained).

All controllers are to be wired type. The controllers shall be mounted adjacent the light switch position in the room, or as confirmed with the Consulting Mechanical Engineer. The wired control within the room is to be user friendly, and shall show the temperature within the room and the set temperature required 24 °C at commissioning stage (generally between 24 to 26 °C).

All chasing for the flush installation of drains and controls must be done before plastering of walls.

All refrigerant piping that is routed internally, shall be surface mounted and shall be enclosed in PVC trunking.

Refrigerant piping run in ceiling voids or externally shall be run in neatly erected, supported galvanized sheet metal trunking. External trunking shall be painted to architects colour.

## **2.24.2 Inverter Split Air-conditioning Installation**

Inverter split type air-conditioning units shall include indoor, outdoor units, refrigerant pipes, fittings etc. for a complete working system.

### **2.24.2.1 Inverter Mid-wall Units**

Inverter split mid-wall units shall provide heating and cooling to a capacity (kW) as stated in the schedule of quantities and drawings attached.

The drain from the unit shall be connected to a nearest suitable drain point and shall have a fall of not less than 1:100 and be adequately supported (No bowing of the drains will be entertained).

All controllers are to be wired type and programmable (to lock temperature settings). The controllers shall be mounted adjacent the light switch position in the room or as confirmed with the Consulting Mechanical Engineer.

All chasing for the flush installation of drains and controls must be done before plastering of walls.

All refrigerant piping that is routed internally, shall be surface mounted and shall be enclosed in PVC trunking.

Refrigerant piping run in ceiling voids or externally shall be run in neatly erected, supported galvanized sheet metal trunking. External trunking shall be painted to architects' colour.

### **2.24.2.2 Inverter Round Flow Cassette Units / Fully Flat Cassette Units (600 x 600)**

Inverter split cassette units shall provide heating and cooling to a capacity (kW) as stated in the schedule of quantities and drawings attached.

The drain from the unit shall be connected to a nearest suitable drain point and shall have a fall of not less than 1:100 and be adequately supported (No bowing of the drains will be entertained).

All controllers are to be wired type and programmable (to lock temperature settings). The controllers shall be mounted adjacent the light switch position in the room or as confirmed with the Consulting Mechanical Engineer.

All chasing for the flush installation of drains and controls must be done before plastering of walls.

All refrigerant piping that is routed internally, shall be surface mounted and shall be enclosed in PVC trunking.

Refrigerant piping run in ceiling voids or externally shall be run in neatly erected, supported galvanized sheet metal trunking. External trunking shall be painted to architects' colour.

#### **5.24.2.3 Inverter Ceiling Suspended Units**

Inverter split cassette units shall provide heating and cooling to a capacity (kW) as stated in the schedule of quantities and drawings attached.

The drain from the unit shall be connected to a nearest suitable drain point and shall have a fall of not less than 1:100 and be adequately supported (No bowing of the drains will be entertained).

All controllers are to be wired type and programmable (to lock temperature settings). The controllers shall be mounted adjacent the light switch position in the room or as confirmed with the Consulting Mechanical Engineer.

All chasing for the flush installation of drains and controls must be done before plastering of walls.

All refrigerant piping that is routed internally, shall be surface mounted and shall be enclosed in PVC trunking.

Refrigerant piping run in ceiling voids or externally shall be run in neatly erected, supported galvanized sheet metal trunking. External trunking shall be painted to architects' colour.

#### **2.24.2.4 Inverter Concealed Ceiling Units**

Inverter split concealed ceiling units shall provide heating and cooling to a capacity (kW) as stated in the schedule of quantities and drawings attached. 20% of fresh air shall be introduced to the return air with a natural anodized aluminium weather louver and plenum box with washable filters.

All internal ducting shall be externally insulated with 25mm foil faced fiberglass.

The return air plenum box installation shall include standard removable washable filters. The return air louvers shall be hinged white louvers including removable washable filters.

The drain from the unit shall be connected to a nearest suitable drain point and shall have a fall of not less than 1:100 and be adequately supported (No bowing of the drains will be entertained).

All controllers are to be wired type and programmable (to lock temperature settings). The controllers shall be mounted adjacent the light switch position in the room or as confirmed with the Consulting Mechanical Engineer.

All chasing for the flush installation of drains and controls must be done before plastering of walls.

All refrigerant piping that is routed internally, shall be surface mounted and shall be enclosed in PVC trunking.

Refrigerant piping run in ceiling voids or externally shall be run in neatly erected, supported galvanized sheet metal trunking. External trunking shall be painted to architects' colour.

All parts of this installation shall require all equipment to be extensively cleaned for a hygienic system of operation.

#### **2.24.3 Refrigerant Piping**

All refrigerant piping and associated insulation, that is routed internally, shall be surface mounted and shall be enclosed in PVC trunking.

The trunking shall be supplied complete with the corner pieces, junction pieces, covers and end-caps. Cutting and mitring shall not be acceptable.

The refrigerant used shall be R410A.

All refrigerant piping run in ceiling voids or externally shall be run in neatly erected, supported galvanized welded wire mesh cable tray.

The cable tray shall be supplied complete with vertical and horizontal bends, tees, saddles and joiner clamps necessary to complete the installation.

#### **2.24.4 Controls**

All controllers are to be programmable wired type (to lock temperature settings). The controllers shall be mounted adjacent the light switch position in the room or as confirmed with the Consulting Mechanical Engineer.

All wired controls for air-conditioning unit are to be run in conduit and draw-boxes chased into the wall.

No joints shall be allowed in control wiring.

#### **2.24.5 Louvres**

All louvres shall be neatly fixed to frames, and in installations where they cannot be clipped in, they must be fitted with countersunk stainless-steel screws.

They shall be aluminium, epoxy powder coated to Architect's specification requirements.

#### **2.24.6 Drains**

Provision shall be made for drainage from air-conditioning units to the nearest drain point provided.

Any drains run internally shall be chased into the wall and cast into the slabs or alternatives must be agreed with the Consulting Mechanical Engineer before the walls are plastered.

#### **2.24.7 Outdoor Units**

Outdoor units shall be wall mounted on approved galvanized steel brackets with rubber pads, properly braced and fixed and shall match the type / manufacture of the internal unit.

#### **2.24.8 Design Criteria**

□	Altitude	:	0 m (Sea Level)
□	External ambient	Summer	: 27,7 ° C DB, 23.3 ° C WB
		Winter	: 7 ° C
□	Indoor Design / Room conditions	:	24° C, ±2° C, 50% RH, ±5% RH

All air-conditioner and condenser unit makes shall be of good quality with a minimum of 12 months warranty.

#### **2.24.9 Ventilation System**

##### **2.24.9.1 In-line Axial Extract Fans**

The air extract ventilation system is by means of a ducted system run within the ceiling void. Axial extract air fan to the system is securely mounted to the roof slab / trusses, with an extraction flow and pressure stipulated in the Schedule of Quantities and attached drawings.

The axial extract fan shall either be a Silent Series type fan, or an axial extract fan including two off 1.5 D sound attenuators for a quiet running system (45db) as detailed.

Ducting is to be galvanized un-insulated sheet metal inclusive of branch ducting and collars. All external ducting, fans, attenuators and fittings are to be corrosion resistant.

The system will discharge to external through a plenum box and a natural anodized aluminium weather louver, or galvanized un-insulated sheet metal cowl, as stipulated in the Schedule of Quantities and attached drawings.

Ducting is to be connected to the disc valves located in ceiling using flexible ducting.

#### **2.24.9.2 In-line Axial Supply Fans**

The air supply ventilation system is by means of a ducted system run within the ceiling void. Axial supply air fan to the system is securely mounted to the roof slab / trusses, with a supply flow and pressure stipulated in the Schedule of Quantities and attached drawings.

The axial supply fan shall either be a Silent Series type fan, or an axial extract fan including two off 1.5 D sound attenuators for a quiet running system (45db) as detailed.

Ducting is to be galvanized un-insulated sheet metal inclusive of branch ducting and collars. All external ducting, fans, attenuators and fittings are to be corrosion resistant.

Fresh air will be supplied through a natural anodized aluminium weather louver, or a galvanized un-insulated sheet metal cowl as stipulated in the Schedule of Quantities and attached drawings, including a plenum box and removable washable filters.

Ducting is to be connected to the disc valves located in ceiling using flexible ducting.

#### **2.24.2.3 Wall Mounted Fans**

The air extract / supply ventilation system is by means of a wall / window mounted extract / supply fan. The air extract / supply air fan to the system is securely mounted to the wall / window with an extract / supply flow stipulated in the Schedule of Quantities and attached drawings.

#### **2.24.10 Wiring Duct Installation**

Where applicable, the wiring duct shall be manufactured from pre-galvanized steel (Grade Z275), as manufactured by Cabstrut or O-Line. No alternatives shall be accepted.

The wiring duct shall be complete with all standard accessories i.e. PVC covers, splices, radiused and non-radiused internal and external elbows (bends), radiused and non-radiused horizontal elbows (bends), tee-offs, cross-overs, etc.

The wiring duct shall be supported on unistrut, suspended from roof trusses / roof slab by means of either galvanized steel threaded rods and / or stainless-steel hangers.

The wiring duct shall be of the size and colour specified in the Schedule of Quantities and / or on the construction drawings.

#### **2.24.11 Wiring Mesh Installation**

Where applicable, the wiring mesh shall be manufactured from pre-galvanized steel (Grade Z275), as manufactured by Cabstrut or O-Line. No alternatives shall be accepted.

The wiring mesh shall be complete with all standard accessories i.e. splices, radiused and non-radiused internal and external elbows (bends), radiused and non-radiused horizontal elbows (bends), tee-offs, cross-overs, etc.

The wiring mesh, if suspended, shall be supported on unistrut, suspended from the roof trusses / roof slab by means of either galvanized steel threaded rods and / or stainless-steel hangers, or if wall mounted, secured to the wall by means of unistrut, splice clamps, washer and M6 x 16 cup square bolt and nut arrangement.

The wiring mesh shall be of the size and colour specified in the Schedule of Quantities and / or on the construction drawings.

#### **2.24.12 Quality of Work**

The Consulting Mechanical Engineer shall have the right to visit the site at any reasonable time and inspect the progress of the work and materials used, and shall have the right to reject:

- ❑ Any work which in his opinion is not to specification or standard, and which is badly or incorrectly carried out
- ❑ Any materials which are considered not to specification or are of an inferior quality

### **2.24.13 Electrical Services**

An Electrical Sub-contractor, appointed as a Selected Sub-contractor to the Principal Contractor, will undertake the electrical services installation.

The Electrical Sub-contractor shall be responsible for the installation of all conduits, draw-boxes, draw-wires, distribution boards and / or power supplies, required for the air-conditioning and ventilation services as indicated on the construction drawings.

The sizes of all conduits are indicated on the drawings. 2 mm<sup>2</sup> polyester draw tape shall be installed in all conduits. The Air-Conditioning and Ventilation Sub-contractor shall be responsible for the electrical works from the isolator (provided by the Electrical Sub-contractor) to and from the respective air-conditioning and ventilation systems, i.e.:

- ❑ From the provided isolator to the air-conditioning condenser and indoor units respectively
- ❑ From the provided isolator to the respective fans
- ❑ From the provided isolator to the respective MCC Panel and electrical works between the MCC Panel and respective fans

The Electrical Sub-contractor shall generally assist the Air-Conditioning and Ventilation Sub-contractor.

## PART 3

### STANDARD TECHNICAL SPECIFICATIONS

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SECTION HVAC 32	Split-type Air-Conditioning Units	

*(The afore-mentioned documentation has not been included in the Enquiry Document, but may be obtained from the offices of the Consulting Mechanical Engineers.)*

## **PART 4**

### **SCHEDULE OF QUANTITIES**

#### **CONTENTS**

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## **PART 4**

### **SCHEDULES OF QUANTITIES**

#### **GENERAL NOTES**

##### **4.1 Specifications**

The Schedule of Quantities form part of the Tender Document and must be read in conjunction with the other parts forming the Tender Document in order to gain the full meanings of the descriptions of the work to be done and materials and equipment to be used.

##### **4.2 Alterations**

No alterations, erasure or addition is to be made in the text of the Schedule of Quantities. Should any alteration, erasure or addition be made, it will not be recognised but the original wording of the Schedule of Quantities will be adhered to.

##### **4.3 Issue of Schedule of Quantities in Electronic Format**

The Consulting Mechanical Engineers will make the Schedule of Quantities available to Tenderers in electronic (Microsoft Excel Workbook) format, upon request.

If utilised for tender submission, the Tenderer will be responsible for ensuring the correctness of all calculations. The Consulting Mechanical Engineers cannot be held responsible for any arithmetic inaccuracies in the electronic Schedule of Quantities.

##### **4.4 Pages**

Before submitting his Tender, the tenderer must check to ensure all pages have been included and are distinct. Should any obvious errors be found the Consulting Mechanical Engineers is to be notified immediately to have them corrected as no liability whatsoever will be admitted by the Consulting Mechanical Engineers in respect of errors in the Tender due to the foregoing.

##### **4.5 Responsibility**

The responsibility for the accuracy of the quantities written into the Schedule of Quantities remains with the person who prepared the Schedule of Quantities. The Tenderer shall be relieved of the responsibility of measuring quantities at the Tender stage, and the Tender Price submitted shall be in respect of the quantities set out in the Schedule of Quantities.

The Tenderer will be required to make his assessment of items such as brackets, fixings, etc., from details stated in the Schedule of Quantities and shall make allowances therefore within the rates tendered.

Tenderers shall make due allowance in their rates for any item of incidental or contingent work, labour and materials not contained in the Schedule of Quantities, but deemed necessary for the successful completion of the Works.

##### **4.6 Unit Rates**

Unless a separate rate for the supply and the installation of any item is specifically called for, the supply and installation costs of any items shall be fully included in the unit price.

The description of each item shall, unless otherwise stated herein, be held to include making, conveying and delivering, unloading, storing, unpacking, hoisting, setting, fitting and fixing in position, cutting and waste, patterns, models and templates plant, temporary works, return of water establishment charges, profit and all other obligations arising out of the Conditions of Contract.

#### **4.7 Variations**

Variations in the scope and extent of the work included in the Schedule of Quantities shall be allowed in order to meet the Client's requirements and shall be measured and costed at the rates entered in the Schedule of Quantities, where appropriate, forming an addition to or deduction from the total of the Schedule of Quantities. Any items or variations for which rates have not been added in the Schedule of Quantities shall be agreed and priced as non-scheduled items in accordance with the provisions of the contract.

The rules governing the extent and costing of the variations shall be those provided for in the Conditions of Contract and Variations to Sub-contract.

Variations to the planning before the work has been executed shall be priced as above. Alterations to work already executed cannot necessarily be priced as above and must be reviewed on its merits.

The appropriate portions of the Preliminary & General Costs are to be adjusted proportionately to the nett additions or omissions of the variations to the contract

#### **4.8 Preliminary and General**

Tenderers shall price the Preliminary & General under any or all of these groups, viz.:

- a) A fixed amount
- b) An amount varied in proportion to the final contract value as compared to the Tender Price
- c) An amount varied in proportion to the final contract period as compared to the originally specified contract period

The allocation of prices to the three categories listed above must be realistic and the Fire Protection Sub-contractor may be required to justify the allocation of the prices. Should no Preliminary & General Costs be entered against the variable items b) or c) above, no adjustment thereof shall be considered.

#### **4.9 Provisional Sums**

All Provisional Sums shall be expended only as directed by the Consulting Mechanical Engineers and any balance remaining shall be deducted from the amount of the Sub-contract sum. No work for which Provisional Sums are provided shall be commenced without written instructions from the Engineers.

All Provisional Sums may be utilised in full or in part. These Provisional Sums may be deleted in full or in part if not required.

#### **4.10 Contingency Sums**

All Contingency Sums shall be expended only as directed by the Consulting Mechanical Engineers. No work for which Contingency Sums are provided shall be commenced without written instructions from the Engineers.

All Contingency Sums may be utilised in full or in part. These Contingency Sums may be deleted in full or in part if not required.

#### **4.11 Dayworks**

The rates included for daywork shall not form part of the Tender Price, but Tenderers shall note that this item must be regarded as provisional and will only be payable to the Fire Protection Sub-contractor if and when a written order to this effect has been issued.

#### **4.12 Value Added Tax**

This Schedule of Quantities shall be priced nett, excluding VAT. VAT shall be added at the summary at the end of the Schedule of Quantities. The final price entered into the Tender Form shall be inclusive of VAT.

#### **4.13 Adjustment**

The Client reserves the right to adjust arithmetical errors in the extension of rates and totals in the Tender, and the Tenderer will be informed of the effect of any corrections on his Tender Sum prior to the award of the Contract. In no case will tendered rates be adjusted when correcting such errors.

In the event of there being tendered rates or prices which are declared by the Client to be unacceptable to him, because they are either excessively low or high or not in proper balance with other rates, the Tenderer may be required to produce evidence and advance arguments in support of the tendered rates or prices objected to. If after submission of such evidence and any further evidence requested, the Client is still not satisfied with the tendered rates or prices objected to, he may request the Tenderer to amend these rates and prices along the lines indicated by him.

The Tenderer may or may not thereupon alter and amend the rates and prices objected to and such other related prices as are agreed to by the Client. Should the Tenderer fail to amend his Tender in a manner acceptable to the Client, or at all, it may prejudice his Tender.

In the case of Tenders with Schedule of Quantities, the total corrected Tender Price in the Tender Form shall constitute the Sub-contract Sum. Tenderers are advised to check their extensions and additions. In the case of a Lump Sum Tender, the original uncorrected Tender Price shall be considered. The Consulting Mechanical Engineers shall negotiate adjustments to the rates tendered in order to correct the arithmetical extension or addition, whilst the Tender Price as submitted, remains unaltered.

In either case, the Tenderer shall be notified of any arithmetical error in his Tender, and shall be given the opportunity to withdraw the Tender at this stage.

#### **4.14 Quantification**

The successful Tenderer and the Client or his Agent may agree that the total of any Schedule, including any variations by way of additions thereto or deductions there from, represents a fair and accurate quantification of the items set out in the Schedule of Quantities and the parties may agree final payment on that basis. In the event of any dispute as to the quantities, the disputed item or items shall be adjusted where necessary.

#### **4.15 Ordering**

The quantities in this Schedule of Quantities shall not be used for ordering materials. The onus is on the successful Tenderer to order the correct quantities of materials as per the drawings.

#### **4.16 Payment**

The measurement and payment of Work done shall be made in accordance with the unit price rates, and rates of pay listed in the Schedule of Quantities. No payment will be made for any item of associated work not specifically detailed in the Schedule of Quantities.

### **C3.2.3: Electrical Specifications**

---

Tenderer \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_ Employer \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_



CONSULTING ELECTRICAL & MECHANICAL ENGINEERS  
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## **YANFENG, EAST LONDON INDUSTRIAL DEVELOPMENT ZONE**

### **ELECTRICAL INSTALLATION**

**PROJECT No. : 2019-348**

# CONTENTS

## DESCRIPTION

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Drawing Schedule

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Part 4            Schedule of Quantities (General Notes)  
Schedule of Quantities

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**DRAWING SCHEDULE**

No drawings are issued with this Tender Document.

## PART 1

### THE SCHEDULES

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**PART 1A****PARTICULARS RELATING TO TENDERER**

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Electrical Installation)**

1. The registered and trading names, physical and postal address, and contact numbers for the tendering entity.

Registered Name : .....

Trading Name : .....

Physical Address : .....

Postal Address : .....

Telephone No. : .....

Facsimile No. : .....

2. The full first and surnames of their partners and/ or directors and their domiciles and addresses.

Full Name (1) : .....

Address (1) : .....

Full Name (2) : .....

Address (2) : .....

Full Name (3) : .....

Address (3) : .....

3. The names and addresses of the local agents, firms, or representatives who are interested in any manner whatsoever in the tender.

Full Name (1) : .....

Address (1) : .....

Full Name (2) : .....

Address (2) : .....

4. Bank Details Bank Name : .....

Branch & Code : .....

Account Number : .....

Contact Person : .....

Telephone No. : .....

.....  
Name

.....  
Signature

.....  
Date

**PART 1B****VARIATIONS TO SUB-CONTRACT**

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Electrical Installation)**

These rates are to be used in the event work is not readily measurable in terms of the attached Schedule of Quantities or Schedule of Rates

I / We agree that any variations to the agreement (not priced elsewhere in this Tender Document) will be priced strictly in accordance with the rates submitted below. The rates (exclusive of VAT) shall be calculated as specified below :

- Cost shall mean the nett cost of equipment or materials supplied to site with all discounts offered
- The labour rates shall include all personnel insurance costs, holidays with pay and travelling time payments, incentive bonuses and overtime premiums, except for overtime payment when overtime is authorised in writing by the Consulting Electrical Engineers
- Percentage and labour rates shall include profits, overheads, financing, insurance, guarantee (with free maintenance) costs, engineering and management

1. for the supply of equipment over and above that originally required by the specifications and drawings Cost Plus \_\_\_\_\_ %
2. equipment deleted will be at the price entered in the price schedule or at the supplier's selling price, unless a fixed price for deletion of an item is specified elsewhere in the Tender Document
3. for substituted equipment, the percentage reflected in item (1) above will only apply to the difference in the supplier's price arising from the substitution
4. for the supply of all labour, charges will be levied at the selling rate (for normal time) of :

Foreman	_____ per hour
Commissioning Engineer	_____ per hour
Tradesman	_____ per hour
Journeyman	_____ per hour
Labourer	_____ per hour
Other specialists / hour	Cost Plus _____ %

5. If pricing by team work is the standard practise of the Contractor, the team shall comprise :
 

	persons / team members at	selling price per hour
--	---------------------------	------------------------
6. Overtime rates
 

	Night (after 19h00)	_____ times normal time
	Saturday	_____ times normal time
	Sunday and Public Holidays	_____ times normal time
	Other (specify)	_____ times normal time
7. Transport charges
 

	Car	_____ Rand per km
	LDV (under 2 tonnes)	_____ Rand per km
	Truck ( between 2 and 5 tonnes)	_____ Rand per km
	Other (specify)	_____ Rand per km

\_\_\_\_\_  
Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Date \_\_\_\_\_

## PART 1D

## STATEMENT OF COMPLIANCE OR QUALIFICATION BY TENDERER

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Electrical Installation)**

Does this Tender comply in every respect with the Conditions of Tender, Conditions of Contract, Schedules, Project Specifications, Schedule of Quantities and Drawings ?

YES		NO	
-----	--	----	--

If NO, detail qualifications hereunder. Failure to do so shall imply compliance.

QUALIFICATIONS :

[illegible]

Name \_\_\_\_\_

Signature

Date \_\_\_\_\_

## PART 1E

## SCHEDULE OF SUB-CONTRACTORS PROPOSED BY TENDERER

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Electrical Installation)**

The Tenderer shall state hereunder the names and particulars of all Sub-contractors he proposes to employ on the Works. The Tenderer shall also define the duties and relevant experience of each Sub-contractor listed.

[illegible]

Name \_\_\_\_\_

Signature

Date \_\_\_\_\_

## PART 1F

### SIMILAR INSTALLATIONS CARRIED OUT BY TENDERER

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Electrical Installation)**

The Tenderer shall list below all similar works carried out by him including Client details and value of the Works. Failure to comply may invalidate the Tender.

[illegible]

Name

Signature

Date \_\_\_\_\_

## PART 1G

## SCHEDULE OF WORK IN HAND

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Electrical Installation)**

The Tenderer shall detail below all Work currently in progress.

[illegible]

Name \_\_\_\_\_

Signature

Date \_\_\_\_\_

**PART 1H****SCHEDULE OF MATERIALS**

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Electrical Installation)**

The Tenderer shall detail below all materials proposed in order to complete the Works specified. (Failure to complete this schedule may invalidate the tender submission).

	Description	Manufacturer
<b>Low Voltage Reticulation</b>		
Cables		
Terminations and Joints		
Ducts and Accessories		
Cable Markers		
Warning Tape		
<b>Electrical Distribution Boards</b>		
Electrical Distribution Boards		
<b>Electrical Equipment</b>		
Draw Trays		
Contactors		
Photo-electric Daylight Switches		
Timer Switches		
Light Switches / Socket Outlets		
Isolators		
Moulded Case Isolators / Circuit Breakers		
Earth Leakage Units		
Wiring Duct and Accessories		
Underfloor Duct and Accessories		
Power Skirting and Accessories		
PVC Conduit and Accessories		
Galvanised Conduit and Accessories		
PVC Insulated Copper Conductors		
Luminaires (General)		
Lamps (General)		

\_\_\_\_\_  
Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date



## PART 11

### SCHEDULE OF STAFF AVAILABLE

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Electrical Installation)**

The Tenderer shall provide a list of all staff (from senior personnel to labourers) that will be made available to perform any duties for and on behalf of the Tenderer on this project. The Tenderer may attach a company organigram for information purposes.

The Tenderer shall note that a competent Accredited Person registered as an Installation Electrician shall be responsible for the Works and present on site at all times.

NAME	POSITION / DESIGNATION	YEARS OF RELEVANT EXPERIENCE	QUALIFICATION	REGISTRATION NUMBER*

\* These numbers shall be the those appearing on the certificates as required in terms of the Occupational Health and Safety Act No 85 of 1993

\_\_\_\_\_  
Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

**PART 1J****AGREEMENT RELATING TO OCCUPATIONAL HEALTH & SAFETY ACT**

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Electrical Installation)**

Agreement between the Principal Contractor and the Mandatory (hereinafter referred to as the Sub-contractor) as envisaged in Section 37 (2) of the Occupational Health and Safety Act No 85 of 1993 as amended.

Background Information :

1. The Occupational Health and Safety Act comprises Sections 1 to 50 and all unrepealed Regulations promulgated in terms of the former Machinery and Occupational Safety Act No 6 of 1983 as amended as well as any other Regulations which may be promulgated from time to time in terms of the new Act.
2. The Mandatory as defined in the Act may be an agent, a contractor or a sub-contractor. This shall not derogate from the Contractors status as being the responsible employer on this particular Contract.
3. Section 37 of the Occupational Health and Safety Act has the potential of punishing Clients (Principals) for the unlawful acts or omissions of Contractors save where a written agreement has been concluded between the parties containing arrangements and procedures to ensure compliance with the said Act by the Contractor. This Agreement constitutes such a written agreement.
4. This Contract document forms an integral part of the Agreement.
5. To be able to perform in terms of the Agreement Contractors must be familiar with the relevant provisions of the Act.
6. The liability of the Contractor under this Agreement will commence on the day the site is handed over to the Contractor and terminate when the site is handed back to the Client.
7. Contractors who intend to utilise the services of Sub-Contractors and / or Nominated Sub-Contractors are advised to conclude a similar Agreement with their Sub-Contractors and / or Nominated Sub-Contractors.

I .....

representing.....(the Contractor)

hereby acknowledge that the Contractor is an employer in his own right with duties as prescribed in the Occupational Health and Safety Act No 85 of 1993 as amended. The Contractor undertakes to ensure that all work will be performed, and machinery and plant used, in accordance with the provisions of the said Act. The Contractor furthermore agrees to comply with the requirements of the Client as contained in the Contract documents and to liaise with the Client should he, for whatever reason, be unable to perform his duties in terms of this Agreement.

Signed at ..... (place) on ..... (date / month / year)

Signature on behalf of the Contractor (the Mandatory) .....

Signature on behalf of the East London Industrial Development Zone (the Client) .....

## PART 1K

### CERTIFICATES REQUIRED

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Electrical Installation)**

#### Compulsory Documentation

1. Notice of Registered Office and Postal Address of Company, in terms of the Companies Act, 1973, including the Company Registration Document accompanied by Share Certificates, where applicable i.e. Cipro Certificate
2. Copies of the Identity Documents, for each of the respective Directors / Members / Partners / Shareholders/ Trustees, etc.
3. Tax Clearance Certificate, as issued by the South African Revenue Services
4. Accredited Valid Original or Certified B-BBEE Certificate
5. Declaration of Insurances : Workmen's Compensation Assurance  
: Unemployment Insurance Fund  
: Contractor's All Risks Insurance
6. Original Bank Stamped Letter or Cancelled Cheque as Proof of Bank Account
7. Licence of the Accredited Person registered as an Installation Electrician who will be responsible for the Works and the on-site supervision thereof (*where applicable*)
8. Licence of the Accredited Person registered as an Master Installation Electrician who will be responsible for the relevant portion of the Works and the on-site supervision thereof (*where applicable*)
9. Proof of registration of Company, and where applicable, the relevant persons, with the Private Security Industry Regulatory Authority (PSIRA) (*where applicable*)
10. Proof of registration of all persons who will be involved in this project with the South African Qualification & Certification Committee (SAQCC) for the Fire Industry (*where applicable*)
11. Proof of registration of Company with the Fire Detection Installers Association (FDIA) (*where applicable*)
12. Proof of registration as a "Gas Installer", in terms of the Government Gazette, number 32395, dated 15 July 2009, as amended (*where applicable*)
13. Proof of registration of Company with the Automatic Sprinkler Inspection Bureau (Pty) Ltd (ASIB) (*where applicable*)

#### Supplementary Documentation

14. Company Profile (Abridged Version)
15. Proof of Location of Office
16. Electrical Sub-contractors Association (ECA) Registration Certificate (for the associated electrical Works)
17. Proof of Central Supplier Database Registration

---

Name

---

Signature

---

Date

**PART 1L**

**FORM OF RESOLUTION**

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Electrical Installation)**

This form is to be completed in full by the Tenderer. Failure to do so may invalidate the Tender.

At a meeting held by the Directors / Members / Partners / Trustees of

\_\_\_\_\_ (Tenderer’s Name)

at \_\_\_\_\_ (Place)

on the \_\_\_\_\_ (Day / Month / Year)

it was resolved

that \_\_\_\_\_

in his / her capacity as their \_\_\_\_\_

is hereby authorised and empowered to sign the Tender and / or Contract Documents for the project known as the

**“Yanfeng, East London Industrial Development Zone  
(Electrical Installation)”**

for and on behalf of the Tenderer.

Signed : \_\_\_\_\_ Signed : \_\_\_\_\_

Capacity : \_\_\_\_\_ Capacity : \_\_\_\_\_

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Electrical Installation)**

This is to certify that I / we

the representative (s) of \_\_\_\_\_ (Tenderer's Name)

(address)

telephone number

facsimile number

certify that I / we have examined the site, drawings and tender documents and have made myself / ourselves fully conversant with all conditions and circumstances likely to influence the rates tendered.

Name of Tenderer's Representative

Signature of Tenderer's Representative

Name of Consulting Electrical Engineers' Representative

Signature of Consulting Electrical Engineers' Representative

## PART 2

### PROJECT SPECIFICATION

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## PART 2

### PROJECT SPECIFICATION

*Any requirement or statement made in this Project Specification section of the specification shall override the requirements of Part 3 : Standard Specifications and the Drawings.*

#### 2.1 General

This specification covers all Works necessary for the electrical engineering (electrical) services installation of the project known as the “Additions and Alterations of Yanfeng Manufacturing Facility in building CE2 of ASP1, in the East London Industrial Development Zone (ELIDZ)”.

The project generally comprises the following Works at the Yanfeng Facility, namely :

- ❑ the construction and addition of a mezzanine storage floor withing the existing CE2 (Yanfeng) Facility
- ❑ the construction and addition of a Foam Cell Production room withing the existing CE2 (Yanfeng) Facility
- ❑ the construction and addition of a new Dispatch Area (W206) adjacent the existing CE2 (Yanfeng) Facility
- ❑ the alterations and addition of the existing Dispatch Area (CUN) within the existing CE2 (Yanfeng) Facility
- ❑ The above building Works generally includes a steel structure clad in aluminium roof and side sheeting, concrete raft floor slab, suspended isopanel ceilings and part mezzanine slab, etc.

At this stage, the order of the above Works is yet to be determined by the Client. The sequencing of the Works and the “unofficial” sectional completion requirements will be negotiated by the Client, Professional Team and Principal Contractor.

The Tenderer’s attention is specifically drawn to the fact that at Practical Completion the completion of specific sections must be such that the Client can actually move into the premises and commence conventional operational Factory-related activities.

Thus, programming for the Works must allow for the systematic clearance of all outstanding work and defects (save only latent defects) prior to the “Sectional” and “Practical” Completion circumstances required. The Works to be cleared are to include all electrical and mechanical installations including commissioning procedure and certificates of compliance etc., in addition to the building works.

Any works to the exterior of the building which do not impact on the conventional operational Factory-related activities could be exempted from this requirement regarding “Sectional” and “Practical” Completion.

#### 2.2 Scope of Work

##### 2.2.1 Principle Items of Work

The principle items of Work covered by this Sub-contract comprises the supply, delivery, installation, testing, commissioning and three (3) months guarantee (with free maintenance during the guarantee period) of the complete Works involved in the electrical installation, as further detailed below, namely :

- ❑ Preliminary & General Items
- ❑ Co-ordination with the Maintenance Personnel for the de-energising and energising of the respective electricity sources and supplies i.e. electrical cables, electrical distribution boards, etc.
- ❑ Removal of redundant and inoperable portion of the electrical installation i.e. electrical distribution boards, switchboard and control panels, lighting (internal and external), small and large power and other associated equipment and the handing over thereof to the Client, for their safe-keeping
- ❑ The supply and installation of the low voltage reticulation including all cables, cable support systems and other necessary associated equipment
- ❑ The supply and installation of drawboxes and drawwires, conduits and wireways, trays, channels, trunking, ducts and manholes, etc. as required for the complete electrical engineering services installation (unless otherwise stated)
- ❑ The supply and installation of the complete electrical engineering services installation including electrical distribution boards, lighting (internal and external), small and large power and other associated equipment
- ❑ Supply and installation of lightning protection and specialist earthing systems

- ❑ The supply and installation of conduits, drawboxes, drawwires, distribution boards and / or power supplies, as required for the telecommunications (telemetry and telecontrol) and data installations, including liaison with the respective Telecommunications and Data Contractor (s), appointed as (a) Direct Contractor (s) to the Employer
- ❑ The supply and installation of conduits, drawboxes, drawwires, distribution boards and / or power supplies, as required for the access control, security and closed circuit television installations (where applicable), including liaison with and co-ordination of respective Specialist Service Providers, appointed as Specialist Sub-contractors to the Electrical Sub-contractor
- ❑ Provisional Sums as detailed in the Schedule of Quantities
- ❑ Provision of Record Drawings and Operating and Maintenance manuals
- ❑ Provision of Certificates of Compliance for complete installation covered in this specification
- ❑ All other materials, equipment, labour and services necessary for the complete, safe and efficient operation of the Works in full accordance with the specifications as detailed in the “Project Specification”
- ❑ Maintenance and warranty of all equipment and workmanship for the full duration of the defects liability period i.e. if, during the defects liability period, the electrical installation is not in working order for any reason for which the Electrical Sub-contractor is responsible, or if the installation develops any defects, the Electrical Sub-contractor shall immediately upon being notified thereof take steps to remedy the defects
- ❑ Provide periodic servicing for the full duration of the defects liability period

### **2.2.2 Works to be Carried out by Others**

A Principal Contractor shall be appointed for the building Works, as briefly explained in Clause 2.1.

The successful Electrical Sub-contractor shall be appointed as a Domestic Sub-contractor to the appointed Principal Contractor.

The Electrical Sub-contractor will be responsible for ensuring that the electrical sub-contract Works is completed in accordance with Principal Contract, with the necessary co-ordination between the parties.

The Principal Contractor shall, under separate contracts, employ various other parties for the supply, installation, testing and commissioning of various specialist equipment installations i.e. but not limited to, the following :

- ❑ Supply and installation of air-conditioning and ventilation services installation, which shall be carried out by the Air-conditioning and Ventilation Sub-contractor, appointed as a Selected Sub-contractor to the Principal Contractor (conduits, wireways, power supplies, etc. by Electrical Sub-contractor)
- ❑ Supply and installation of early warning detection and alarm installation, which shall be carried out by the Early warning detection and Alarm Sub-contractor, appointed as a Selected Sub-contractor to the Principal Contractor (conduits, wireways, power supplies, etc. by Electrical Sub-contractor)
- ❑ Supply and installation of elevators, escalators and goods hoists, (where applicable) which shall be carried out by the relevant Specialist Sub-contractors, appointed as Domestic, Nominated or Selected Sub-contractors to the Principal Contractor (conduits, wireways, power supplies, etc. by Electrical Sub-contractor)
- ❑ Supply and installation of fire protection services installation, which shall be carried out by either the Plumbing Sub-contractor, appointed as a Domestic Sub-contractor to the Principal Contractor or by a Fire Services Sub-contractor, appointed as a Nominated or Selected Sub-contractor to the Principal Contractor (conduits, wireways, power supplies, etc. by Electrical Sub-contractor)
- ❑ Supply and installation of hot and cold water services installation, which shall be carried out by the Plumbing Sub-contractor, appointed as a Domestic Sub-contractor to the Principal Contractor (conduits, wireways, power supplies, etc. by Electrical Sub-contractor)
- ❑ Supply and installation of smoke extraction services installation (where applicable), which shall be carried out by the Smoke Extraction Sub-contractor, appointed as a Domestic, Nominated or Selected Sub-contractor to the Principal Contractor (conduits, wireways, power supplies, etc. by Electrical Sub-contractor)
- ❑ Supply and installation of specialist telecommunications services (where applicable) i.e. telephone and data, access control and door security, closed circuit television, etc. which shall be carried out by respective Sub-contractors, appointed as either Domestic Sub-contractors to the Electrical Sub-contractor (conduits, wireways, power supplies, etc. by the Electrical Sub-contractor)
- ❑ Supply and installation of specialist equipment, furniture, fittings and appliances

The Electrical Sub-contractor shall work in close liaison with the appointed Contracting Parties.



## **2.3 Inspection of Site**

The Consulting Electrical Engineers will not hold a compulsory site inspection meeting.

The prospective Tenderers are advised to thoroughly acquaint themselves with the nature and extent of Work to be done and to make allowance for items obviously intended and necessary for the proper completion of the Works, although not specified.

By submitting a Tender it is accepted that the Tenderer is fully aware of all site conditions as well as the access to it, and has allowed for this in their Tender Price. Claims due to lack of knowledge will not be entertained.

## **2.4 Site Conditions**

### **2.4.1 Location**

The site is situated inside the East London Industrial Development Zone at the existing ASP1 : CE2 Facility (Yanfeng factory).

### **2.4.2 Access to Site**

The site is easily accessible from the existing Yanfeng factory.

Security on site is of utmost importance. The Electrical Sub-contractor shall ensure that their workforce (site personnel) is aware thereof and acts accordingly.

### **2.4.3 Existing Services**

There are existing electrical services on site. The Electrical Sub-contractor shall take cognisance thereof.

The Principal Contractor shall provide a temporary water connection to the construction site for use by all Contracting Parties.

The Consulting Electrical Engineers shall, under direction of the Client, provide details of the required temporary electricity service connection to the construction site for use by all Contracting Parties. A provisional sum has been allowed for the necessary Works.

Coverage from the main cellular phone communications networks is available on site.

## **2.5 COMPLIANCE WITH REGULATIONS, STANDARDS AND CODES**

### **2.5.1 Health and Safety Regulations**

The Electrical Sub-contractor shall, at all times, abide by the regulations in the schedule of section 43 of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) entitled "Construction Regulations, 2004".

The Electrical Sub-contractor will be required, amongst others, to :

- ☐ prove registration and good standing with the compensation fund or a licensed compensation insurer
- ☐ conduct risk assessments, develop and implement a documented health and safety plan
- ☐ ensure conformance with this health and safety plan by any Contractor (domestic or other)
- ☐ ensure that a health & safety file and register is maintained on site
- ☐ appoint a competent construction supervisor (full-time employee) and one or more competent employees to assist
- ☐ appoint a full-time or part-time construction safety officer
- ☐ ensure that all employees engaged on site undergo health and safety induction training
- ☐ appoint in writing a competent person to supervise works under the various disciplines (viz. excavations / demolitions / structures / formwork & support work / scaffolding / etc)
- ☐ submit tenders making provision for the costs of health and safety measures during the construction process

Note : No additional payment will be made to the Mechanical Sub-contractor in respect to his conformance with this legislation, and the requirements of this schedule shall be deemed to be included in his tendered rates.

The Electrical Sub-contractor shall at all times ensure that their operations do not endanger any member of public, and that the complete Works are undertaken in accordance with the regulations stipulated in the Occupational Health and Safety Act.

### 2.5.2 Standards and Codes

The entire installation shall be in full conformity with the current versions of the following :

- ❑ South African National Standard : SANS 10400 - 2010 - Code of Practice for “The Application of the National Building Regulations” i.e. those included in the “National Building Regulations and Building Standards Act, 1977 (Act 103 of 1977)”, as published in the Government Gazette, number 31084, dated 30 May 2008, which became effective as of 01 October 2008
- ❑ South African National Standard : SANS 10142-1: 2003 - The Wiring of Premises : Part 1 - Low-voltage Installations
- ❑ Occupational Health and Safety Act, 1993 (Act 85 of 1993)
- ❑ Any other relevant by-laws of the Local Authorities

Further, the Electrical Sub-contractor shall adhere to all the relevant regulations, standards and codes specified in Part 2 of this Tender Document.

All apparatus, components, parts, fittings and materials supplied and / or installed, whether specifically specified herein or not, shall conform in respect of quality, manufacture, tests and performance with the requirements of the appropriate current South African (SABS) or British Standard Specifications (BS) and Addenda thereto, except where otherwise required by this specification or permitted by approval of the Consulting Electrical Engineers, in writing.

All materials and workmanship, which may, in the opinion of the Consulting Electrical Engineers, be inferior to that specified for the Work, will be condemned. All condemned material and workmanship must be replaced or rectified as the case may be, to the satisfaction of the Consulting Electrical Engineers.

Any fitting or item of equipment not specifically mentioned but obviously necessary for the successful completion of the installation is to be included so as to form a complete working installation.

### 2.6 Supervision

The Works shall at all times, for the duration of the contract, be carried out under the supervision of a competent representative of the Electrical Sub-contractor, who should also be an Accredited Person registered as an Installation Electrician in terms of the Occupational Health and Safety Act No. 85 of 1993, as amended.

The relevant portion of the Works shall at all times, for the duration of the contract, be carried out under the supervision of a competent representative of the Electrical Sub-contractor, who should also be an Accredited Person registered as a Master Installation Electrician in terms of the Occupational Health and Safety Act No. 85 of 1993, as amended.

The afore-mentioned representatives of the Electrical Sub-contractor shall be able and authorised to receive and carry out instructions on behalf of the Electrical Sub-contractor.

### 2.7 Programme

The Principal Contractor shall prepare a Contract Construction Programme and all Sub-contractors shall be required to complete their respective Sub-contract Works in accordance with the programme.

The Electrical Sub-contractor shall submit a programme for the Sub-contract Works, in accordance with the Principal Contractor's Contract Programme, within 7 days of receipt of the Principal Contractor's Contract Programme.

The cost of overtime, additional labour and plant necessary for the completion of the Works in accordance with the Principal Contractor's Contract Programme shall be included in the Tender Price.

## 2.8 Samples and Alternatives

The preferred manufacturer / makers of equipment and / or material are as described in either the Project Specification, the Standard Technical Specifications or as listed in the Schedule of Quantities.

The Client reserves the right to specify the equipment and / or materials utilised in the Works. No alternatives to equipment and / or materials are to be used unless written approval is obtained from the Client, or his Representative and / or the Consulting Electrical Engineers.

## 2.9 Definitions

- ❑ Supply : To purchase, procure and deliver complete with all related specified accessories
- ❑ Erect : To place or mount and fix in position
- ❑ Install : To erect, connect up and commission, complete with related accessories
- ❑ Indicated shown, Noted : As indicated or shown on drawings
- ❑ Approved, Alternative : Approved in writing by the Consulting Electrical Engineers
- ❑ Similar, Equal : Equal or better in efficiency of performance and compatibility

## 2.10 Conflict Between Specifications, Schedule of Quantities and Drawings

Should there be conflict between the Project Specifications, Schedule of Quantities, Drawings and / or Standard Technical Specifications, the sections shall be considered in the following order of priority :

- ❑ Project Specifications
- ❑ Schedule of Quantities
- ❑ Drawings
- ❑ Standard Technical Specifications

Should the Electrical Sub-contractor note an inconsistency between the Project Specifications, Schedule of Quantities, Drawings and / or Standard Technical Specifications, he shall notify the Consulting Electrical Engineers immediately and obtain clarification or instructions prior to ordering or installing equipment.

## 2.11 Deviations from Tender Documents

No deviations or alterations from that of the specification, schedules or drawings shall be made without first obtaining the written approval of the Department.

## 2.12 Drawings

Refer to the Drawing Schedule for the list of drawings relating to this Tender Document.

At no time is the Electrical Sub-contractor to scale drawings or to make any assumptions regarding measurements / dimensions. If in doubt, the Electrical Sub-contractor is to obtain clarification from the Consulting Electrical Engineers.

## 2.13 Moving of Equipment

The Electrical Sub-contractor shall investigate each space through which equipment must be moved. Where necessary, equipment shall be transported in sections of size suitable for moving through spaces available.

## 2.14 Miscellaneous

### 2.14.1 Labels

Labels shall be installed as required in terms of the relevant codes of practice and as further specified in this Tender Document.

All labels shall be in English with capital letters, in black and on a white background, and a minimum of 4 mm in height. All labels shall be of ivory or plastic construction and riveted / screwed in place.

### **2.14.2 Safety Signage**

The Electrical Sub-contractor shall supply and install all danger, sub-station and safety notices and signs in terms of the relevant regulations.

All safety signage installed shall be in accordance with SABS 1186.

### **2.15 Installation Drawings**

Drawings shall be submitted in triplicate as soon as possible after the signing of the Sub-contract Agreement, but in ample time to allow the Consulting Electrical Engineers to examine and approve before equipment manufacture is started, or material delivered to site.

Should the Consulting Electrical Engineers require that any drawing be amended, the Electrical Sub-contractor shall make the necessary alterations and re-submit the drawing within two weeks.

The Electrical Sub-contractor shall provide the Principal Contractor and the Consulting Electrical Engineers with complete layout, installation and shop drawings, together with any necessary descriptions and specifications. Sufficient details shall be given to permit a full appraisal of all parts of the installation and their relation to the building structure.

Drawings shall give full details of all foundations, ducts, chases, pits and openings and shall set out all lines and levels for the work.

Delays caused by the submission of drawings or by an error, omission or inadequacy in these drawings, shall not be considered a reason for an extension of the Sub-contract time.

### **2.16 Payment Valuations**

The Electrical Sub-contractor shall be entitled to submit monthly payment claims to the Principal Contractor. The payment claims are to be submitted to the Consulting Electrical Engineers for approval and recommendation, prior to submission to the Principal Contractor.

The payment claim shall be in the form of a copy of the Schedule of Quantities, indicating the tendered, claimed (supplied, installed and materials on / off site) and anticipated completion quantities, rates and values.

### **2.17 Variation Orders**

Variations orders shall be ordered and processed either by the issue of a revised drawing or by issue of a site instruction, by a duly authorised person.

The Electrical Sub-contractor shall ensure that the above procedures have been followed prior to carrying out any work. Failure to comply may invalidate any claim for work done.

Unless otherwise agreed with the Consulting Electrical Engineers, all claims for variation orders shall be approved prior to proceeding with the relevant Works. The Electrical Sub-contractor shall submit variation order claims to the Consulting Electrical Engineers for approval with the preceding monthly payment claim.

However, the Electrical Sub-contractor shall only include the value of approved variation orders in any payment claim or invoice, once approved in writing by the Consulting Electrical Engineers. Variation order claims, which have not been approved, but are included in the monthly payment claim, will be deducted from the payment claim in question.

### **2.18 Acceptance, Testing and Commissioning**

The Electrical Sub-contractor shall carry out all tests required in terms of the relevant Acts, SABS Codes of Practice and Local Authority requirements. The Electrical Sub-contractor shall provide all the equipment and apparatus required for the purpose of carrying out all necessary tests.

The Electrical Sub-contractor is responsible for carrying out all necessary tests and obtaining all necessary certificates for the installation and operation of the plant.

If any part of the Works fails the test, the Electrical Sub-contractor shall be responsible for rectifying, at his own cost, the defective Works and the re-testing thereof to ensure compliance. If in consequence, the Consulting Electrical Engineers are obliged to attend the further acceptance tests the additional costs incurred by the Engineers shall be payable by the Electrical Sub-contractor.

The Works shall be deemed to be practically complete only when the Consulting Electrical Engineers has approved all tests and inspections, and a Completion Advice Notice or other relevant completion notice is issued.

## **2.19 Commencement, Compliance and Completion Forms**

The Electrical Sub-contractor shall submit the necessary commencement, compliance and completion forms for the installation as required in terms of the Occupational Health and Safety Act No. 85 of 1993, as amended, the relevant SABS Specifications and the requirements of the relevant Supply Authorities.

## **2.20 Operating Instructions, Maintenance Manuals and Record Drawings**

The Electrical Sub-contractor shall supply, after approval by the Consulting Electrical Engineers, three (3) bound sets of operating instructions, maintenance manuals and record drawings for the complete electrical engineering services installation.

### **2.20.1 Operating Instructions and Maintenance Manual**

Failure to submit these manuals will result in the delay of the final inspection and acceptance of the Works by the Client.

The manuals shall be prepared within the Contract, and shall be particular to the project. All charges that may be required by manufacturers' suppliers for the provision of information and literature shall be included in the contract price.

The manual shall be arranged with an index and referencing system and a matching flysheet giving the names and address of principals involved on the project.

The covers shall be hardbound with a four-post loose-leaf system. The Contract details shall be embossed on the front cover. Numbered card dividers shall be inserted between the sections.

The format of the manual shall be in accordance with the following sections, after a preface and index. Any other data considered by the Client to be pertinent shall also be included.

#### **Section 1**

This shall comprise the introduction, abbreviations, and any warnings that may be required by the Machinery and Occupational Safety Act, Local Authorities, and other bodies.

#### **Section 2**

A full description of each system, together with the main plant components and locations, plus the mode of operation of automatic control systems associated with such system shall be reflected in this section.

#### **Section 3**

This shall comprise the complete plant technical data of each item of control equipment (e.g. manufacturer's name and address, type of unit, serial number. This information shall be derived from a site inspection of identification plates together with information obtained from manufacturers.

#### **Section 4**

This section shall describe in detail the operating procedures necessary for starting up, running, and shutting down each individual systems. This shall include the control panel starter and selection facilities together with any alarm and safety interlocks as identified on the control panel.

#### **Section 5**

This shall comprise the maintenance operations on a daily, weekly, monthly etc. basis for each item of plant. The preparation of this section shall be carried out by obtaining from the manufacturer his advice and recommendations for lubrication, adjustment and routine maintenance.

#### Section 6

This section shall comprise the emergency procedures to be adopted by personnel engaged on the operation and maintenance of the mechanical and electrical services with regard to fire, first aid, general failures, and call-out procedures during working hours and out of working hours.

#### Section 7

A recommended action on plant malfunction shall be detailed in this section. This is to assist both the user and maintenance engineer in the event of a fault developing in a system by indicating the nature of the fault and the recommended action.

#### Section 8

This shall comprise a list of recommended spares. The preparation of this section shall be carried out by obtaining the manufacturer's recommendations and also incorporate the Client's requirements regarding spares.

#### Section 9

A schedule of the record drawings or 'as-built' drawings for the new control systems shall be inserted in numerical order in this section. The drawings shall be bound into the manual.

#### Section 10

This section shall comprise test certificates and commissioning reports. It shall include reset schedules and temperature and pressure set points clearly for each item of control equipment.

#### Section 11

This shall comprise the manufacturers' literature, arranged in alphabetical order to match the list of manufacturers. The names of the manufacturers (or their local representatives), addresses, and telephone numbers shall also be given.

### **2.20.2 Record Drawings**

A complete set of floor plans, in hard copy format, will be issued to the Electrical Sub-contractor, for preparation of Record Drawings.

The Electrical Sub-contractor shall prepare Record Drawings of the complete electrical engineering services installation and return same to Consulting Electrical Engineers.

### **2.21 Testing and Commissioning**

The Electrical Sub-contractor is responsible for carrying out all necessary testing on, and commissioning of, the electrical installation, to ensure the full and proper operation of thereof.

Where relevant, all testing procedures carried out during the factory acceptance testing exercise, shall be carried out by the Electrical Sub-contractor and witnessed, accepted and approved by the Consulting Electrical Engineers.

### **2.22 Staff Training**

The Electrical Sub-contractor shall provide comprehensive training of male and female operational staff and nominated maintenance personnel, to the approval of the Consulting Electrical Engineers.

Training shall be comprehensive, covering all aspects of systems installed as part of these Works.

The Electrical Sub-contractor shall provide a detailed training programme and a copy of the training documentation to the Consulting Electrical Engineer, for comment and review, no less than 4 weeks prior to the commencement of training.

No training will commence on site prior to the written approval of the Consulting Electrical Engineers. Should the Consulting Electrical Engineers not approve the training programme and documentation, the training programme and documentation will be referred back to the Electrical Sub-contractor for re-evaluation and re-submission to the Consulting Electrical Engineers.

The number of staff to be trained is to the full discretion of the Client. However, the Electrical Sub-contractor shall allow for 2 groups, each of up to 4 personnel. Each group shall receive a minimum of two 2-hour training sessions.

One of these sessions shall be held after the commissioning of the generator set installation, and the other of these sessions, upon expiry of the defects liability period.

Training shall be adequate to ensure that the groups trained are :

- ☐ competent in the operation of systems
- ☐ adequately trained to carry out on-going training
- ☐ fully aware of the location of all equipment installed as part of this Sub-contract within their area of responsibility

The names of personnel attending the training shall be recorded and submitted to the Consulting Electrical Engineers at the conclusion of training.

Maintenance staff shall demonstrate a complete understanding of the day-to-day operation of generator set.

All training aids and course notes necessary to conduct effective operational and maintenance training shall be supplied by the Electrical Sub-contractor.

The training venue will be made available on site by the Client.

### **2.23 Defects Liability Period**

The defects liability period shall be three months, which shall commence with the issue of the Works Completion Certificate (or Completion Advice Notice) in respect of the fully commissioned Works, by the Consulting Electrical Engineers.

With effect from the date of the Works Completion Certificate, or Completion Advice Notice, the Electrical Sub-contractor shall undertake the regular servicing of the installation during the defects liability period and shall make all adjustments necessary for the correct operation thereof. During the defects liability period, the Electrical Sub-contractor shall complete all routine maintenance tasks that are specified for each component of the installation by the relevant Manufacturer / Supplier.

We understand the maintenance to be undertaken on the electrical installation during the defects liability period to be based on and include (but not be limited to) the following, namely :

- ☐ Test the incoming voltages and determine whether they are within normal parameters
- ☐ Check all switchgear within the respective electrical distribution board
- ☐ Test all earth leakage units
- ☐ Test all socket outlets circuits i.e. one socket outlet per circuit to be tested in terms of correct earth leakage operation
- ☐ Test all light switches and determine whether all light fittings are operating correctly
- ☐ Test all photo-electrical daylight switches to ensure their correct operation
- ☐ Check all isolators to ensure correct operation
- ☐ Carry out a visual inspection of complete electrical installation to ensure that all electrical fittings are still in place, covers fitted properly, etc.

We understand the maintenance to be undertaken on the uninterruptible power supply set during the defects liability period to be based on and include (but not be limited to) the following, namely :

- ☐ check control switches and test on bypass
- ☐ check parameters of control board
- ☐ tested and inspection of all fans and filters
- ☐ check fuses
- ☐ check machines for common errors
- ☐ load tested to be actioned and battery life cycles to be calculated
- ☐ banks of batteries to be tested and replaced if necessary

The Electrical Sub-contractor shall ensure that the inspections, services and maintenance-related tasks are undertaken at intervals not greater than three months.

The Electrical Sub-contractor shall ensure that each inspection, service and / or maintenance-related task is undertaken in the presence of a representative of either the Consulting Electrical Engineers or the Client.

The Electrical Sub-contractor shall ensure that the necessary documentation is completed and submitted to the Consulting Electrical Engineers confirming the completion of the relevant tasks after every each inspection, service and / or maintenance-related task milestone.

The Electrical Sub-contractor shall also timeously attend to any defects, which may occur through the normal operation of the Works.

If, during the defects liability period, the installation is not in working order for any reason for which the Electrical Sub-contractor is responsible, or if the installation develops defects, he shall immediately upon being notified thereof take steps to remedy the defects and make any necessary adjustments.

Should such stoppages however be so frequent as to become troublesome, or should the installations otherwise prove unsatisfactory during the said period the Electrical Sub-contractor shall, if called upon by the Consulting Electrical Engineers, at his own expense replace the whole of the installations or such parts thereof as the Consulting Electrical Engineers may deem necessary with apparatus specified by the Consulting Electrical Engineers.

The Electrical Sub-contractor shall also timeously attend to any defects, which may occur through the normal operation of the Works.

Upon completion of the maintenance period, the Consulting Electrical Engineers shall undertake a final inspection and hand-over of the Works to the Client.

## **2.24 Detailed Schedule of Work**

All parts of this installation shall require all equipment to be extensively cleaned for a hygienic system of operation.

It is to be noted that NO silicone is to be used within the facility due to the effect it has on the Tenant's production processes.

The Works will require finalization to each area, as the co-ordination with the Tenant services is yet to be finalised.

### **2.24.1 Bulk Electricity Service Connection**

The East London Industrial Development Zone is the licensed electricity supply authority within the defined industrial zone, and in terms of its authority granted by National Electricity Regulator (South Africa), has the right to supply electricity to all customers situated within the industrial development zone.

### **2.24.2 Low Voltage Reticulation**

All existing low voltage electrical cables are to be re-used.

However, if any low voltage electrical cables are to be replaced and / or provided, the new low voltage electrical cables shall be Cu PVC SWA ECC PVC cables, with stranded conductors.

The storage, transportation, handling and laying of the cables shall be according to first class practice, and the Electrical Sub-contractor shall have adequate and suitable equipment and labour to ensure that no damage is done to cables during such operations.

All low voltage reticulation cables shall have been manufactured to SABS 1507 - 1990 and shall have stranded copper conductors with PVC insulation, PVC bedding, steel wire armouring and PVC sheathing.

No jointing of the low voltage reticulation cables will be allowed, without the prior consent and approval of the Consulting Electrical Engineers.

The low voltage reticulation cable lengths as indicated in the Schedule of Quantities are for tendering purposes only. The Electrical Sub-contractor shall be responsible for the taking of on-site (point-to-point) measurements, including allowances for tails and the making-off of the cables, before the placing of orders (and cutting of cables). Payment will only be made for the actual length installed.

Cables shall be fitted with suitable flameproof identification labels at both ends and at appropriate, intermediate positions. The labels shall bear the identification of the boards of origin and destination.



The low voltage reticulation cable and (where applicable) cable tray installation routes shall, where possible, follow the indicated routes. The Consulting Electrical Engineers should be notified immediately should any deviations to the routes be required.

The cable installation shall be co-ordinated with the other services i.e. water pipes, etc. The Electrical Sub-contractor shall timeously notify the Consulting Electrical Engineers of any clashing of services i.e. electrical cables and water pipes installed in close proximity to each other, etc.

The laying of cables shall not be commenced until the trenches, ducts, wiring ducts, cable trays or cable ladders have been inspected and approved. The cable shall be removed from the drum in such a way that no twisting, tension or mechanical damage is caused and must be adequately supported at intervals during the whole operation. Particular care must be exercised where it is necessary to draw cables through pipes and ducts to avoid abrasion, elongation or distortion of any kind. The ends of such pipes and ducts shall be sealed to approval after drawing in of the cables.

Where cables are cut and not immediately made off, the ends are to be sealed.

On each completed section of the laid cable, the insulation resistance shall be tested to approval with an approved "Megger" type instrument of not less than 500 V for low voltage cables.

The Electrical Sub-contractor shall be responsible for the supply and installation of all ducts, wiring ducts, cable trays or cable ladders, including all necessary suspension brackets and fixing materials, as is necessary for the low voltage reticulation installation.

### **2.24.3 Low Voltage Distribution**

#### *General*

All existing electrical distribution boards are to be de-energised, disassembled, removed and handed over to the Client, for their safe-keeping.

The process of de-energising, disassembling and removing the respective electrical distribution boards is to be carefully coordinated with the Client, so as to minimise the inconvenience to all parties concerned and to limit the period that the Police Station is inoperable. Therefore, the Electrical Sub-contractor is to ensure that they have sufficient resources to undertake the exercise per electrical distribution board in a continuous manner.

The electrical distribution boards are to be manufactured by a reputable company, with relevant experience in the manufacturing thereof. Approval of the manufacturing company should be obtained from the Consulting Electrical Engineers prior to the placing of any orders / commencement of Works.

Detailed wiring diagrams and shop (manufacturing) drawings of the proposed electrical distribution boards are to be submitted to the Consulting Electrical Engineers for approval, prior to manufacture.

Approval of the wiring diagrams and shop (manufacturing) drawings by the Consulting Electrical Engineers does not remove any responsibility from the Electrical Sub-contractor to ensure the completeness and compliance of the distribution boards.

The Electrical Sub-contractor shall ensure that each electrical distribution board and motor control centre is constructed to fit into the space provided, that sufficient space is allowed for the cable ends and termination thereof and that each board is provided with an architrave and a hinged lockable door. The electrical distribution boards shall be a protection rating of no less than IP55.

All gland plates, as well as top or side plates used for the termination of cables shall be easily removable to facilitate the drilling and punching of holes. Panels (fascia) and cover plates are to be fixed to the framework by means of "Quicklock" or other similar captive fasteners. Self-tapping screws or dome nuts will not be accepted. Panels (fascia) and cover plates are to be fitted with chrome plated handles to facilitate removal.

Where applicable, the front panels of normal supply, standby power supply and uninterruptible power supply sections shall be painted in distinctive colours as follows :

- ❑ External : White
- ❑ Normal supply : Light Orange, colour B26 of SABS 1091
- ❑ Standby power supply : Signal Red, colour A11 of SABS 1091
- ❑ Un-interruptible power supply : Dark Violet, colour F06 or Olive Green, colour H05 of SABS 1091

Each section of the respective electrical distribution boards shall be provided with a legend cardholder with a clear perspex front. Each circuit breaker shall be clearly numbered in accordance with the single line diagrams. Corresponding numbers and circuit descriptions shall be clearly typed on the legend cards.

All main switches shall be clearly marked "MAIN SWITCH" and the necessary warning labels are to be installed at the switch. Each distribution board shall have sufficient ways for each circuit neutral and each circuit earth wire. Doubling up of circuits w.r.t terminations will not be accepted.

Particular note shall be taken of the fault current requirements of each electrical distribution board. Unless otherwise stated, electrical distribution boards shall be rated for a minimum fault current rating of 5 kA.

The following tests shall be carried out on the respective electrical distribution boards by the appointed Electrical Sub-contractor, prior to installation thereof, namely :

- ❑ high voltage test of 2 000 V, 50 Hz, tested for 1 minute per phase to earth (with remaining phases earthed)
- ❑ a 1 000 V Megger test on all insulated sections between phases and between phases and earth (resistance readings not to exceed 1 000 Mega ohms)
- ❑ full operational tests of all control circuits, relays and switchgear
- ❑ a trip test of all earth leakage relays, creating an earth fault on each of the protected circuits
- ❑ a current injection trip test on all main breakers to ensure that they trip at their set currents

Proof of these tests, and the results thereof, shall be issued to the Consulting Electrical Engineers for approval, prior to despatch of the electrical distribution boards to site.

#### **2.24.4 Standby Generator Set Installation**

No Standby Generator set is included under this project

#### **2.24.5 Conduit and Conduit Accessories**

All flush-mounted conduit and conduit accessories shall be PVC conduit in accordance with SABS 950.

All surface-mounted conduit and conduit accessories shall be galvanised conduit type, and manufactured in accordance with SANS 162, 763 and 1007 respectively.

The Contractor shall ensure that conduit installation shall, wherever possible, be installed within the ceiling voids / roof space. Wherever necessary, the services shall be chased, or cast into, the concrete slabs and brick walls.

Should flush mounting not be practical (or possible), the Electrical Sub-contractor shall obtain prior approval from the Consulting Electrical Engineers, for the installation of surface mounted conduit and / or accessories. If approved, surface mounted conduits shall be installed using galvanised spacer brackets, allowing a clear space of 25 mm. Conduit accessories shall be mounted on similar brackets, ensuring an aesthetic installation.

#### **2.24.6 Conductors**

All low voltage single core conductors shall be of the PVC insulated type with stranded copper conductors, rated at 600 V general service duty and manufactured in accordance with SANS 1507 - 1990.

The colour coding for the PVC insulation shall be :

- ❑ red, white and blue for phases
- ❑ black for neutral
- ❑ green and / or yellow for earth

The Electrical Sub-contractor shall be allowed to utilise "twin and earth" or "surfix" type conductors. Single core conductors shall only be installed within conduits, wiring ducts or channels. No single core conductors will be permitted in open channels, or on cable trays and / or cable ladders.

"Twin and earth" or "surfix" conductors shall only be installed within conduits, wiring ducts or channels, or on cable trays and / or cable ladders.

The drawing in of more than two circuits per conduit shall not be allowed.

## 2.24.7 Lighting Installation

Light outlet points shall be installed generally in positions as indicated on the construction drawings. They shall be as symmetrical as possible within the area in which they are fitted. Cognisance must be taken of the finishes and structural components to avoid clashes of services.

Light switches shall be provided in the form of surface mounted outlets, flush mounted outlets, powerskirting, power pole or flush-floor / under-screed duct-mounted outlets, as indicated on the construction drawings.

Light switches shall be a fully modular system comprising a strong, universal steel support frame, an easy clip-on assembly and a white screwless cover plate i.e. Mosaic™ product range, or Lumex Clipsal S2000 series, or Crabtree Diamond Range, etc.

All light switches shall be of the same manufacture as the small and large power outlets, telecommunications and associated outlets.

Light switches, unless otherwise indicated, shall be installed at 1 400 mm AFFL, and shall be installed generally in positions as indicated on the construction drawings.

All lamp types shall be guaranteed for the full duration of the guarantee period and / or the stipulated lamp life, as stated by the lamp Manufacturers, whichever is the greater.

Ballasts / control gear of fluorescent type fittings shall bear of the electronic type, and shall bear the relevant SABS mark.

The Electrical Sub-contractor shall, upon completion of the Contract, issue to the Client, for their maintenance purposes, the spare lamps as specified in the Schedule of Quantities.

Photo-electric daylight switches shall be supplied and installed in accordance with Part 5 of this Tender Document.

## 2.24.8 Schedule of Luminaires

All luminaires shall comply fully with the specifications detailed herein.

The appointed Electrical Sub-contractor is to make allowance for the provision of sample luminaires for approval by the Consulting Electrical Engineer, prior to the placement of orders.

The appointed Electrical Sub-contractor is to ensure that sufficient time is allowed for the approval process.

The luminaires shall, in addition to the clauses in Part 3, comply with the following :

Type 2 - LLSA / GLL L-bay / 2 x 81 W / 5700 K, as offered by LED Lighting SA (Pty) Ltd

The specification of the confirmed luminaire may be explained as follows :

Name	:	GLL - Lbay
Manufacturer's code	:	LLSA / GLL L-bay / 2 x 81 W / 5700 K
General description	:	2 x 81 W, Linear Lowbay Luminaire
Mounting method	:	Surface mounted
Dimensions	:	1435 mm (l) x 155 mm (w) x 50 mm (h)
Housing (General)	:	High Grade Aluminum, powder coated white or black wit acrylic lenses. Conformal coated PCB's suitable for corrosive environment. Stainless steel gear tray and screws, Aluminum end caps, see attached Cenrtonal specification sheet
Gear Compartment	:	The power supply enclosure within the control gear compartment, which has an IP 20 rating, may be rated at IP65
Lamp Compartment	:	Conformal-coated LED PCBs suitable corrosive environment. IP20 enclosure
Battery Compartment	:	The power supply enclosure within the control gear compartment, which has an IP 20 rating, may be rated at IP65
Diffuser	:	Acrylic lense diffuser, highly effective, anti corrosive and suited to coastal environment, impact resistant.
Lamps (General)	:	Osram high powered, high efficacy, low consumption LED
Colour	:	White, 5700 K, 80 CRI

Efficacy	: 180 lumens per Watt LED efficacy at 150 mA operating current
Working life	: L70, > 100 000 hours
Dimming facilities	: Non-dimmable
Driver (General)	: Tridonic Driver
Input voltage	: 198 VAC - 264 VAC
Power factor	: >0.95
Total harmonic distortion	: <10%
Surge protection	: 10 kV (replaceable, installed in DB per circuit)
Accessories	: 3 m 5 A cabtyre plug lead 3 pin socket (standard luminaire), 3 m 5 A cabtyre plug lead 4 pin socket (emergency luminaire)
Emergency (General)	: N/A
Battery type	: N/A
Battery housing	: N/A
General Certificates	: SABS / IEC 60598-2-1 , SABS / IEC 60598-1
Operating temperatures	: 0 degree Celsius to +40 degree Celsius
Warranty	: 5 year, full replacement, irrespective of problem experienced
Replacement components	: Power supply unit, optics, batteries, control gear
Manufacturing lifespan	: Luminaire will be in production for no less than 10 years

Type 2 - LLSA / GLL L-bay / 2 x 81 W / Emergency / 5700 K, as offered by LED Lighting SA (Pty) Ltd

The specification of the confirmed luminaire may be explained as follows :

Name	: GLL - Lbay
Manufacturer's code	: LLSA / GLL L-bay / 2 x 81 W / 5700 K
General description	: 2 x 81 W, Linear Lowbay Luminaire
Mounting method	: Surface mounted
Dimensions	: 1435 mm (l) x 155 mm (w) x 50 mm (h)
Housing General	: High Grade Aluminum, powder coated white or black wit acrylic lenses. Conformal coated PCB's suitable for corrosive environment. Stainless steel gear tray and screws, Aluminum end caps, see attached Cenrtonal specification sheet
Gear Compartment	: The power supply enclosure within the control gear compartment, which has an IP 20 rating, may be rated at IP65
Lamp Compartment	: Conformal-coated LED PCBs suitable corrosive environment. IP20 enclosure
Battery Compartment	: The power supply enclosure within the control gear compartment, which has an IP 20 rating, may be rated at IP65
Diffuser	: Acrylic lense diffuser, highly effective, anti corrosive and suited to coastal environment, impact resistant.
Lamps General	: Osram high powered, high efficacy, low consumption LED
Colour	: White, 5700 K, 80 CRI
Efficacy	: 180 lumens per Watt LED efficacy at 150 mA operating current
Working life	: L70, > 100 000 hours
Dimming facilities	: Non-dimmable
Driver General	: Tridonic Driver
Input voltage	: 198 VAC - 264 VAC
Power factor	: >0.95
Total harmonic distortion	: <10%
Surge protection	: 10 kV (replaceable, installed in DB per circuit)
Accessories	: 3 m 5 A cabtyre plug lead 3 pin socket (standard luminaire), 3 m 5 A cabtyre plug lead 4 pin socket (emergency luminaire)
Emergency General	: 10% of luminaire output for 3 hours
Battery type	: Nickle Metal Hydride
Battery housing	: Integral with luminaire
General Certificates	: SABS / IEC 60598-2-1 , SABS / IEC 60598-1
Operating temperatures	: 0 degree Celsius to +40 degree Celsius
Warranty	: 5 year, full replacement, irrespective of problem experienced
Replacement components	: Power supply unit, optics, batteries, control gear
Manufacturing lifespan	: Luminaire will be in production for no less than 10 years

### 2.24.9 Small and Large Power Installation

All small and large power outlet points shall be installed generally in positions as indicated on the construction drawings. They shall be as symmetrical as possible within the area in which they are fitted. Cognisance must be taken of the finishes and structural components to avoid clashes of services.

The Electrical Sub-contractor is to include in the Tender Price the provision of additional fixing materials, where needed.

Small and large power outlets shall be provided in the form of surface mounted outlets, flush mounted outlets, powerskirting, power pole or flush-floor / under-screed duct-mounted outlets, as indicated on the construction drawings.

Small and large power outlets shall be a fully modular system comprising a strong, universal steel support frame, an easy clip-on assembly and a white screwless cover plate i.e. Mosaic™ product range, or Lumex Clipsal S2000 series, or Crabtree Diamond Range, etc.

The surface and flush-mounted small and large power outlets shall be of the same type and manufacture as the power skirting, power pole, flush-floor / under-screed duct-mounted small and large power outlets.

All small and large power outlets shall be of the same manufacture as the light switches, telecommunications and associated outlets.

Small power outlet points shall be installed at 300 mm AFFL, unless otherwise indicated on the drawings.

Large power outlet points shall be installed at 1 400 mm AFFL, complete with a 50 mm diameter round conduit box at 300 mm AFFL and a conduit “link” in between, or as is necessary for the connection to the relevant electrical equipment.

Where applicable, small and large power outlets shall be colour-coded as follows :

- ☐ normal power outlets, white
- ☐ essential power outlets, red
- ☐ uninterruptible power outlets, blue

Where applicable, small power outlets shall be equipped as follows :

- ☐ normal power outlets, round earth pin
- ☐ essential power outlets, 0 degree shaven earth pin
- ☐ uninterruptible power outlets, 45 degree shaven earth pin

The Electrical Sub-contractor shall be responsible for the electrical connection of the items of specialised electrical equipment to be supplied and installed by Specialist Contractors i.e. hot water generation equipment, food preparation equipment, medical equipment, etc.

### 2.24.10 Power Skirting Installation

The power skirting, where applicable, shall be a fully modular system, manufactured from self-extinguishing polycarbonate, with a white finish i.e. DLP adaptable trunking range, as manufactured by Legrand Southern Africa, or the Jupiter range, as manufactured by Cabstrut, or the Diamond ducting range, as manufactured by Crabtree, or the O-Line range.

The power skirting outlets shall be of the same type and manufacture as the surface and flush-mounted, power pole and flush-floor / under-screed duct-mounted outlets.

The power skirting installation shall be executed in a manner acceptable to the Consulting Electrical Engineers. The jointing of lengths shall be kept to an absolute minimum, but should they be necessary all joints / ends are to be “machine cut” and completed with a neat and flush finish.

The power skirting installation shall be complete with all standard accessories, i.e. flexible covers, flexible partitions, variable internal dividers and angles, variable external angles and angle covers, flat angles, endcaps, front and base cover joints, tee junctions, etc.

The power skirting shall be (approximately) 195 mm high x 50 mm deep, allowing two x 65 mm high covers (top and bottom channels) and one x 40 mm high cover (middle channel). The top channel will be for the normal power services, the bottom channel for the essential and uninterruptible power services and the middle channel for the data and telephone services. The middle channel; is to be fitted with a partition, allowing separation between the data and telephone services cabling.

#### **2.24.11 Power Pole Installation**

The power poles, where applicable, shall be a fully modular system, manufactured from aluminium, with telescopic ceiling mounting devices, protective end caps and white PVC covers i.e. DLP aluminium distribution columns range, as manufactured by Legrand Southern Africa or the Station master, as manufactured by Cabstrut, or the Diamond ducting range, as manufactured by Crabtree.

The power pole installation shall be complete with all standard accessories i.e. ceiling jacks, ceiling flanges, outlet kits, PVC covers, base plates, etc.

The power pole outlets shall be of the same type and manufacture as the surface and flush-mounted, power skirting and flush-floor / under-screed duct-mounted outlets.

The power poles shall be either 3.5 or 2.5 m in length, or as otherwise indicated on the construction drawings.

#### **2.24.12 Flush-floor / Under-screed Ducting Installation**

Where applicable, the flush-floor ducting and under-screed ducting systems shall be fully modular, manufactured from pre-galvanised steel (grade Z275), as manufactured by Cabstrut. No alternatives shall be accepted.

The flush-floor / under-screed duct-mounted outlets shall be of the same type and manufacture as the surface and flush-mounted, power skirting and power pole-mounted outlets.

The flush-floor ducting system shall be complete with all standard accessories i.e. ducts, draw-boxes, splices, power skirting connectors, pedestal conduit boxes, pedestals, etc.

The under-screed ducting system shall be complete with all standard accessories i.e. ducts, draw-boxes, splices, conduit access floor outlet kits, concrete ingress prevention plate, plastic carpet frame and lid, etc.

#### **2.24.13 Cable Support Systems**

##### *Cable Ladder*

Where applicable, the cable ladder shall be manufactured from pre-galvanised steel (grade Z275), as manufactured by Cabstrut or O-Line. The cable ladder shall be of a weld-free construction, allowing fitment on site. No alternatives shall be accepted.

The cable ladder shall be complete with all standard accessories i.e. height reducing, width reducing and adjustable splices, radiused bends, 90 degree droppers, 90 degree risers, horizontal crossovers, horizontal tees, etc.

The cable ladder shall be supported on unistrut, suspended from the roof trusses / roof slab by means of suitably-sized galvanised steel threaded rods.

The cable ladder shall be of the width, duty and rung spacing specified in the Schedule of Quantities and / or on the construction drawings.

##### *Cable Tray*

Where applicable, the cable tray shall be manufactured from pre-galvanised steel (grade Z275), as manufactured by Cabstrut or O-Line. The cable tray shall be of an inward bend return flange construction, allowing the use of thinner gauge materials, without compromising loading or deflection standards. No alternatives shall be accepted.

The cable tray shall be complete with all standard accessories i.e. height reducing, width reducing and adjustable splices, fishplate couplers radiused horizontal bends, internal elbow (droppers), internal elbow (risers), variable internal riser and external dropper, 4-way crossovers, horizontal tees, covers, dividers, etc.

The cable tray shall be supported on unistrut, suspended from the roof trusses / roof slab by means of suitably-sized galvanised steel threaded rods.

The cable tray shall be of the width and duty specified in the Schedule of Quantities and / or on the construction drawings.

#### **2.24.14 Wiring Duct Installation**

Where applicable, the wiring duct shall be manufactured from pre-galvanised steel (grade Z275), as manufactured by Cabstrut or O-Line. No alternatives shall be accepted.

The wiring duct shall be complete with all standard accessories i.e. PVC covers, splices, radiused and non-radiused internal and external elbows (bends), radiused and non-radiused, horizontal elbows (bends), tee-offs, cross-overs, etc.

The wiring duct shall be supported on unistrut, suspended from the roof trusses / roof slab by means of either galvanised steel threaded rods and / or stainless steel hangers.

The wiring duct shall be of the size specified in the Schedule of Quantities and / or on the construction drawings.

#### **2.24.15 Wiring Mesh Installation**

Where applicable, the wiring mesh shall be manufactured from pre-galvanised steel (grade Z275), as manufactured by Cabstrut or O-Line. No alternatives shall be accepted.

The wiring mesh shall be complete with all standard accessories i.e. splices, radiused and non-radiused internal and external elbows (bends), radiused and non-radiused, horizontal elbows (bends), tee-offs, cross-overs, etc.

The wiring mesh, if suspended, shall be supported on unistrut, suspended from the roof trusses / roof slab by means of either galvanised steel threaded rods and / or stainless steel hangers, or if wall mounted, secured to the wall by means of unistrut, splice clamps, washer and a M6 x 16 cup square bolt and nut arrangement.

The wiring mesh shall be of the size specified in the Schedule of Quantities and / or on the construction drawings.

#### **2.24.16 Earthing, Surge Protection and Lightning Protection Systems**

##### *Earthing System*

The earthing system shall comply with SABS 0142 - 1987 and shall comprise a continuous main copper earth bar together with connections to all items of electrical, electronic and mechanical equipment.

Bonding of the earth system to metal work in buildings, concrete reinforcing, roofs or pipework, etc. shall also be supplied under this contract.

The clamping surfaces of all connections shall be properly tinned to prevent oxidation.

Where earthing conductors are run on walls or vertical surfaces they shall be secured by “stand-off” bolted saddles at intervals not exceeding 1 250 mm.

Earth electrodes to be supplied and installed under this contract shall consist of 16 mm diameter extensible molecular bonded copper clad steel rods 1 800 mm long, complete with coupling and terminal. These electrodes must comply with SABS 0163 - 1985.

The Electrical Sub-contractor shall be responsible for the supply and installation of the required earthing system.

##### *Surge Protection System*

All electrical distribution boards are to be fitted with surge protection, as is required by the relevant regulations.

The Electrical Sub-contractor shall be responsible for the supply and installation of the required surge protection equipment.

### *Lightning Protection System*

A lightning protection installation has been measured in the Schedules of Quantities, and is to be undertaken by a Specialist Sub-contractor, under the responsibility of the Electrical Sub-contractor.

The Consulting Electrical Engineers shall prepare detailed design drawings for the required lightning protection system.

The Consulting Electrical Engineers shall, in consultation with the Electrical Sub-contractor, invite tenders from prospective Specialist Sub-contractors, for the required lightning protection system.

The Electrical Sub-contractor shall be responsible for the liaison with and co-ordination of the Specialist Sub-contractor appointed for the lightning protection system.

#### General

Earthing systems to protect buildings against lightning shall be in accordance with SABS 03 - 1985, as amended.

The components of the lightning protection system shall be installed such that they are not visible; surface mounting of the components shall be kept to an absolute minimum and only where absolutely necessary.

#### Roofs

Metallic roof sections shall be connected to down conductors to form the overall air termination network, and metallic gutters and drainpipes shall be bonded to this.

Non-metallic (e.g. concrete) sections of roofs shall be fitted with edge or ridge conductors of coastal quality aluminium alloy, which shall be bonded to steel reinforcing by means of bimetallic bonding terminals.

These conductors shall be supported by suitable cleats or clamps, which must allow for thermal expansion. The mounting thereof shall be such as to prevent corrosion due to direct contact with the concrete.

The air termination network shall be connected to the ground earth electrodes by down conductors.

Parts of the building, e.g. chimneys protruding above the general level of the roof shall be protected either by lightning masts or edge conductors, connected to the air termination network.

#### Down Conductors

The concrete reinforcing, steel columns or similar metal work in the walls of the building shall normally be used as down conductors, connected to the air termination network ground electrode systems through bonding terminals.

Where connected to reinforcing, these terminals shall be cast into the concrete and the reinforcing bars shall be bonded together with mild steel wire prior to casting the concrete.

Where separate external copper or aluminium down conductors are used these shall be bonded to the metal structure of the building to prevent flashing puncturing the concrete or brickwork.

There shall be a minimum of two down conductors (maximum spacing 30 m of building perimeter) preferably located at opposite building corners.

Down conductors shall be connected to the ground system with (if aluminium, bimetallic) bonding terminals 500 mm above ground level.

These terminals shall also be useable as test terminals. The down conductor shall be sleeved below the terminal to a depth of 400 mm below ground level by PVC pipe fixed to the building wall.

#### Ground Earth Electrodes

The steel reinforcing in the foundation of the building shall be bonded to the ground electrode system.

The steel reinforcement of the building foundation slab shall be earthed by means of driven or pre-drilled rods prior to casting of the concrete. The reinforcing bars shall be bonded together with mild steel wire.

The ground earth electrode shall consist of a trench earth around the building with a single 70 mm<sup>2</sup> copper conductor or 25 mm x 3 mm strip, buried at a minimum depth of 1 000 mm not more than 1 000 from the building, unless necessary to increase locally to avoid pipes or other fixtures.



The conductor shall be buried in riddled earth to improve conductivity.

The earth resistance of the ground electrode shall not exceed 30 ohms when isolated from the rest of the low voltage electrical system and down leads and shall be supplemented as necessary with driven molecular bonded copper clad steel rods manufactured to SABS 0163 - 1985.

#### **2.24.17 Quality of Work**

The Consulting Mechanical Engineer shall have the right to visit the site at any reasonable time and inspect the progress of the work and materials used, and shall have the right to reject:

- ☐ Any work which in his opinion is not to specification or standard, and which is badly or incorrectly carried out
- ☐ Any materials which are considered not to specification or are of an inferior quality

## **PART 3**

### **STANDARD TECHNICAL SPECIFICATIONS**

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*(The afore-mentioned documentation has not been included in the Enquiry Document, but may be obtained from the offices of the Consulting Electrical Engineers.)*

## **PART 4**

### **SCHEDULE OF QUANTITIES**

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## **PART 4**

### **SCHEDULES OF QUANTITIES**

#### **GENERAL NOTES**

##### **4.1 Specifications**

The Schedule of Quantities form part of the Tender Document and must be read in conjunction with the other parts forming the Tender Document in order to gain the full meanings of the descriptions of the work to be done and materials and equipment to be used.

##### **4.2 Alterations**

No alterations, erasure or addition is to be made in the text of the Schedule of Quantities. Should any alteration, erasure or addition be made, it will not be recognised but the original wording of the Schedule of Quantities will be adhered to.

##### **4.3 Issue of Schedule of Quantities in Electronic Format**

The Consulting Electrical Engineers will make the Schedule of Quantities available to Tenderers in electronic (Microsoft Excel Workbook) format, upon request.

If utilised for tender submission, the Tenderer will be responsible for ensuring the correctness of all calculations. The Consulting Electrical Engineers cannot be held responsible for any arithmetic inaccuracies in the electronic Schedule of Quantities.

##### **4.4 Pages**

Before submitting his Tender, the tenderer must check to ensure all pages have been included and are distinct. Should any obvious errors be found the Consulting Electrical Engineers is to be notified immediately to have them corrected as no liability whatsoever will be admitted by the Consulting Electrical Engineers in respect of errors in the Tender due to the foregoing.

##### **4.5 Responsibility**

The responsibility for the accuracy of the quantities written into the Schedule of Quantities remains with the person who prepared the Schedule of Quantities. The Tenderer shall be relieved of the responsibility of measuring quantities at the Tender stage, and the Tender Price submitted shall be in respect of the quantities set out in the Schedule of Quantities.

The Tenderer will be required to make his assessment of items such as brackets, fixings, etc., from details stated in the Schedule of Quantities and shall make allowances therefore within the rates tendered.

Tenderers shall make due allowance in their rates for any item of incidental or contingent work, labour and materials not contained in the Schedule of Quantities, but deemed necessary for the successful completion of the Works.

##### **4.6 Unit Rates**

Unless a separate rate for the supply and the installation of any item is specifically called for, the supply and installation costs of any items shall be fully included in the unit price.

The description of each item shall, unless otherwise stated herein, be held to include making, conveying and delivering, unloading, storing, unpacking, hoisting, setting, fitting and fixing in position, cutting and waste, patterns, models and templates plant, temporary works, return of water establishment charges, profit and all other obligations arising out of the Conditions of Contract.

##### **4.7 Variations**

Variations in the scope and extent of the work included in the Schedule of Quantities shall be allowed in order to meet the Client's requirements and shall be measured and costed at the rates entered in the Schedule of Quantities,

where appropriate, forming an addition to or deduction from the total of the Schedule of Quantities. Any items or variations for which rates have not been added in the Schedule of Quantities shall be agreed and priced as non-scheduled items in accordance with the provisions of the contract.

The rules governing the extent and costing of the variations shall be those provided for in the Conditions of Contract and Variations to Sub-contract.

Variations to the planning before the work has been executed shall be priced as above. Alterations to work already executed cannot necessarily be priced as above and must be reviewed on its merits.

The appropriate portions of the Preliminary & General Costs are to be adjusted proportionately to the nett additions or omissions of the variations to the contract

#### **4.8 Preliminary and General**

Tenderers shall price the Preliminary & General under any or all of these groups, viz.:

- a) A fixed amount
- b) An amount varied in proportion to the final contract value as compared to the Tender Price
- c) An amount varied in proportion to the final contract period as compared to the originally specified contract period

The allocation of prices to the three categories listed above must be realistic and the Fire Protection Sub-contractor may be required to justify the allocation of the prices. Should no Preliminary & General Costs be entered against the variable items b) or c) above, no adjustment thereof shall be considered.

#### **4.9 Provisional Sums**

All Provisional Sums shall be expended only as directed by the Consulting Electrical Engineers and any balance remaining shall be deducted from the amount of the Sub-contract sum. No work for which Provisional Sums are provided shall be commenced without written instructions from the Engineers.

All Provisional Sums may be utilised in full or in part. These Provisional Sums may be deleted in full or in part if not required.

#### **4.10 Contingency Sums**

All Contingency Sums shall be expended only as directed by the Consulting Electrical Engineers. No work for which Contingency Sums are provided shall be commenced without written instructions from the Engineers.

All Contingency Sums may be utilised in full or in part. These Contingency Sums may be deleted in full or in part if not required.

#### **4.11 Dayworks**

The rates included for daywork shall not form part of the Tender Price, but Tenderers shall note that this item must be regarded as provisional and will only be payable to the Fire Protection Sub-contractor if and when a written order to this effect has been issued.

#### **4.12 Value Added Tax**

This Schedule of Quantities shall be priced nett, excluding VAT. VAT shall be added at the summary at the end of the Schedule of Quantities. The final price entered into the Tender Form shall be inclusive of VAT.

#### **4.13 Adjustment**

The Client reserves the right to adjust arithmetical errors in the extension of rates and totals in the Tender, and the Tenderer will be informed of the effect of any corrections on his Tender Sum prior to the award of the Contract. In no case will tendered rates be adjusted when correcting such errors.

In the event of there being tendered rates or prices which are declared by the Client to be unacceptable to him, because they are either excessively low or high or not in proper balance with other rates, the Tenderer may be required to produce evidence and advance arguments in support of the tendered rates or prices objected to. If after submission of such evidence and any further evidence requested, the Client is still not satisfied with the tendered rates or prices objected to, he may request the Tenderer to amend these rates and prices along the lines indicated by him.

The Tenderer may or may not thereupon alter and amend the rates and prices objected to and such other related prices as are agreed to by the Client. Should the Tenderer fail to amend his Tender in a manner acceptable to the Client, or at all, it may prejudice his Tender.

In the case of Tenders with Schedule of Quantities, the total corrected Tender Price in the Tender Form shall constitute the Sub-contract Sum. Tenderers are advised to check their extensions and additions. In the case of a Lump Sum Tender, the original uncorrected Tender Price shall be considered. The Consulting Electrical Engineers shall negotiate adjustments to the rates tendered in order to correct the arithmetical extension or addition, whilst the Tender Price as submitted, remains unaltered.

In either case, the Tenderer shall be notified of any arithmetical error in his Tender, and shall be given the opportunity to withdraw the Tender at this stage.

#### **4.14 Quantification**

The successful Tenderer and the Client or his Agent may agree that the total of any Schedule, including any variations by way of additions thereto or deductions there from, represents a fair and accurate quantification of the items set out in the Schedule of Quantities and the parties may agree final payment on that basis. In the event of any dispute as to the quantities, the disputed item or items shall be adjusted where necessary.

#### **4.15 Ordering**

The quantities in this Schedule of Quantities shall not be used for ordering materials. The onus is on the successful Tenderer to order the correct quantities of materials as per the drawings.

#### **4.16 Payment**

The measurement and payment of Work done shall be made in accordance with the unit price rates, and rates of pay listed in the Schedule of Quantities. No payment will be made for any item of associated work not specifically detailed in the Schedule of Quantities.

### **C3.2.4: Fire Detection Specifications**



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**YANFENG, EAST LONDON INDUSTRIAL DEVELOPMENT ZONE**  
**(EARLY WARNING DETECTION AND ALARM INSTALLATION)**

**PROJECT No. : 2019-348**



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**DRAWING SCHEDULE**

No drawings are issued with this Tender Document.

# **PART 1**

## **THE SCHEDULES**

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**PART 1A****PARTICULARS RELATING TO TENDERER**

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Early Warning Detection and Alarm Installation Installation)**

1. The registered and trading names, physical and postal address, and contact numbers for the tendering entity.

Registered Name : .....

Trading Name : .....

Physical Address : .....

Postal Address : .....

Telephone No. : .....

Facsimile No. : .....

2. The full first and surnames of their partners and/ or directors and their domiciles and addresses.

Full Name (1) : .....

Address (1) : .....

Full Name (2) : .....

Address (2) : .....

Full Name (3) : .....

Address (3) : .....

3. The names and addresses of the local agents, firms, or representatives who are interested in any manner whatsoever in the tender.

Full Name (1) : .....

Address (1) : .....

Full Name (2) : .....

Address (2) : .....

4. Bank Details Bank Name : .....

Branch & Code : .....

Account Number : .....

Contact Person : .....

Telephone No. : .....

.....  
Name

.....  
Signature

.....  
Date

**PART 1B****VARIATIONS TO SUB-CONTRACT**

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Early Warning Detection and Alarm Installation)**

These rates are to be used in the event work is not readily measurable in terms of the attached Schedule of Quantities or Schedule of Rates

I / We agree that any variations to the agreement (not priced elsewhere in this Tender Document) will be priced strictly in accordance with the rates submitted below. The rates (exclusive of VAT) shall be calculated as specified below :

- Cost shall mean the nett cost of equipment or materials supplied to site with all discounts offered
- The labour rates shall include all personnel insurance costs, holidays with pay and travelling time payments, incentive bonuses and overtime premiums, except for overtime payment when overtime is authorised in writing by the Consulting Electrical Engineers
- Percentage and labour rates shall include profits, overheads, financing, insurance, guarantee (with free maintenance) costs, engineering and management

1. for the supply of equipment over and above that originally required by the specifications and drawings Cost Plus \_\_\_\_\_ %
2. equipment deleted will be at the price entered in the price schedule or at the supplier's selling price, unless a fixed price for deletion of an item is specified elsewhere in the Tender Document
3. for substituted equipment, the percentage reflected in item (1) above will only apply to the difference in the supplier's price arising from the substitution
4. for the supply of all labour, charges will be levied at the selling rate (for normal time) of :

Foreman	_____ per hour
Commissioning Engineer	_____ per hour
Tradesman	_____ per hour
Journeyman	_____ per hour
Labourer	_____ per hour
Other specialists / hour	Cost Plus _____ %

5. If pricing by team work is the standard practise of the Contractor, the team shall comprise :
 

	persons / team members at	selling price per hour
--	---------------------------	------------------------
6. Overtime rates
 

	Night (after 19h00)	_____ times normal time
	Saturday	_____ times normal time
	Sunday and Public Holidays	_____ times normal time
	Other (specify)	_____ times normal time
7. Transport charges
 

	Car	_____ Rand per km
	LDV (under 2 tonnes)	_____ Rand per km
	Truck ( between 2 and 5 tonnes)	_____ Rand per km
	Other (specify)	_____ Rand per km

\_\_\_\_\_  
Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

## PART 1C

## PRICE ADJUSTMENT SCHEDULE

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Early Warning Detection and Alarm Installation)**

Does your Tender Price include forward cover for foreign exchange variations ?

YES		NO	
-----	--	----	--

The tenderer shall detail all adjustments to which the prices and rates listed in this Tender Document are to be subjected to.

The tenderer shall enter NIL hereunder if prices are not subject to adjustment.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Name \_\_\_\_\_

Signature

Date \_\_\_\_\_

## PART 1D

## STATEMENT OF COMPLIANCE OR QUALIFICATION BY TENDERER

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Early Warning Detection and Alarm Installation)**

Does this Tender comply in every respect with the Conditions of Tender, Conditions of Contract, Schedules, Project Specifications, Schedule of Quantities and Drawings ?

YES		NO	
-----	--	----	--

If NO, detail qualifications hereunder. Failure to do so shall imply compliance.

QUALIFICATIONS :

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Name \_\_\_\_\_

Signature

Date \_\_\_\_\_

## SCHEDULE OF SUB-CONTRACTORS PROPOSED BY TENDERER

**PROJECT NAME** : **Yanfeng, East London Industrial Development Zone  
(Early Warning Detection and Alarm Installation)**

The Tenderer shall state hereunder the names and particulars of all Sub-contractors he proposes to employ on the Works. The Tenderer shall also define the duties and relevant experience of each Sub-contractor listed.

[illegible]

Name

Signature \_\_\_\_\_

Date \_\_\_\_\_



### SIMILAR INSTALLATIONS CARRIED OUT BY TENDERER

### SIMILAR INSTALLATIONS CARRIED OUT BY TENDERER

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Early Warning Detection and Alarm Installation)**

The Tenderer shall list below all similar works carried out by him including Client details and value of the Works. Failure to comply may invalidate the Tender.

[illegible]

Name \_\_\_\_\_

Signature

Date \_\_\_\_\_

PART 1G

SCHEDULE OF WORK IN HAND

PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Early Warning Detection and Alarm Installation)

The Tenderer shall detail below all Work currently in progress.

Client	Project Details	Project Value ( R )	Percentage Complete ( % )	Commencement and Completion Dates

Name

Signature

Date

**PART 1H****SCHEDULE OF MATERIALS**

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Early Warning Detection and Alarm Installation)**

The Tenderer shall detail below all materials proposed in order to complete the Works specified. (Failure to complete this schedule may invalidate the tender submission).

	Description	Manufacturer
<b>Fire Alarm Panel</b>		
Addressable four loop panel	NA	NA
<b>Addressable Detection Devices</b>		
Combustion Gas Sensitive (Ionisation)		
Smoke Sensitive (Light Scattering) (Optical)		
Heat Sensitive (Rate of Temperature Rise)		
Beam Detectors		
Vesda Early Warning Unit		
Alarm Siren / Sounder		
Strobe Warning Light		
Break Glass		
Interface Unit		
Sequential Magnetic door release unit		
Fire Rated Cable		
Other		
Other		
Other		

Name

Signature

Date

## PART II

### SCHEDULE OF STAFF AVAILABLE

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Early Warning Detection and Alarm Installation)**

The Tenderer shall provide a list of all staff (from senior personnel to labourers) that will be made available to perform any duties for and on behalf of the Tenderer on this project. The Tenderer may attach a company organigram for information purposes.

The Tenderer shall note that a competent Accredited Person registered as an Installation Electrician shall be responsible for the Works and present on site at all times.

NAME	POSITION / DESIGNATION	YEARS OF RELEVANT EXPERIENCE	QUALIFICATION	REGISTRATION NUMBER*

\* These numbers shall be the those appearing on the certificates as required in terms of the Occupational Health and Safety Act No 85 of 1993

\_\_\_\_\_  
Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

## PART 1J

### AGREEMENT RELATING TO OCCUPATIONAL HEALTH & SAFETY ACT

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Early Warning Detection and Alarm Installation)**

Agreement between the Principal Contractor and the Mandatory (hereinafter referred to as the Sub-contractor) as envisaged in Section 37 (2) of the Occupational Health and Safety Act No 85 of 1993 as amended.

Background Information :

1. The Occupational Health and Safety Act comprises Sections 1 to 50 and all unrepealed Regulations promulgated in terms of the former Machinery and Occupational Safety Act No 6 of 1983 as amended as well as any other Regulations which may be promulgated from time to time in terms of the new Act.
2. The Mandatory as defined in the Act may be an agent, a contractor or a sub-contractor. This shall not derogate from the Contractors status as being the responsible employer on this particular Contract.
3. Section 37 of the Occupational Health and Safety Act has the potential of punishing Clients (Principals) for the unlawful acts or omissions of Contractors save where a written agreement has been concluded between the parties containing arrangements and procedures to ensure compliance with the said Act by the Contractor. This Agreement constitutes such a written agreement.
4. This Contract document forms an integral part of the Agreement.
5. To be able to perform in terms of the Agreement Contractors must be familiar with the relevant provisions of the Act.
6. The liability of the Contractor under this Agreement will commence on the day the site is handed over to the Contractor and terminate when the site is handed back to the Client.
7. Contractors who intend to utilise the services of Sub-Contractors and / or Nominated Sub-Contractors are advised to conclude a similar Agreement with their Sub-Contractors and / or Nominated Sub-Contractors.

I .....

representing.....(the Contractor)

hereby acknowledge that the Contractor is an employer in his own right with duties as prescribed in the Occupational Health and Safety Act No 85 of 1993 as amended. The Contractor undertakes to ensure that all work will be performed, and machinery and plant used, in accordance with the provisions of the said Act. The Contractor furthermore agrees to comply with the requirements of the Client as contained in the Contract documents and to liaise with the Client should he, for whatever reason, be unable to perform his duties in terms of this Agreement.

Signed at ..... (place) on ..... (date / month / year)

Signature on behalf of the Contractor (the Mandatory) .....

Signature on behalf of the East London Industrial Development Zone (the Client) .....

## PART 1K

### CERTIFICATES REQUIRED

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Early Warning Detection and Alarm Installation)**

The Tenderer shall submit proof of the following, namely :

#### Compulsory Documentation

1. Notice of Registered Office and Postal Address of Company, in terms of the Companies Act, 1973, including the Company Registration Document accompanied by Share Certificates, where applicable i.e. Cipro Certificate
2. Copies of the Identity Documents, for each of the respective Directors / Members / Partners / Shareholders/ Trustees, etc.
3. Tax Clearance Certificate, as issued by the South African Revenue Services
4. Accredited Valid Original or Certified B-BBEE Certificate
5. Declaration of Insurances : Workmen's Compensation Assurance  
: Unemployment Insurance Fund  
: Contractor's All Risks Insurance
6. Original Bank Stamped Letter or Cancelled Cheque as Proof of Bank Account
7. Licence of the Accredited Person registered as an Installation Electrician who will be responsible for the Works and the on-site supervision thereof (*where applicable*)
8. Licence of the Accredited Person registered as an Master Installation Electrician who will be responsible for the relevant portion of the Works and the on-site supervision thereof (*where applicable*)
9. Proof of registration of Company, and where applicable, the relevant persons, with the Private Security Industry Regulatory Authority (PSIRA) (*where applicable*)
10. Proof of registration of all persons who will be involved in this project with the South African Qualification & Certification Committee (SAQCC) for the Fire Industry (*where applicable*)
11. Proof of registration of Company with the Fire Detection Installers Association (FDIA) (*where applicable*)
12. Proof of registration as a "Gas Installer", in terms of the Government Gazette, number 32395, dated 15 July 2009, as amended (*where applicable*)
13. Proof of registration of Company with the Automatic Sprinkler Inspection Bureau (Pty) Ltd (ASIB) (*where applicable*)

#### Supplementary Documentation

14. Company Profile (Abridged Version)
15. Proof of Location of Office
16. Electrical Sub-contractors Association (ECA) Registration Certificate (for the associated electrical Works)
17. Proof of Central Supplier Database Registration

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Name

---

Signature

---

Date

**PART 1L****FORM OF RESOLUTION**

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Early Warning Detection and Alarm Installation)**

This form is to be completed in full by the Tenderer. Failure to do so may invalidate the Tender.

At a meeting held by the Directors / Members / Partners / Trustees of

\_\_\_\_\_ (Tenderer's Name)

at \_\_\_\_\_ (Place)

on the \_\_\_\_\_ (Day / Month / Year)

it was resolved

that \_\_\_\_\_

in his / her capacity as their \_\_\_\_\_

is hereby authorised and empowered to sign the Tender and / or Contract Documents for the project known as the

**“Yanfeng, East London Industrial Development Zone  
(Early Warning Detection and Alarm Installation)”**

for and on behalf of the Tenderer.

Signed : \_\_\_\_\_ Signed : \_\_\_\_\_

Capacity : \_\_\_\_\_ Capacity : \_\_\_\_\_

**PART 1M**

**SITE INSPECTION CERTIFICATE**

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Early Warning Detection and Alarm Installation)**

This form is to be completed in full by the Tenderer. Failure to do so may invalidate the Tender.

This is to certify that I / we \_\_\_\_\_  
the representative (s) of \_\_\_\_\_ (Tenderer’s Name)  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ (address)  
\_\_\_\_\_ telephone number  
\_\_\_\_\_ facsimile number

certify that I / we have examined the site, drawings and tender documents and have made myself / ourselves fully conversant with all conditions and circumstances likely to influence the rates tendered.

Name of Tenderer’s Representative \_\_\_\_\_  
Signature of Tenderer’s Representative \_\_\_\_\_  
Name of Consulting Electrical Engineers’ Representative \_\_\_\_\_  
Signature of Consulting Electrical Engineers’ Representative \_\_\_\_\_



## **PART 2**

### **PROJECT SPECIFICATION**

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## PART 2

### PROJECT SPECIFICATION

*Any requirement or statement made in this Project Specification section of the specification shall override the requirements of Part 5 : Standard Specifications and the Drawings.*

#### 2.1 General

This specification covers all Works necessary for the electrical engineering (early warning detection and alarm) services installation of the project known as the “Additions and Alterations of Yanfeng Manufacturing Facility in building CE2 of ASP1, in the East London Industrial Development Zone (ELIDZ)”.

The project generally comprises the following Works at the Yanfeng Facility, namely :

- ❑ the construction and addition of a mezzanine storage floor withing the existing CE2 (Yanfeng) Facility
- ❑ the construction and addition of a Foam Cell Production room withing the existing CE2 (Yanfeng) Facility
- ❑ the construction and addition of a new Dispatch Area (W206) adjacent the existing CE2 (Yanfeng) Facility
- ❑ the alterations and addition of the existing Dispatch Area (CUN) within the existing CE2 (Yanfeng) Facility
- ❑ The above building Works generally includes a steel structure clad in aluminium roof and side sheeting, concrete raft floor slab, suspended isopanel ceilings and part mezzanine slab, etc.

At this stage, the order of the above Works is yet to be determined by the Client. The sequencing of the Works and the “unofficial” sectional completion requirements will be negotiated by the Client, Professional Team and Principal Contractor.

The Tenderer’s attention is specifically drawn to the fact that at Practical Completion the completion of specific sections must be such that the Client can actually move into the premises and commence conventional operational Factory-related activities.

Thus, programming for the Works must allow for the systematic clearance of all outstanding work and defects (save only latent defects) prior to the “Sectional” and “Practical” Completion circumstances required. The Works to be cleared are to include all electrical and mechanical installations including commissioning procedure and certificates of compliance etc., in addition to the building works.

Any works to the exterior of the building which do not impact on the conventional operational Factory-related activities could be exempted from this requirement regarding “Sectional” and “Practical” Completion.

#### 2.2 Scope of Work

##### 2.2.1 Principle Items of Work

The principle items of Work covered by this Sub-contract comprises the supply, delivery, installation, testing, commissioning and twelve (12) months guarantee (with free maintenance during the guarantee period) of the complete Works involved in the early warning detection and alarm system, as further detailed below, namely :

- ❑ Preliminary & General Items
- ❑ Connect and interface to the existing fire detection system, including the re-programming thereof
- ❑ The supply and installation of fire detection devices (smoke sensitive, heat sensitive, combustion gas sensitivity and light emitting diodes)
- ❑ The supply and installation of alarm sirens / sounders
- ❑ The supply and installation of surface mounted break glass units
- ❑ The supply and installation of (PH120) fire retardant cable
- ❑ The removal and repositioning of existing devices, including associated conduit and fire retardant cable
- ❑ The supply and installation of door magnets
- ❑ Provisional Sums as detailed in the Schedule of Quantities
- ❑ Provision of Record Drawings and Operating and Maintenance manuals
- ❑ Provision of Certificates of Compliance for complete installation covered in this specification
- ❑ All other materials, equipment, labour and services necessary for the complete, safe and efficient operation of the Works in full accordance with the specifications as detailed in the “Project Specification”

- ❑ Maintenance during the twelve (12) months defects liability period i.e. if, during the defects liability period, the early warning detection and alarm installation is not in working order for any reason for which the Contractor is responsible, or if the installation develops any defects, the Early Warning Detection and Alarm Sub-contractor shall immediately upon being notified thereof take steps to remedy the defects

### 2.2.2 Works to be carried out by Others

A Principal Contractor shall be appointed for the building Works, as briefly explained in Clause 2.1.

The successful Early Warning Detection and Alarm Sub-contractor shall be appointed as a Domestic Sub-contractor to the appointed Principal Contractor.

The Early Warning Detection and Alarm Sub-contractor will be responsible for ensuring that the early warning detection and alarm sub-contract Works is completed in accordance with Principal Contract, with the necessary co-ordination between the parties.

The Principal Contractor shall, under separate contracts, employ various other parties for the supply, installation, testing and commissioning of various specialist equipment installations i.e. but not limited to, the following :

- ❑ Supply and installation of air-conditioning and ventilation services installation, which shall be carried out by the Air-conditioning and Ventilation Sub-contractor, appointed as a Selected Sub-contractor to the Principal Contractor (conduits, wireways, power supplies, etc. by Electrical Sub-contractor)
- ❑ Supply and installation of the electrical installation, which shall be carried out by an Electrical Sub-contractor, appointed as a Selected Sub-contractor to the Principal Contractor (conduits, wireways, power supplies, etc. by appointed Electrical Sub-contractor)
- ❑ Supply and installation of elevators, escalators and goods hoists, (where applicable) which shall be carried out by the relevant Specialist Sub-contractors, appointed as Domestic, Nominated or Selected Sub-contractors to the Principal Contractor (conduits, wireways, power supplies, etc. by Electrical Sub-contractor)
- ❑ Supply and installation of fire protection services installation, which shall be carried out by either the Plumbing Sub-contractor, appointed as a Domestic Sub-contractor to the Principal Contractor or by a Fire Services Sub-contractor, appointed as a Nominated or Selected Sub-contractor to the Principal Contractor (conduits, wireways, power supplies, etc. by Electrical Sub-contractor)
- ❑ Supply and installation of hot and cold water services installation, which shall be carried out by the Plumbing Sub-contractor, appointed as a Domestic Sub-contractor to the Principal Contractor (conduits, wireways, power supplies, etc. by Electrical Sub-contractor)
- ❑ Supply and installation of smoke extraction services installation (where applicable), which shall be carried out by the Smoke Extraction Sub-contractor, appointed as a Domestic, Nominated or Selected Sub-contractor to the Principal Contractor (conduits, wireways, power supplies, etc. by Electrical Sub-contractor)
- ❑ Supply and installation of specialist telecommunications services (where applicable) i.e. telephone and data, access control and door security, closed circuit television, etc. which shall be carried out by respective Sub-contractors, appointed as either Domestic Sub-contractors to the Electrical Sub-contractor (conduits, wireways, power supplies, etc. by the Electrical Sub-contractor)
- ❑ Supply and installation of specialist equipment, furniture, fittings and appliances

The Early Warning Detection and Alarm Sub-contractor shall work in close liaison with the appointed Contracting Parties.

### 2.3 Inspection of Site

The Consulting Electrical Engineers will not hold a compulsory site inspection meeting.

The prospective Tenderers are advised to thoroughly acquaint themselves with the nature and extent of Work to be done and to make allowance for items obviously intended and necessary for the proper completion of the Works, although not specified.

By submitting a tender it is accepted that the Tenderer is fully aware of all site conditions as well as the access to it, and has allowed for this in their Tender Price. Claims due to lack of knowledge will not be entertained.

## **2.4 Site Conditions**

### **2.4.1 Location**

The site is situated inside the East London Industrial Development Zone at the existing ASP1 : CE2 Facility (Yanfeng factory).

### **2.4.2 Access to Site**

The site is easily accessible from the existing Yanfeng factory.

Security on site is of utmost importance. The Early Warning Detection and Alarm Sub-contractor shall ensure that their workforce (site personnel) is aware thereof and acts accordingly.

### **2.4.3 Existing Services**

There are known existing electrical and mechanical services on site. Therefore, the Early Warning Detection and Alarm Sub-contractor shall take the necessary precaution.

The Principal Contractor shall provide a temporary water connection to the construction site for use by all Contracting Parties.

The Principal Contractor shall provide a temporary electricity connection to the construction site for use by all Contracting Parties.

The Principal Contractor shall provide temporary toilet facilities to the construction site for use by all Contracting Parties.

Coverage from the main cellular phone communications networks is available on site.

## **2.5 Compliance with Regulations, Standards and Codes**

### **2.5.1 Health and Safety Regulations**

The Early Warning Detection and Alarm Sub-contractor shall, at all times, abide by the regulations in the schedule of section 43 of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) entitled “Construction Regulations, 2004”.

The Early Warning Detection and Alarm Sub-contractor will be required, amongst others, to :

- ☐ prove registration and good standing with the compensation fund or a licensed compensation insurer
- ☐ conduct risk assessments, develop and implement a documented health and safety plan
- ☐ ensure conformance with this health and safety plan by any Contractor (domestic or other)
- ☐ ensure that a health & safety file and register is maintained on site
- ☐ appoint a competent construction supervisor (full-time employee) and one or more competent employees to assist
- ☐ appoint a full-time or part-time construction safety officer
- ☐ ensure that all employees engaged on site undergo health and safety induction training
- ☐ appoint in writing a competent person to supervise works under the various disciplines (viz. excavations / demolitions / structures / formwork & support work / scaffolding / etc)
- ☐ submit tenders making provision for the costs of health and safety measures during the construction process

Note : No additional payment will be made to the Mechanical Sub-contractor in respect to his conformance with this legislation, and the requirements of this schedule shall be deemed to be included in his tendered rates.

The Early Warning Detection and Alarm Sub-contractor shall at all times ensure that their operations do not endanger any member of public, and that the complete Works are undertaken in accordance with the regulations stipulated in the Occupational Health and Safety Act.

## 2.5.2 Standards and Codes

The entire installation shall be in full conformity with the current versions of the following :

- ❑ South African National Standard : SANS 10400 - 2010 - Code of Practice for “The Application of the National Building Regulations” i.e. those included in the “National Building Regulations and Building Standards Act, 1977 (Act 103 of 1977)”, as published in the Government Gazette, number 31084, dated 30 May 2008, which became effective as of 01 October 2008
- ❑ SANS 10139 : 2007 - Edition 3.1 - “Fire Detection and Alarm Installations for Buildings - System Design, Installation and Servicing”, as amended
- ❑ South African National Standard : SANS 10142-1: 2003 - The Wiring of Premises : Part 1 - Low-voltage Installations
- ❑ Occupational Health and Safety Act, 1993 (Act 85 of 1993)
- ❑ Any other relevant by-laws of the Local Authorities

Further, the Early Warning Detection and Alarm Sub-contractor shall adhere to all the relevant regulations, standards and codes specified in Part 2 of this Tender Document.

All apparatus, components, parts, fittings and materials supplied and / or installed, whether specifically specified herein or not, shall conform in respect of quality, manufacture, tests and performance with the requirements of the appropriate current South African (SABS) or British Standard Specifications (BS) and Addenda thereto, except where otherwise required by this specification or permitted by approval of the Consulting Electrical Engineers, in writing.

All materials and workmanship, which may, in the opinion of the Consulting Electrical Engineers, be inferior to that specified for the Work, will be condemned. All condemned material and workmanship must be replaced or rectified as the case may be, to the satisfaction of the Consulting Electrical Engineers.

Any fitting or item of equipment not specifically mentioned but obviously necessary for the successful completion of the installation is to be included so as to form a complete working installation.

## 2.6 SUPERVISION

The Work shall at all times, for the duration of the contract, be carried out under the supervision of a competent representative of the Early Warning Detection and Alarm Sub-contractor, who should also be Registered with the South African Qualification & Certification Committee for the Fire Industry (SAQCC), as determined by the Department of Labour to ensure compliance with the Occupational Health and Safety Act No. 85 of 1993, as amended.

Furthermore, the associated electrical Works shall at all times, for the duration of the contract, be carried out under the supervision of a competent representative of the Early Warning Detection and Alarm Sub-contractor, who should also be an Accredited Person registered as an Installation Electrician in terms of the Occupational Health and Safety Act No. 85 of 1993, as amended.

The representative of the Early Warning Detection and Alarm Sub-contractor shall be able and authorised to receive and carry out instructions on behalf of the Early Warning Detection and Alarm Sub-contractor.

## 2.7 PROGRAMME

The Principal Contractor shall prepare a Contract Construction Programme and all Sub-contractors shall be required to complete their respective Sub-contract Works in accordance with the programme.

The Early Warning Detection and Alarm Sub-contractor shall submit a programme for the Sub-contract Works, in accordance with the Principal Contractor’s Contract Programme, within 7 days of receipt of the Principal Contractor’s Contract Programme.

The cost of overtime, additional labour and plant necessary for the completion of the Works in accordance with the Principal Contractor’s Contract Programme shall be included in the Tender Price.

## 2.8 SAMPLES AND ALTERNATIVES

The preferred manufacturer / makers of equipment and / or material are as described in either the Project Specification, the Standard Technical Specifications or as listed in the Schedule of Quantities.

The Client reserves the right to specify the equipment and / or materials utilised in the Works. No alternatives to equipment and / or materials are to be used unless written approval is obtained from the Client, or his Representative and / or the Consulting Electrical Engineers.

## 2.9 DEFINITIONS

- ❑ Supply : To purchase, procure and deliver complete with all related specified accessories
- ❑ Erect : To place or mount and fix in position
- ❑ Install : To erect, connect up and commission, complete with related accessories
- ❑ Indicated shown, Noted : As indicated or shown on drawings
- ❑ Approved, Alternative : Approved in writing by the Consulting Electrical Engineers
- ❑ Similar, Equal : Equal or better in efficiency of performance and compatibility

## 2.10 CONFLICT BETWEEN SPECIFICATIONS, SCHEDULE OF QUANTITIES AND DRAWINGS

Should there be conflict between the Project Specifications, Schedule of Quantities, Drawings and / or Standard Technical Specifications, the sections shall be considered in the following order of priority :

- ❑ Project Specifications
- ❑ Schedule of Quantities
- ❑ Drawings
- ❑ Standard Technical Specifications

Should the Early Warning Detection and Alarm Sub-contractor note an inconsistency between the Project Specifications, Schedule of Quantities, Drawings and / or Standard Technical Specifications, he shall notify the Consulting Electrical Engineers immediately and obtain clarification or instructions prior to ordering or installing equipment.

## 2.11 DEVIATIONS FROM TENDER DOCUMENTS

No deviations or alterations from that of the specification, schedules or drawings shall be made without first obtaining the written approval of the Department.

## 2.12 DRAWINGS

Refer to the Drawing Schedule for the list of drawings relating to this Tender Document.

At no time is the Early Warning Detection and Alarm Sub-contractor to scale drawings or to make any assumptions regarding measurements / dimensions. If in doubt, the Early Warning Detection and Alarm Sub-contractor is to obtain clarification from the Consulting Electrical Engineers.

## 2.13 MOVING OF EQUIPMENT

The Early Warning Detection and Alarm Sub-contractor shall investigate each space through which equipment must be moved. Where necessary, equipment shall be transported in sections of size suitable for moving through spaces available.

## 2.14 MISCELLANEOUS

### 2.14.1 Labels

Labels shall be installed as required in terms of the relevant codes of practice and as further specified in this Tender Document.

All labels shall be in English with capital letters, in black and on a white background, and a minimum of 4 mm in height. All labels shall be of ivorine or plastic construction and riveted / screwed in place.

### **2.14.2 Safety Signage**

The Early Warning Detection and Alarm Sub-contractor shall supply and install all danger, sub-station and safety notices and signs in terms of the relevant regulations.

All safety signage installed shall be in accordance with SABS 1186.

### **2.15 INSTALLATION DRAWINGS**

Drawings shall be submitted in triplicate as soon as possible after the signing of the Sub-contract Agreement, but in ample time to allow the Consulting Electrical Engineers to examine and approve before equipment manufacture is started, or material delivered to site.

Should the Consulting Electrical Engineers require that any drawing be amended, the Early Warning Detection and Alarm Sub-contractor shall make the necessary alterations and re-submit the drawing within two weeks.

The Early Warning Detection and Alarm Sub-contractor shall provide the Principal Contractor and the Consulting Electrical Engineers with complete layout, installation and shop drawings, together with any necessary descriptions and specifications. Sufficient details shall be given to permit a full appraisal of all parts of the installation and their relation to the building structure.

Drawings shall give full details of all foundations, ducts, chases, pits and openings and shall set out all lines and levels for the work.

Delays caused by the submission of drawings or by an error, omission or inadequacy in these drawings, shall not be considered a reason for an extension of the Sub-contract time.

### **2.16 PAYMENT VALUATIONS**

The Early Warning Detection and Alarm Sub-contractor shall be entitled to submit monthly payment claims to the Principal Contractor. The payment claims are to be submitted to the Consulting Electrical Engineers for approval and recommendation, prior to submission to the Principal Contractor.

The payment claim shall be in the form of a copy of the Schedule of Quantities, indicating the tendered, claimed (supplied, installed and materials on / off site) and anticipated completion quantities, rates and values.

### **2.17 VARIATION ORDERS**

Variations orders shall be ordered and processed either by the issue of a revised drawing or by issue of a site instruction, by a duly authorised person.

The Early Warning Detection and Alarm Sub-contractor shall ensure that the above procedures have been followed prior to carrying out any work. Failure to comply may invalidate any claim for work done.

Unless otherwise agreed with the Consulting Electrical Engineers, all claims for variation orders shall be approved prior to proceeding with the relevant Works. The Early Warning Detection and Alarm Sub-contractor shall submit variation order claims to the Consulting Electrical Engineers for approval with the preceding monthly payment claim.

However, the Early Warning Detection and Alarm Sub-contractor shall only include the value of approved variation orders in any payment claim or invoice, once approved in writing by the Consulting Electrical Engineers. Variation order claims, which have not been approved, but are included in the monthly payment claim, will be deducted from the payment claim in question.

### **2.18 ACCEPTANCE, TESTING AND COMMISSIONING**

The Early Warning Detection and Alarm Sub-contractor shall carry out all tests required in terms of the relevant Acts, SABS Codes of Practice and Local Authority requirements. The Early Warning Detection and Alarm Sub-contractor shall provide all the equipment and apparatus required for the purpose of carrying out all necessary tests.

The Early Warning Detection and Alarm Sub-contractor is responsible for carrying out all necessary tests and obtaining all necessary certificates for the installation and operation of the plant.

If any part of the Works fails the test, the Early Warning Detection and Alarm Sub-contractor shall be responsible for rectifying, at his own cost, the defective Works and the re-testing thereof to ensure compliance. If in consequence, the Consulting Electrical Engineers are obliged to attend the further acceptance tests the additional costs incurred by the Engineers shall be payable by the Early Warning Detection and Alarm Sub-contractor.

The Works shall be deemed to be practically complete only when the Consulting Electrical Engineers has approved all tests and inspections, and a Completion Advice Notice or other relevant completion notice is issued.

## **2.19 COMPULSORY FORMS AND CERTIFICATES**

The Early Warning Detection and Alarm Sub-contractor shall submit the necessary commencement, compliance and completion forms for the installation as required in terms of the Occupational Health and Safety Act No. 85 of 1993, as amended, the relevant SABS Specifications and the requirements of the relevant Supply Authorities.

## **2.20 OPERATING INSTRUCTIONS, MAINTENANCE MANUALS AND RECORD DRAWINGS**

The Early Warning Detection and Alarm Sub-contractor shall supply, after approval by the Consulting Electrical Engineers, twelve (12) bound sets of operating instructions, maintenance manuals and record drawings for the complete electrical engineering services installation.

### **2.20.1 Operating Instructions and Maintenance Manual**

Failure to submit these manuals will result in the delay of the final inspection and acceptance of the Works by the Client.

The manuals shall be prepared within the Contract, and shall be particular to the project. All charges that may be required by manufacturers' suppliers for the provision of information and literature shall be included in the contract price.

The manual shall be arranged with an index and referencing system and a matching flysheet giving the names and address of principals involved on the project.

The covers shall be hardbound with a four-post loose-leaf system. The Contract details shall be embossed on the front cover. Numbered card dividers shall be inserted between the sections.

The format of the manual shall be in accordance with the following sections, after a preface and index. Any other data considered by the Client to be pertinent shall also be included.

#### **Section 1**

This shall comprise the introduction, abbreviations, and any warnings that may be required by the Machinery and Occupational Safety Act, Local Authorities, and other bodies.

#### **Section 2**

A full description of each system, together with the main plant components and locations, plus the mode of operation of automatic control systems associated with such system shall be reflected in this section.

#### **Section 3**

This shall comprise the complete plant technical data of each item of control equipment (e.g. manufacturer's name and address, type of unit, serial number. This information shall be derived from a site inspection of identification plates together with information obtained from manufacturers.

#### **Section 4**

This section shall describe in detail the operating procedures necessary for starting up, running, and shutting down each individual systems. This shall include the control panel starter and selection facilities together with any alarm and safety interlocks as identified on the control panel.



#### Section 5

This shall comprise the maintenance operations on a daily, weekly, monthly etc. basis for each item of plant. The preparation of this section shall be carried out by obtaining from the manufacturer his advice and recommendations for lubrication, adjustment and routine maintenance.

#### Section 6

This section shall comprise the emergency procedures to be adopted by personnel engaged on the operation and maintenance of the electrical and mechanical services with regard to fire, first aid, general failures, and call-out procedures during working hours and out of working hours.

#### Section 7

A recommended action on plant malfunction shall be detailed in this section. This is to assist both the user and maintenance engineer in the event of a fault developing in a system by indicating the nature of the fault and the recommended action.

#### Section 8

This shall comprise a list of recommended spares. The preparation of this section shall be carried out by obtaining the manufacturer's recommendations and also incorporate the Client's requirements regarding spares.

#### Section 9

A schedule of the record drawings or 'as-built' drawings for the new control systems shall be inserted in numerical order in this section. The drawings shall be bound into the manual.

#### Section 10

This section shall comprise test certificates and commissioning reports. It shall include reset schedules and temperature and pressure set points clearly for each item of control equipment.

#### Section 11

This shall comprise the manufacturers' literature, arranged in alphabetical order to match the list of manufacturers. The names of the manufacturers (or their local representatives), addresses, and telephone numbers shall also be given.

### **2.20.2 Record Drawings**

A complete set of floor plans, in hard copy format, will be issued to the Early Warning Detection and Alarm Sub-contractor, for preparation of Record Drawings.

The Early Warning Detection and Alarm Sub-contractor shall prepare Record Drawings of the complete electrical engineering services installation and return same to Consulting Electrical Engineers.

### **2.21 Testing and Commissioning**

The Early Warning Detection and Alarm Sub-contractor is responsible for carrying out all necessary testing on, and commissioning of, the electrical installation, to ensure the full and proper operation of thereof.

Where relevant, all testing procedures carried out during the factory acceptance testing exercise, shall be carried out by the Early Warning Detection and Alarm Sub-contractor and witnessed, accepted and approved by the Consulting Electrical Engineers.

### **2.24 Staff Training**

The Early Warning Detection and Alarm Sub-contractor shall provide comprehensive training of male and female operational staff and nominated maintenance personnel, to the approval of the Consulting Electrical Engineers.

Training shall be comprehensive, covering all aspects of systems installed as part of these Works.

The Early Warning Detection and Alarm Sub-contractor shall provide a detailed training programme and a copy of the training documentation to the Consulting Electrical Engineer, for comment and review, no less than 4 weeks prior to the commencement of training.

No training will commence on site prior to the written approval of the Consulting Electrical Engineers. Should the Consulting Electrical Engineers not approve the training programme and documentation, the training programme and

documentation will be referred back to the Electrical Sub-contractor for re-evaluation and re-submission to the Consulting Electrical Engineers.

The number of staff to be trained is to the full discretion of the Client. However, the Early Warning Detection and Alarm Sub-contractor shall allow for 2 groups, each of up to 4 personnel. Each group shall receive a minimum of two 2-hour training sessions. One of these sessions shall be held after the commissioning of the generator set installation, and the other of these sessions, upon expiry of the defects liability period.

Training shall be adequate to ensure that the groups trained are :

- ❑ competent in the operation of systems
- ❑ adequately trained to carry out on-going training
- ❑ fully aware of the location of all equipment installed as part of this Sub-contract within their area of responsibility

The names of personnel attending the training shall be recorded and submitted to the Consulting Electrical Engineers at the conclusion of training.

Maintenance staff shall demonstrate a complete understanding of the day-to-day operation of generator set.

All training aids and course notes necessary to conduct effective operational and maintenance training shall be supplied by the Early Warning Detection and Alarm Sub-contractor.

The training venue will be made available on site by the Client.

## **2.23 DEFECTS LIABILITY PERIOD**

The defects liability period shall be twelve months, which shall commence with the issue of the Works Completion Certificate (or Completion Advice Notice) in respect of the fully commissioned Works, by the Consulting Electrical Engineers.

With effect from the date of the Works Completion Certificate, or Completion Advice Notice, the Early Warning Detection and Alarm Sub-contractor shall undertake the regular servicing of the installation during the defects liability period and shall make all adjustments necessary for the correct operation thereof. During the defects liability period, the Early Warning Detection and Alarm Sub-contractor shall complete all routine maintenance tasks that are specified for each component of the installation by the relevant Manufacturer / Supplier.

We understand the maintenance to be undertaken on the early warning detection and alarm installation during the defects liability period to be based on and include (but not be limited to) the following, namely :

- ❑ Three month interval :
  - check control equipment
  - check system functions for normal operations
  - check fire brigade signalling (if applicable)
  - check all lamps in visual indicators and control desk
  - check all audible alarms and fire evacuation speech system (if applicable)
  - check battery, electrolyte level of accumulators and charging unit
  - check random detectors and end of line units for operation
  - each detector tested is to be logged on a maintenance sheet in order to ensure that within a 6 month period every detector will have been tested
- ❑ Six month interval :
  - all items listed above
  - detection circuit is to be tested each 3 monthly service and each detector tested is to be logged on a maintenance sheet in order to ensure that within a 6 month period every detector will have been tested
  - ensure display panel lights and/or controls are functioning correctly
- ❑ Nine month interval :
  - all items listed above
  - detection circuit is to be tested each 3 monthly service and each detector tested is to be logged on a maintenance sheet in order to ensure that within a 6 month period every detector will have been tested
  - ensure display panel lights and/or controls are functioning correctly
- ❑ Twelve month interval :
  - all items listed above

- all detectors to be taken down and cleaned, and tested after reinstallation
- test the inter face controls with other services

The Early Warning Detection and Alarm Sub-contractor shall ensure that the inspections, services and maintenance-related tasks are undertaken at intervals not greater than three months.

The Early Warning Detection and Alarm Sub-contractor shall ensure that each inspection, service and / or maintenance-related task is undertaken in the presence of a representative of either the Consulting Electrical Engineers or the Client.

The Early Warning Detection and Alarm Sub-contractor shall ensure that the necessary documentation is completed and submitted to the Consulting Electrical Engineers confirming the completion of the relevant tasks after every each inspection, service and / or maintenance-related task milestone.

The Early Warning Detection and Alarm Sub-contractor shall also timeously attend to any defects, which may occur through the normal operation of the Works.

If, during the defects liability period, the installation is not in working order for any reason for which the Early Warning Detection and Alarm Sub-contractor is responsible, or if the installation develops defects, he shall immediately upon being notified thereof take steps to remedy the defects and make any necessary adjustments.

Should such stoppages however be so frequent as to become troublesome, or should the installations otherwise prove unsatisfactory during the said period the Early Warning Detection and Alarm Sub-contractor shall, if called upon by the Consulting Electrical Engineers, at his own expense replace the whole of the installations or such parts thereof as the Consulting Electrical Engineers may deem necessary with apparatus specified by the Consulting Electrical Engineers.

The Early Warning Detection and Alarm Sub-contractor shall also timeously attend to any defects, which may occur through the normal operation of the Works.

Upon completion of the maintenance period, the Consulting Electrical Engineers shall undertake a final inspection and hand-over of the Works to the Client.

## **2.24 Detailed Schedule of Work**

All parts of this installation shall require all equipment to be extensively cleaned for a hygienic system of operation.

It is to be noted that NO silicone is to be used within the facility due to the effect it has on the Tenant's production processes.

The Works will require finalization to each area, as the co-ordination with the Tenant services is yet to be finalised.

### **2.24.1 Addressable Fire Alarm Panel**

There is an existing main fire alarm panel situated at the Reception. If there is no space on the existing zones to accommodate the additional fire detection devices, an additional fire panel shall be installed.

If required, the additional fire alarm panel shall be an analogue addressable four-loop control panel, capable of supporting a minimum of 508 addressable sensors and devices that will be zoned and addressed in a logical sequence. The additional fire alarm panel, if required, (shall be installed next to the existing main fire panel) shall have a liquid crystal display of more than 150 characters that will be programmed to give detailed address and location information.

The new main panel shall be complete with 28 Ampere battery backup and battery charging unit, carry out automatic "self-testing" at regular intervals and report sensors requiring servicing. The panel shall be compliant with BS5839 and EN54.

The installation shall include for block diagrams and operating instruction to be installed alongside the panel in a position approved by the Consulting Electrical Engineer. Full training in operation of the panel must be provided to all responsible persons and various levels of password access must be included for to disallow tampering of the programming and operation of the fire alarm panel.

The fire panel will receive signals from various items of addressable equipment including thermal and ionization detectors, break glass units, line isolators and sounders/sirens which will be supplied and installed to the various areas being renovated and added to the mall. All items included in the loops shall be wired with PH120 fire retardant cable.

The new fire detection panel shall be interfaced to the existing fire detection panel within the Facility.

#### **2.24.2 Sensors**

All sensors installed, shall be addressable types with a unique identification code and built-in LED indicator. The bases shall be surface mounted and the detectors shall have a twist and lock action for installation. All sensors and bases shall be clearly labeled with an address number and be located as per the drawings provided. All existing sensors shall be retained.

The three types of sensors include

1. Analogue ionization smoke sensors
2. Analogue thermal sensors
3. Analogue beam detectors
4. Vesda Fire Detection Unit

Sensors in the ceiling voids shall have remote LED indicators. All remote LED indicators shall be labeled with the address of the sensor it is representing.

Sensors in the ceiling voids shall have remote LED indicators. All remote LED indicators shall be labeled with the address of the sensor it is representing.

#### **2.24.3 Sounders**

The sounders shall be addressable and wired directly onto the loop wiring and be given unique addresses. The sound levels for the sounders shall comply with the standard specifications. Internal sounders shall be ceiling mounted and external sounders shall be weatherproof and wall mounted.

All sounders must have dust covers until building activity ceases and the system is operational

#### **2.24.4 Break Glass Unit**

The break glass units (manual call points) are to be the addressable type, surface mounted in positions at a height indicated on the drawings and installed directly to the loop wiring with a unique address. They shall be red and have a re-settable element. All break glass units must be fitted with a plastic cover to deter hoax alarm signals. Each unit shall have a test key.

#### **2.24.5 Strobe Warning Light**

The strobe warning light shall be Xenon, ceiling mounted with a shallow base and electronically supervised for short and open circuits. They shall have a red lens suitable for 24V operation, flashing energy of 0.5 Joules and IP 65 rated.

#### **2.24.6 Fire Retardant Cable**

The Fire-rated cable shall be a PH120 type 1 mm<sup>2</sup> cable which shall last for a period of 120 minutes at a temperature of 930°C and installed into PVC conduit, which shall be supplied and installed by the appointed Early Warning Detection and Alarm Sub-contractor, complete with galvanised draw-wire.

#### **2.24.7 Interfacing**

The central control unit (control panel) shall interface with the following peripheral device / systems at the positions indicated on the drawing.

- i) Air-conditioning and Ventilation Installation
- ii) Smoke Extraction System Installation
- iii) Lift Installations

- iv) Sprinkler flow/pressure switches
- v) Existing fire panels

#### **2.24.8 Quality of Work**

The Consulting Mechanical Engineer shall have the right to visit the site at any reasonable time and inspect the progress of the work and materials used, and shall have the right to reject:

- ☐ Any work which in his opinion is not to specification or standard, and which is badly or incorrectly carried out
- ☐ Any materials which are considered not to specification or are of an inferior quality

## **PART 3**

### **STANDARD TECHNICAL SPECIFICATIONS**

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<b>SECTION FP 3</b>	General Equipment Specifications for a High Pressure CO <sub>2</sub> Installation	
<b>SECTION FP 4</b>	Electrical Installation for a CO <sub>2</sub> Installation	
<b>SECTION FP 5</b>	Maintenance for a Co <sub>2</sub> Installation	
<b>SECTION FP 6</b>	General Requirements for an Automatic Sprinkler, Hydrant and / or Fire Hose Reel Installation	
<b>SECTION FP 7</b>	Piping : Automatic Sprinkler System	
<b>SECTION FP 8</b>	General Equipment Specifications for a Sprinkler Installation	

*(The afore-mentioned documentation has not been included in the Enquiry Document, but may be obtained from the offices of the Consulting Electrical Engineers.)*

## **PART 4**

### **SCHEDULE OF QUANTITIES**

#### **CONTENTS**

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## **PART 4**

### **SCHEDULES OF QUANTITIES**

#### **GENERAL NOTES**

##### **4.1 Specifications**

The Schedule of Quantities form part of the Tender Document and must be read in conjunction with the other parts forming the Tender Document in order to gain the full meanings of the descriptions of the work to be done and materials and equipment to be used.

##### **4.2 Alterations**

No alterations, erasure or addition is to be made in the text of the Schedule of Quantities. Should any alteration, erasure or addition be made, it will not be recognised but the original wording of the Schedule of Quantities will be adhered to.

##### **4.3 Issue of Schedule of Quantities in Electronic Format**

The Consulting Electrical Engineers will make the Schedule of Quantities available to Tenderers in electronic (Microsoft Excel Workbook) format, upon request.

If utilised for tender submission, the Tenderer will be responsible for ensuring the correctness of all calculations. The Consulting Electrical Engineers cannot be held responsible for any arithmetic inaccuracies in the electronic Schedule of Quantities.

##### **4.4 Pages**

Before submitting his Tender, the tenderer must check to ensure all pages have been included and are distinct. Should any obvious errors be found the Consulting Electrical Engineers is to be notified immediately to have them corrected as no liability whatsoever will be admitted by the Consulting Electrical Engineers in respect of errors in the Tender due to the foregoing.

##### **4.5 Responsibility**

The responsibility for the accuracy of the quantities written into the Schedule of Quantities remains with the person who prepared the Schedule of Quantities. The Tenderer shall be relieved of the responsibility of measuring quantities at the Tender stage, and the Tender Price submitted shall be in respect of the quantities set out in the Schedule of Quantities.

The Tenderer will be required to make his assessment of items such as brackets, fixings, etc., from details stated in the Schedule of Quantities and shall make allowances therefore within the rates tendered.

Tenderers shall make due allowance in their rates for any item of incidental or contingent work, labour and materials not contained in the Schedule of Quantities, but deemed necessary for the successful completion of the Works.

##### **4.6 Unit Rates**

Unless a separate rate for the supply and the installation of any item is specifically called for, the supply and installation costs of any items shall be fully included in the unit price.

The description of each item shall, unless otherwise stated herein, be held to include making, conveying and delivering, unloading, storing, unpacking, hoisting, setting, fitting and fixing in position, cutting and waste, patterns, models and templates plant, temporary works, return of water establishment charges, profit and all other obligations arising out of the Conditions of Contract.

##### **4.7 Variations**

Variations in the scope and extent of the work included in the Schedule of Quantities shall be allowed in order to meet the Client's requirements and shall be measured and costed at the rates entered in the Schedule of Quantities,



where appropriate, forming an addition to or deduction from the total of the Schedule of Quantities. Any items or variations for which rates have not been added in the Schedule of Quantities shall be agreed and priced as non-scheduled items in accordance with the provisions of the contract.

The rules governing the extent and costing of the variations shall be those provided for in the Conditions of Contract and Variations to Sub-contract.

Variations to the planning before the work has been executed shall be priced as above. Alterations to work already executed cannot necessarily be priced as above and must be reviewed on its merits.

The appropriate portions of the Preliminary & General Costs are to be adjusted proportionately to the nett additions or omissions of the variations to the contract

#### **4.8 Preliminary and General**

Tenderers shall price the Preliminary & General under any or all of these groups, viz.:

- a) A fixed amount
- b) An amount varied in proportion to the final contract value as compared to the Tender Price
- c) An amount varied in proportion to the final contract period as compared to the originally specified contract period

The allocation of prices to the three categories listed above must be realistic and the Fire Protection Sub-contractor may be required to justify the allocation of the prices. Should no Preliminary & General Costs be entered against the variable items b) or c) above, no adjustment thereof shall be considered.

#### **4.9 Provisional Sums**

All Provisional Sums shall be expended only as directed by the Consulting Electrical Engineers and any balance remaining shall be deducted from the amount of the Sub-contract sum. No work for which Provisional Sums are provided shall be commenced without written instructions from the Engineers.

All Provisional Sums may be utilised in full or in part. These Provisional Sums may be deleted in full or in part if not required.

#### **4.10 Contingency Sums**

All Contingency Sums shall be expended only as directed by the Consulting Electrical Engineers. No work for which Contingency Sums are provided shall be commenced without written instructions from the Engineers.

All Contingency Sums may be utilised in full or in part. These Contingency Sums may be deleted in full or in part if not required.

#### **4.11 Dayworks**

The rates included for daywork shall not form part of the Tender Price, but Tenderers shall note that this item must be regarded as provisional and will only be payable to the Fire Protection Sub-contractor if and when a written order to this effect has been issued.

#### **4.12 Value Added Tax**

This Schedule of Quantities shall be priced nett, excluding VAT. VAT shall be added at the summary at the end of the Schedule of Quantities. The final price entered into the Tender Form shall be inclusive of VAT.

#### **4.13 Adjustment**

The Client reserves the right to adjust arithmetical errors in the extension of rates and totals in the Tender, and the Tenderer will be informed of the effect of any corrections on his Tender Sum prior to the award of the Contract. In no case will tendered rates be adjusted when correcting such errors.

In the event of there being tendered rates or prices which are declared by the Client to be unacceptable to him, because they are either excessively low or high or not in proper balance with other rates, the Tenderer may be required to produce evidence and advance arguments in support of the tendered rates or prices objected to. If after submission of such evidence and any further evidence requested, the Client is still not satisfied with the tendered rates or prices objected to, he may request the Tenderer to amend these rates and prices along the lines indicated by him.

The Tenderer may or may not thereupon alter and amend the rates and prices objected to and such other related prices as are agreed to by the Client. Should the Tenderer fail to amend his Tender in a manner acceptable to the Client, or at all, it may prejudice his Tender.

In the case of Tenders with Schedule of Quantities, the total corrected Tender Price in the Tender Form shall constitute the Sub-contract Sum. Tenderers are advised to check their extensions and additions. In the case of a Lump Sum Tender, the original uncorrected Tender Price shall be considered. The Consulting Electrical Engineers shall negotiate adjustments to the rates tendered in order to correct the arithmetical extension or addition, whilst the Tender Price as submitted, remains unaltered.

In either case, the Tenderer shall be notified of any arithmetical error in his Tender, and shall be given the opportunity to withdraw the Tender at this stage.

#### **4.14 Quantification**

The successful Tenderer and the Client or his Agent may agree that the total of any Schedule, including any variations by way of additions thereto or deductions there from, represents a fair and accurate quantification of the items set out in the Schedule of Quantities and the parties may agree final payment on that basis. In the event of any dispute as to the quantities, the disputed item or items shall be adjusted where necessary.

#### **4.15 Ordering**

The quantities in this Schedule of Quantities shall not be used for ordering materials. The onus is on the successful Tenderer to order the correct quantities of materials as per the drawings.

#### **4.16 Payment**

The measurement and payment of Work done shall be made in accordance with the unit price rates, and rates of pay listed in the Schedule of Quantities. No payment will be made for any item of associated work not specifically detailed in the Schedule of Quantities.

### **C3.2.5: Fire Protection Specifications**



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## **YANFENG, EAST LONDON INDUSTRIAL DEVELOPMENT ZONE**

### **FIRE PROTECTION INSTALLATION)**

**PROJECT No. : 2019-348**

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## **DRAWING SCHEDULE**

The following drawings are issued with this Tender Document.

2019-348 / CE2-12-000 : Fire Protection Layout (Revision 0) (Existing Sprinkler Layouts)  
2019-348 / CE2-12-001 : Fire Protection Layout (Revision 0) (Mezzanine Phase Sprinkler Installation)  
2019-348 / CE2-12-002 : Fire Protection Layout (Revision 0) (Foam Cell Room Phase Sprinkler Installation)  
2019-348 / CE2-12-003 : Fire Protection Layout (Revision 0) (W206 Dispatch Phase Sprinkler Installation)  
2019-348 / CE2-12-004 : Fire Protection Layout (Revision 0) (Mezzanine Phase Fire Appliance Installation)  
2019-348 / CE2-12-005 : Fire Protection Layout (Revision 0) (Foam Cell Room Phase Fire Appliance Installation)  
2019-348 / CE2-12-006 : Fire Protection Layout (Revision 0) (W206 Dispatch Phase Fire Appliance Installation)

# **PART 1**

## **THE SCHEDULES**

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**PART 1A****PARTICULARS RELATING TO TENDERER**

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Fire Protection)**

1. The registered and trading names, physical and postal address, and contact numbers for the tendering entity.

Registered Name : .....

Trading Name : .....

Physical Address : .....

Postal Address : .....

Telephone No. : .....

Facsimile No. : .....

2. The full first and surnames of their partners and/ or directors and their domiciles and addresses.

Full Name (1) : .....

Address (1) : .....

Full Name (2) : .....

Address (2) : .....

Full Name (3) : .....

Address (3) : .....

3. The names and addresses of the local agents, firms, or representatives who are interested in any manner whatsoever in the tender.

Full Name (1) : .....

Address (1) : .....

Full Name (2) : .....

Address (2) : .....

4. Bank Details Bank Name : .....

Branch & Code : .....

Account Number : .....

Contact Person : .....

Telephone No. : .....

.....  
Name

.....  
Signature

.....  
Date



**PART 1B****VARIATIONS TO SUB-CONTRACT**

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Fire Protection Installation)**

These rates are to be used in the event work is not readily measurable in terms of the attached Schedule of Quantities or Schedule of Rates

I / We agree that any variations to the agreement (not priced elsewhere in this Tender Document) will be priced strictly in accordance with the rates submitted below. The rates (exclusive of VAT) shall be calculated as specified below :

- Cost shall mean the nett cost of equipment or materials supplied to site with all discounts offered
- The labour rates shall include all personnel insurance costs, holidays with pay and travelling time payments, incentive bonuses and overtime premiums, except for overtime payment when overtime is authorised in writing by the Consulting Mechanical Engineers
- Percentage and labour rates shall include profits, overheads, financing, insurance, guarantee (with free maintenance) costs, engineering and management

1. for the supply of equipment over and above that originally required by the specifications and drawings Cost Plus \_\_\_\_\_ %
2. equipment deleted will be at the price entered in the price schedule or at the supplier's selling price, unless a fixed price for deletion of an item is specified elsewhere in the Tender Document
3. for substituted equipment, the percentage reflected in item (1) above will only apply to the difference in the supplier's price arising from the substitution
4. for the supply of all labour, charges will be levied at the selling rate (for normal time) of :

Foreman	_____ per hour
Commissioning Engineer	_____ per hour
Tradesman	_____ per hour
Journeyman	_____ per hour
Labourer	_____ per hour
Other specialists / hour	Cost Plus _____ %

5. If pricing by team work is the standard practise of the Contractor, the team shall comprise :
 

	persons / team members at	selling price per hour
--	---------------------------	------------------------
6. Overtime rates
 

	Night (after 19h00)	_____ times normal time
	Saturday	_____ times normal time
	Sunday and Public Holidays	_____ times normal time
	Other (specify)	_____ times normal time
7. Transport charges
 

	Car	_____ Rand per km
	LDV (under 2 tonnes)	_____ Rand per km
	Truck ( between 2 and 5 tonnes)	_____ Rand per km
	Other (specify)	_____ Rand per km

\_\_\_\_\_  
Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

## PART 1C

## PRICE ADJUSTMENT SCHEDULE

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Fire Protection Installation)**

Does your Tender Price include forward cover for foreign exchange variations ?

YES		NO	
-----	--	----	--

The tenderer shall detail all adjustments to which the prices and rates listed in this Tender Document are to be subjected to.

The tenderer shall enter NIL hereunder if prices are not subject to adjustment.

[illegible]

Name \_\_\_\_\_

Signature

Date \_\_\_\_\_

## PART 1D

## STATEMENT OF COMPLIANCE OR QUALIFICATION BY TENDERER

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Fire Protection Installation)**

Does this Tender comply in every respect with the Conditions of Tender, Conditions of Contract, Schedules, Project Specifications, Schedule of Quantities and Drawings ?

YES		NO	
-----	--	----	--

If NO, detail qualifications hereunder. Failure to do so shall imply compliance.

QUALIFICATIONS :

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Name \_\_\_\_\_

Signature

Date \_\_\_\_\_

## PART 1E

## SCHEDULE OF SUB-CONTRACTORS PROPOSED BY TENDERER

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Fire Protection Installation)**

The Tenderer shall state hereunder the names and particulars of all Sub-contractors he proposes to employ on the Works. The Tenderer shall also define the duties and relevant experience of each Sub-contractor listed.

[illegible]

Name \_\_\_\_\_

Signature

Date \_\_\_\_\_

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Fire Protection Installation)**

[illegible]

Date \_\_\_\_\_

## SCHEDULE OF WORK IN HAND

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Fire Protection Installation)**

The Tenderer shall detail below all Work currently in progress.

[illegible]

Name \_\_\_\_\_

Signature

Date \_\_\_\_\_

## PART 1H

### SCHEDULE OF MATERIALS

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Fire Protection Installation)**

The Tenderer shall detail below all materials proposed in order to complete the Works specified. (Failure to complete this schedule may invalidate the tender submission).

Description	Manufacturer
<u>NB: Only one manufacturer's name to be inserted for each item.</u>	
<b>1. Sprinkler Installation</b>	
<b>1.1 Sprinkler Alarm Valve</b>	
Manufacturer	.....
Model Number	.....
Country of Origin	.....
Approved by	.....
Material Body	.....
Material - Moving Components	.....
Type of Seating	.....
Hydraulic Test Pressure	.....
Working Pressure	.....
Flange Table	.....
Weight	.....
Size	.....
<b>1.2 Sprinkler "Monitored" Control Valve</b>	
Manufacturer	.....
Model Number	.....
Country of Origin	.....
Approved by	.....
Material Body	.....
Material - Gate and Seat	.....
Hydraulic Test Pressure	.....
Working Pressure	.....
Flange Table	.....
Weight	.....
Size	.....
<b>1.3 Hydraulic Alarm Gong</b>	
Manufacturer	.....
Model Number	.....
Country of Origin	.....
Pressure Operated Micro Switch	.....
Material - Turbine	.....
Size of Motor (mm)	.....
Type of Bearings	.....
Method of lubrication	.....
Material of Gong	.....
Diameter of Gong	.....
<b>1.4 Flow Switch</b>	
Manufacturer	.....
Model Number	.....
Country of Origin	.....

**1.5 Pressure Gauges**

Manufacturer

Model Number

Country of Origin

Calibration Pressure (kPa)

Size of Dial

**1.6 Sprinkler Heads (Office Ceiling Type)**

Manufacturer

Model Number

Country of Origin

Date of Manufacture

Material - Body

Approved By

Activation Temperature

Test Pressure

Working Pressure

**1.7 Sprinkler Heads (Office Ceiling Void Type)**

Manufacturer

Model Number

Country of Origin

Date of Manufacture

Material - Body

Approved By

Activation Temperature

Test Pressure

Working Pressure

**1.8 Sprinkler Heads (Factory / Production)**

Manufacturer

Model Number

Country of Origin

Date of Manufacture

Material - Body

Approved By

Activation Temperature

Test Pressure

Working Pressure

**1.9 Piping**

Manufacturer

SABS / BS Number

Country of Origin

**1.10 Pipe Fittings**

Manufacturer

SABS / BS Number

Country of Origin

**1.11 Fire Brigade Booster Connection**

Manufacturer

Type

Country of Origin

Material - Body



Approved By

**2. Fire Protection Appliance Installation**

**2.1 Fire Hose Reels**

Manufacturer  
Type  
Country of Origin  
Material - Body  
Pressure Gauge (Type, Calibration kPa)  
Approved By

**2.2 Fire Extinguishers**

Manufacturer  
Type  
Country of Origin

**2.3 Fire Hydrants (Internal)**

Manufacturer  
Type  
Country of Origin  
Material - Body  
Approved By  
Canvas Fire Hose (Type, Size)  
Storage Box (Type, Size)

**2.4 Fire Hydrants (External)**

Manufacturer  
Type  
Country of Origin  
Material - Body  
Approved By  
Canvas Fire Hose (Type, Size)  
Storage Box (Type, Size)

**2.5 Piping (Below Ground)**

Manufacturer  
SABS / BS Number  
Country of Origin

**2.6 Pipe Fittings (Below Ground)**

Manufacturer  
SABS / BS Number  
Country of Origin

**2.7 Piping (Above Ground)**

Manufacturer  
SABS / BS Number  
Country of Origin

**2.8 Pipe Fittings (Above Ground)**

Manufacturer  
SABS / BS Number  
Country of Origin

**2.9 Fire Brigade Booster Connection**

Manufacturer	
Type	
Country of Origin	
Material - Body	
Approved By	

## PART 11

### SCHEDULE OF STAFF AVAILABLE

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Fire Protection Installation)**

The Tenderer shall provide a list of all staff (from senior personnel to labourers) that will be made available to perform any duties for and on behalf of the Tenderer on this project. The Tenderer may attach a company organigram for information purposes.

The Tenderer shall note that a competent Accredited Person registered as an Installation Electrician shall be responsible for the Works and present on site at all times.

NAME	POSITION / DESIGNATION	YEARS OF RELEVANT EXPERIENCE	QUALIFICATION	REGISTRATION NUMBER*

\* These numbers shall be the those appearing on the certificates as required in terms of the Occupational Health and Safety Act No 85 of 1993

\_\_\_\_\_  
Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

**PART 1J****AGREEMENT RELATING TO OCCUPATIONAL HEALTH & SAFETY ACT**

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Fire Protection Installation)**

Agreement between the Principal Contractor and the Mandatory (hereinafter referred to as the Sub-contractor) as envisaged in Section 37 (2) of the Occupational Health and Safety Act No 85 of 1993 as amended.

Background Information :

1. The Occupational Health and Safety Act comprises Sections 1 to 50 and all unrepealed Regulations promulgated in terms of the former Machinery and Occupational Safety Act No 6 of 1983 as amended as well as any other Regulations which may be promulgated from time to time in terms of the new Act.
2. The Mandatory as defined in the Act may be an agent, a contractor or a sub-contractor. This shall not derogate from the Contractors status as being the responsible employer on this particular Contract.
3. Section 37 of the Occupational Health and Safety Act has the potential of punishing Clients (Principals) for the unlawful acts or omissions of Contractors save where a written agreement has been concluded between the parties containing arrangements and procedures to ensure compliance with the said Act by the Contractor. This Agreement constitutes such a written agreement.
4. This Contract document forms an integral part of the Agreement.
5. To be able to perform in terms of the Agreement Contractors must be familiar with the relevant provisions of the Act.
6. The liability of the Contractor under this Agreement will commence on the day the site is handed over to the Contractor and terminate when the site is handed back to the Client.
7. Contractors who intend to utilise the services of Sub-Contractors and / or Nominated Sub-Contractors are advised to conclude a similar Agreement with their Sub-Contractors and / or Nominated Sub-Contractors.

I .....

representing.....(the Contractor)

hereby acknowledge that the Contractor is an employer in his own right with duties as prescribed in the Occupational Health and Safety Act No 85 of 1993 as amended. The Contractor undertakes to ensure that all work will be performed, and machinery and plant used, in accordance with the provisions of the said Act. The Contractor furthermore agrees to comply with the requirements of the Client as contained in the Contract documents and to liaise with the Client should he, for whatever reason, be unable to perform his duties in terms of this Agreement.

Signed at ..... (place) on ..... (date / month / year)

Signature on behalf of the Contractor (the Mandatory) .....

## PART 1K

### CERTIFICATES REQUIRED

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Fire Protection Installation)**

The Tenderer shall submit proof of the following, namely :

#### Compulsory Documentation

1. Notice of Registered Office and Postal Address of Company, in terms of the Companies Act, 1973, including the Company Registration Document accompanied by Share Certificates, where applicable i.e. Cipro Certificate
2. Copies of the Identity Documents, for each of the respective Directors / Members / Partners / Shareholders/ Trustees, etc.
3. Tax Clearance Certificate, as issued by the South African Revenue Services
4. Accredited Valid Original or Certified B-BBEE Certificate
5. Declaration of Insurances : Workmen's Compensation Assurance  
: Unemployment Insurance Fund  
: Contractor's All Risks Insurance
6. Original Bank Stamped Letter or Cancelled Cheque as Proof of Bank Account
7. Licence of the Accredited Person registered as an Installation Electrician who will be responsible for the Works and the on-site supervision thereof (*where applicable*)
8. Licence of the Accredited Person registered as an Master Installation Electrician who will be responsible for the relevant portion of the Works and the on-site supervision thereof (*where applicable*)
9. Proof of registration of Company, and where applicable, the relevant persons, with the Private Security Industry Regulatory Authority (PSIRA) (*where applicable*)
10. Proof of registration of all persons who will be involved in this project with the South African Qualification & Certification Committee (SAQCC) for the Fire Industry (*where applicable*)
11. Proof of registration of Company with the Fire Detection Installers Association (FDIA) (*where applicable*)
12. Proof of registration as a "Gas Installer", in terms of the Government Gazette, number 32395, dated 15 July 2009, as amended (*where applicable*)
13. Proof of registration of Company with the Automatic Sprinkler Inspection Bureau (Pty) Ltd (ASIB) (*where applicable*)

#### Supplementary Documentation

14. Company Profile (Abridged Version)
15. Proof of Location of Office
16. Electrical Sub-contractors Association (ECA) Registration Certificate (for the associated electrical Works)
17. Proof of Central Supplier Database Registration

---

Name

---

Signature

---

Date

**PART 1L****FORM OF RESOLUTION**

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Fire Protection Installation)**

This form is to be completed in full by the Tenderer. Failure to do so may invalidate the Tender.

At a meeting held by the Directors / Members / Partners / Trustees of

\_\_\_\_\_ (Tenderer's Name)

at \_\_\_\_\_ (Place)

on the \_\_\_\_\_ (Day / Month / Year)

it was resolved

that \_\_\_\_\_

in his / her capacity as their \_\_\_\_\_

is hereby authorised and empowered to sign the Tender and / or Contract Documents for the project known as the

**“Yanfeng, East London Industrial Development Zone  
(Fire Protection Installation)”**

for and on behalf of the Tenderer.

Signed : \_\_\_\_\_ Signed : \_\_\_\_\_

Capacity : \_\_\_\_\_ Capacity : \_\_\_\_\_

**PART 1M**

**SITE INSPECTION CERTIFICATE**

**PROJECT NAME : Yanfeng, East London Industrial Development Zone  
(Fire Protection Installation)**

This form is to be completed in full by the Tenderer. Failure to do so may invalidate the Tender.

This is to certify that I / we \_\_\_\_\_  
the representative (s) of \_\_\_\_\_ (Tenderer’s Name)  
\_\_\_\_\_  
\_\_\_\_\_ (address)  
\_\_\_\_\_ telephone number  
\_\_\_\_\_ facsimile number

certify that I / we have examined the site, drawings and tender documents and have made myself / ourselves fully conversant with all conditions and circumstances likely to influence the rates tendered.

Name of Tenderer’s Representative \_\_\_\_\_  
Signature of Tenderer’s Representative \_\_\_\_\_  
Name of Consulting Mechanical Engineers’ Representative \_\_\_\_\_  
Signature of Consulting Mechanical Engineers’ Representative \_\_\_\_\_

## **PART 2**

### **PROJECT SPECIFICATION**

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## PART 2

### PROJECT SPECIFICATION

*Any requirement or statement made in this Project Specification section of the specification shall override the requirements of Part 3 : Standard Specifications and the Drawings.*

#### 2.1 General

This specification covers all Works necessary for the mechanical engineering (fire protection) services installation of the project known as the “Additions and Alterations of Yanfeng Manufacturing Facility in building CE2 of ASP1, in the East London Industrial Development Zone (ELIDZ)”.

The project generally comprises the following Works at the Yanfeng Facility, namely :

- ❑ the construction and addition of a mezzanine storage floor withing the existing CE2 (Yanfeng) Facility
- ❑ the construction and addition of a Foam Cell Production room withing the existing CE2 (Yanfeng) Facility
- ❑ the construction and addition of a new Dispatch Area (W206) adjacent the existing CE2 (Yanfeng) Facility
- ❑ the alterations and addition of the existing Dispatch Area (CUN) within the existing CE2 (Yanfeng) Facility
- ❑ The above building Works generally includes a steel structure clad in aluminium roof and side sheeting, concrete raft floor slab, suspended isopanel ceilings and part mezzanine slab, etc.

At this stage, the order of the above Works is yet to be determined by the Client. The sequencing of the Works and the “unofficial” sectional completion requirements will be negotiated by the Client, Professional Team and Principal Contractor.

The Tenderer’s attention is specifically drawn to the fact that at Practical Completion the completion of specific sections must be such that the Client can actually move into the premises and commence conventional operational Factory-related activities.

Thus, programming for the Works must allow for the systematic clearance of all outstanding work and defects (save only latent defects) prior to the “Sectional” and “Practical” Completion circumstances required. The Works to be cleared are to include all electrical and mechanical installations including commissioning procedure and certificates of compliance etc., in addition to the building works.

Any works to the exterior of the building which do not impact on the conventional operational Factory-related activities could be exempted from this requirement regarding “Sectional” and “Practical” Completion.

#### 2.2 Scope of Work

##### 2.2.1 Principle Items of Work

The principle items of Work covered by this Sub-contract comprises the supply, delivery, installation, testing, commissioning and twelve (12) months guarantee (with free maintenance during the guarantee period) of the complete Works involved in the mechanical engineering (fire protection) services installation, as further detailed below, namely :

- ❑ Preliminary & General Items
- ❑ Creation of a new ICV chamber extension adjacent the existing chamber
- ❑ Connection to the existing sprinkler system (pumps and storage tanks) main. The existing sprinkler manifold shall be extended into the new ICV chamber extension and a new manifold is to be installed for the new installation
- ❑ Supply and installation of control valve assemblies within the valve chamber, including 2 off spare control valves for the Tenant installation
- ❑ Supply and installation of a flow meter within the new valve chamber extension
- ❑ Remove existing sprinkler system under canopy area that is to be demolished, including handing over to the Client
- ❑ Supply and installation of an ESFR type sprinkler system within the production and storage areas of the facility (including loading bays), all in accordance with the Automatic Sprinkler Inspection Bureau (Pty) Ltd (ASIB) Eleventh Edition Rules to match the existing system

- ❑ Supply and installation of new fire protection equipment, i.e. fire extinguisher, fire hydrants and fire hose-reels
- ❑ Supply and installation of fire water piping, to relevant standards, for the installation of the sprinkler system, hydrants, hose-reels, etc.
- ❑ Integration between fire detection, ventilation and smoke extraction systems wrt flow switches in the sprinkler valve chamber, for a complete firefighting system in the event of a fire
- ❑ Provision of Manufactures Drawings and Hydraulic Calculations
- ❑ Provisional Sums as detailed in the Schedule of Quantities
- ❑ Provision of Record Drawings and Operating and Maintenance manuals
- ❑ Provision of Certificates of Compliance for complete installation covered in this specification
- ❑ All other materials, equipment, labour and services necessary for the complete, safe and efficient operation of the Works in full accordance with the specifications as detailed in the “Project Specification”
- ❑ Carrying out of all routine and recommended servicing of the complete mechanical installation as is required during the stipulated months defects liability period
- ❑ Maintenance during the stipulated defects liability period i.e. if, during the defects liability period, the mechanical installation is not in working order for any reason for which the Fire Protection Sub-Contractor is responsible, or if the installation develops any defects, the Fire Protection Sub-Contractor shall immediately upon being notified thereof take steps to remedy the defects

### 2.2.2 Works to be Carried out by Others

A Principal Contractor shall be appointed for the building Works, as briefly explained in Clause 2.1.

The successful Fire Protection Sub-contractor shall be appointed as a Domestic Sub-contractor to the appointed Principal Contractor.

The Fire Protection Sub-contractor will be responsible for ensuring that the fire protection sub-contract Works is completed in accordance with Principal Contract, with the necessary co-ordination between the parties.

The Principal Contractor shall, under separate contracts, employ various other parties for the supply, installation, testing and commissioning of various specialist equipment installations i.e. but not limited to, the following :

- ❑ Supply and installation of air-conditioning and ventilation services installation, which shall be carried out by the Air-conditioning and Ventilation Sub-contractor, appointed as a Selected Sub-contractor to the Principal Contractor (conduits, wireways, power supplies, etc. by Electrical Sub-contractor)
- ❑ Supply and installation of early warning detection and alarm installation, which shall be carried out by the Early warning detection and Alarm Sub-contractor, appointed as a Selected Sub-contractor to the Principal Contractor (conduits, wireways, power supplies, etc. by Electrical Sub-contractor)
- ❑ Supply and installation of the electrical installation, which shall be carried out by an Electrical Sub-contractor, appointed as a Selected Sub-contractor to the Principal Contractor (conduits, wireways, power supplies, etc. by appointed Electrical Sub-contractor)
- ❑ Supply and installation of elevators, escalators and goods hoists, (where applicable) which shall be carried out by the relevant Specialist Sub-contractors, appointed as Domestic, Nominated or Selected Sub-contractors to the Principal Contractor (conduits, wireways, power supplies, etc. by Electrical Sub-contractor)
- ❑ Supply and installation of hot and cold water services installation, which shall be carried out by the Plumbing Sub-contractor, appointed as a Domestic Sub-contractor to the Principal Contractor (conduits, wireways, power supplies, etc. by Electrical Sub-contractor)
- ❑ Supply and installation of smoke extraction services installation (where applicable), which shall be carried out by the Smoke Extraction Sub-contractor, appointed as a Domestic, Nominated or Selected Sub-contractor to the Principal Contractor (conduits, wireways, power supplies, etc. by Electrical Sub-contractor)
- ❑ Supply and installation of specialist telecommunications services (where applicable) i.e. telephone and data, access control and door security, closed circuit television, etc. which shall be carried out by respective Sub-contractors, appointed as either Domestic Sub-contractors to the Electrical Sub-contractor (conduits, wireways, power supplies, etc. by the Electrical Sub-contractor)
- ❑ Supply and installation of specialist equipment, furniture, fittings and appliances

The Fire Protection Sub-Contractor shall work in close liaison with the appointed Contractors.

## **2.3 Inspection of Site**

The Consulting Mechanical Engineers will not hold a compulsory site inspection meeting.

The prospective Tenderers are advised to thoroughly acquaint themselves with the nature and extent of Work to be done and to make allowance for items obviously intended and necessary for the proper completion of the Works, although not specified.

By submitting a Tender it is accepted that the Tenderer is fully aware of all site conditions as well as the access to it, and has allowed for this in their Tender Price. Claims due to lack of knowledge will not be entertained.

## **2.4 Site Conditions**

### **2.4.1 Location**

The site is situated inside the East London Industrial Development Zone at the existing ASP1 : CE2 Facility (Yanfeng factory).

### **2.4.2 Access to Site**

The site is easily accessible from the existing Yanfeng factory.

Security on site is of utmost importance. The Fire Protection Sub-contractor shall ensure that their workforce (site personnel) is aware thereof and acts accordingly.

### **2.4.3 Existing Services**

There are existing electrical and mechanical services on site. The Fire Protection Sub-Contractor shall take cognisance thereof.

The Principal Contractor shall provide a temporary water connection to the construction site for use by all Contracting Parties.

The Consulting Mechanical Engineers shall, under direction of the Client, provide details of the required temporary electricity service connection to the construction site for use by all Contracting Parties. A provisional sum has been allowed for the necessary Works.

Coverage from the main cellular phone communications networks is available on site.

## **2.5 Compliance with Regulations, Standards and Codes**

### **2.5.1 Health and Safety Regulations**

The Fire Protection Sub-Contractor shall, at all times, abide by the regulations in the schedule of section 43 of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) entitled "Construction Regulations, 2004".

The Fire Protection Sub-Contractor will be required, amongst others, to :

- ☐ prove registration and good standing with the compensation fund or a licensed compensation insurer
- ☐ conduct risk assessments, develop and implement a documented health and safety plan
- ☐ ensure conformance with this health and safety plan by any Contractor (domestic or other)
- ☐ ensure that a health & safety file and register is maintained on site
- ☐ appoint a competent construction supervisor (full-time employee) and one or more competent employees to assist
- ☐ appoint a full-time or part-time construction safety officer
- ☐ ensure that all employees engaged on site undergo health and safety induction training
- ☐ appoint in writing a competent person to supervise works under the various disciplines (viz. excavations / demolitions / structures / formwork & support work / scaffolding / etc)
- ☐ submit tenders making provision for the costs of health and safety measures during the construction process

Note : No additional payment will be made to the Fire Protection Sub-Contractor in respect to his conformance with this legislation, and the requirements of this schedule shall be deemed to be included in his tendered rates.

The Fire Protection Sub-Contractor shall at all times ensure that their operations do not endanger any member of public, and that the complete Works are undertaken in accordance with the regulations stipulated in the Occupational Health and Safety Act.

### 2.5.2 Standards and Codes

The entire installation shall be in full conformity with the current versions of the following :

- ❑ South African National Standard : SANS 10400 - 2010 - Code of Practice for “The Application of the National Building Regulations” i.e. those included in the “National Building Regulations and Building Standards Act, 1977 (Act 103 of 1977)”, as published in the Government Gazette, number 31084, dated 30 May 2008, which became effective as of 01 October 2008
- ❑ The current version of the South African Bureau of Standards : Code of Practice for “Automatic Sprinkler Installations for Fire Fighting Purposes”, Edition 1 : 2000, which became effective as of 17 March 2000, and known as “SABS 0287 - 2010”, together with subsequent amendments
- ❑ The documentation released by the Automatic Sprinkler Inspection Bureau (Pty) Ltd, entitled “ASIB Eleventh Edition Rules for Automatic Sprinkler Installations, (2012)”
- ❑ The current version of the South African Bureau of Standards : Code of Practice for “Water Supplies and Drainage for Buildings – Part 1 : Water Supply Installations for Buildings”, Edition 2.1 : 2004, and known as “SANS 10252 -1 : 2004”, together with subsequent amendments
- ❑ South African National Standard : SANS 10142-1: 2003 - The Wiring of Premises : Part 1 - Low-voltage Installations
- ❑ Occupational Health and Safety Act, 1993 (Act 85 of 1993)
- ❑ Any other relevant by-laws of the Local Authorities

Further, the Fire Protection Sub-Contractor shall adhere to all the relevant regulations, standards and codes specified within this Tender Document.

All apparatus, components, parts, fittings and materials supplied and / or installed, whether specifically specified herein or not, shall conform in respect of quality, manufacture, tests and performance with the requirements of the appropriate current South African (SABS) or British Standard Specifications (BS) and Addenda thereto, except where otherwise required by this specification or permitted by approval of the Consulting Mechanical Engineers, in writing.

All materials and workmanship, which may, in the opinion of the Consulting Mechanical Engineers, be inferior to that specified for the Work, will be condemned. All condemned material and workmanship must be replaced or rectified as the case may be, to the satisfaction of the Consulting Mechanical Engineers.

Any fitting or item of equipment not specifically mentioned but obviously necessary for the successful completion of the installation is to be included so as to form a complete working installation.

### 2.6 Supervision

The Work shall at all times, for the duration of the contract, be carried out under the supervision of a competent representative of the Fire Services Sub-contractor, who should also be an Accredited Person registered as a Fire Protection Installer in terms of the Occupational Health and Safety Act No. 85 of 1993, as amended.

The representative of the Fire Protection Sub-Contractor shall be able and authorized to receive and carry out instructions on behalf of the Fire Services Sub-contractor.

The associated electrical Works shall at all times, for the duration of the contract, be carried out under the supervision of a competent representative of the Fire Services Sub-contractor, who should also be an Accredited Person registered as an Installation Electrician in terms of the Occupational Health and Safety Act No. 85 of 1993, as amended.

Furthermore, the associated sprinkler Works shall at all times, for the duration of the contract, be carried out under the supervision of a competent representative of the Fire Services Sub-contractor, who should also be an Accredited

Person registered as an Installer in terms of the Automatic Sprinkler Inspection Bureau (Pty) Ltd, entitled “ASIB Eleventh Edition Rules for Automatic Sprinkler Installations, (2012)”, as amended.

## **2.7 Programme**

The Principal Contractor shall prepare a Contract Construction Programme and all Sub-contractors shall be required to complete their respective Sub-contract Works in accordance with the programme.

The Fire Protection Sub-Contractor shall submit a programme for the Sub-contract Works, in accordance with the Principal Contractor’s Contract Programme, within 7 days of receipt of the Principal Contractor’s Contract Programme.

The cost of overtime, additional labour and plant necessary for the completion of the Works in accordance with the Principal Contractor’s Contract Programme shall be included in the Tender Price.

## **2.8 Samples and Alternatives**

The preferred manufacturer / makers of equipment and / or material are as described in either the Project Specification, the Standard Technical Specifications or as listed in the Schedule of Quantities.

The Client reserves the right to specify the equipment and / or materials utilised in the Works. No alternatives to equipment and / or materials are to be used unless written approval is obtained from the Client, or his Representative and / or the Consulting Mechanical Engineers.

## **2.9 Definitions**

- ❑ Supply : To purchase, procure and deliver complete with all related specified accessories
- ❑ Erect : To place or mount and fix in position
- ❑ Install : To erect, connect up and commission, complete with related accessories
- ❑ Indicated shown, Noted : As indicated or shown on drawings
- ❑ Approved, Alternative : Approved in writing by the Consulting Mechanical Engineers
- ❑ Similar, Equal : Equal or better in efficiency of performance and compatibility

## **2.10 Conflict Between Specifications, Schedule of Quantities and Drawings**

Should there be conflict between the Project Specifications, Schedule of Quantities, Drawings and / or Standard Technical Specifications, the sections shall be considered in the following order of priority :

- ❑ Project Specifications
- ❑ Schedule of Quantities
- ❑ Drawings
- ❑ Standard Technical Specifications

Should the Fire Protection Sub-Contractor note an inconsistency between the Project Specifications, Schedule of Quantities, Drawings and / or Standard Technical Specifications, he shall notify the Consulting Mechanical Engineers immediately and obtain clarification or instructions prior to ordering or installing equipment.

## **2.11 Deviations from Tender Documents**

No deviations or alterations from that of the specification, schedules or drawings shall be made without first obtaining the written approval of the Department.

## **2.12 Drawings**

Refer to the Drawing Schedule for the list of drawings relating to this Tender Document.

At no time is the Fire Protection Sub-Contractor to scale drawings or to make any assumptions regarding measurements / dimensions. If in doubt, the Fire Protection Sub-Contractor is to obtain clarification from the Consulting Mechanical Engineers.

### **2.13 Moving of Equipment**

The Fire Protection Sub-Contractor shall investigate each space through which equipment must be moved. Where necessary, equipment shall be transported in sections of size suitable for moving through spaces available.

### **2.14 Miscellaneous**

#### **2.14.1 Labels**

Labels shall be installed as required in terms of the relevant codes of practice and as further specified in this Tender Document.

All labels shall be in English with capital letters, in black and on a white background, and a minimum of 4 mm in height. All labels shall be of ivorine or plastic construction and riveted / screwed in place.

#### **2.14.2 Safety Signage**

The Fire Protection Sub-Contractor shall supply and install all danger, sub-station and safety notices and signs in terms of the relevant regulations.

All safety signage installed shall be in accordance with SABS 1186.

### **2.15 Installation Drawings**

Drawings shall be submitted in triplicate as soon as possible after the signing of the Sub-contract Agreement, but in ample time to allow the Consulting Mechanical Engineers to examine and approve before equipment manufacture is started, or material delivered to site.

Should the Consulting Mechanical Engineers require that any drawing be amended, the Fire Services Sub-Contractor shall make the necessary alterations and re-submit the drawing within two weeks.

The Fire Protection Sub-Contractor shall provide the Principal Contractor and the Consulting Mechanical Engineers with complete layout, installation and shop drawings, together with any necessary descriptions and specifications. Sufficient details shall be given to permit a full appraisal of all parts of the installation and their relation to the building structure.

Drawings shall give full details of all foundations, ducts, chases, pits and openings and shall set out all lines and levels for the work.

Delays caused by the submission of drawings or by an error, omission or inadequacy in these drawings, shall not be considered a reason for an extension of the Sub-contract time.

### **2.16 Payment Valuations**

The Fire Protection Sub-Contractor shall be entitled to submit monthly payment claims to the Principal Contractor. The payment claims are to be submitted to the Consulting Mechanical Engineers for approval and recommendation, prior to submission to the Principal Contractor.

The payment claim shall be in the form of a copy of the Schedule of Quantities, indicating the tendered, claimed (supplied, installed and materials on / off site) and anticipated completion quantities, rates and values.

### **2.17 Variation Orders**

Variations orders shall be ordered and processed either by the issue of a revised drawing or by issue of a site instruction, by a duly authorised person.

The Fire Protection Sub-Contractor shall ensure that the above procedures have been followed prior to carrying out any work. Failure to comply may invalidate any claim for work done.

Unless otherwise agreed with the Consulting Mechanical Engineers, all claims for variation orders shall be approved prior to proceeding with the relevant Works. The Fire Protection Sub-Contractor shall submit variation order claims to the Consulting Mechanical Engineers for approval with the preceding monthly payment claim.

However, the Fire Protection Sub-Contractor shall only include the value of approved variation orders in any payment claim or invoice, once approved in writing by the Consulting Mechanical Engineers. Variation order claims, which have not been approved, but are included in the monthly payment claim, will be deducted from the payment claim in question.

## **2.18 Acceptance Testing and Commissioning**

The Fire Protection Sub-Contractor shall carry out all tests required in terms of the relevant Acts, SABS Codes of Practice and Local Authority requirements. The Fire Protection Sub-Contractor shall provide all the equipment and apparatus required for the purpose of carrying out all necessary tests.

The Fire Protection Sub-Contractor is responsible for carrying out all necessary tests and obtaining all necessary certificates for the installation and operation of the plant.

If any part of the Works fails the test, the Fire Protection Sub-Contractor shall be responsible for rectifying, at his own cost, the defective Works and the re-testing thereof to ensure compliance. If in consequence, the Consulting Mechanical Engineers are obliged to attend the further acceptance tests the additional costs incurred by the Engineers shall be payable by the Fire Services Sub-Contractor.

The Works shall be deemed to be practically complete only when the Consulting Mechanical Engineers has approved all tests and inspections, and a Completion Advice Notice or other relevant completion notice is issued.

## **2.19 Compulsory Forms and Certificates**

The Fire Protection Sub-Contractor shall submit the necessary commencement, compliance and completion forms for the installation as required in terms of the Occupational Health and Safety Act No. 85 of 1993, as amended, the relevant SABS Specifications and the requirements of the relevant Supply Authorities.

## **2.20 Operating Instructions, Maintenance Manuals and Record Drawings**

The Fire Protection Sub-Contractor shall supply, after approval by the Consulting Mechanical Engineers, three (3) bound sets of operating instructions, maintenance manuals and record drawings for the complete mechanical engineering services installation.

### **2.20.1 Operating Instructions and Maintenance Manual**

Failure to submit these manuals will result in the delay of the final inspection and acceptance of the Works by the Client.

The manuals shall be prepared within the Contract, and shall be particular to the project. All charges that may be required by manufacturers' suppliers for the provision of information and literature shall be included in the contract price.

The manual shall be arranged with an index and referencing system and a matching flysheet giving the names and address of principals involved on the project.

The covers shall be hardbound with a four-post loose-leaf system. The Contract details shall be embossed on the front cover. Numbered card dividers shall be inserted between the sections.

The format of the manual shall be in accordance with the following sections, after a preface and index. Any other data considered by the Client to be pertinent shall also be included.

#### **Section 1**

This shall comprise the introduction, abbreviations, and any warnings that may be required by the Machinery and Occupational Safety Act, Local Authorities, and other bodies.

## Section 2

A full description of each system, together with the main plant components and locations, plus the mode of operation of automatic control systems associated with such system shall be reflected in this section.

## Section 3

This shall comprise the complete plant technical data of each item of control equipment (e.g. manufacturer's name and address, type of unit, serial number. This information shall be derived from a site inspection of identification plates together with information obtained from manufacturers.

## Section 4

This section shall describe in detail the operating procedures necessary for starting up, running, and shutting down each individual systems. This shall include the control panel starter and selection facilities together with any alarm and safety interlocks as identified on the control panel.

## Section 5

This shall comprise the maintenance operations on a daily, weekly, monthly etc. basis for each item of plant. The preparation of this section shall be carried out by obtaining from the manufacturer his advice and recommendations for lubrication, adjustment and routine maintenance.

## Section 6

This section shall comprise the emergency procedures to be adopted by personnel engaged on the operation and maintenance of the electrical and mechanical services with regard to fire, first aid, general failures, and call-out procedures during working hours and out of working hours.

## Section 7

A recommended action on plant malfunction shall be detailed in this section. This is to assist both the user and maintenance engineer in the event of a fault developing in a system by indicating the nature of the fault and the recommended action.

## Section 8

This shall comprise a list of recommended spares. The preparation of this section shall be carried out by obtaining the manufacturer's recommendations and also incorporate the Client's requirements regarding spares.

## Section 9

A schedule of the record drawings or 'as-built' drawings for the new control systems shall be inserted in numerical order in this section. The drawings shall be bound into the manual.

## Section 10

This section shall comprise test certificates and commissioning reports. It shall include reset schedules and temperature and pressure set points clearly for each item of control equipment.

## Section 11

This shall comprise the manufacturers' literature, arranged in alphabetical order to match the list of manufacturers.

The names of the manufacturers (or their local representatives), addresses, and telephone numbers shall also be given.

### **2.20.2 Record Drawings**

A complete set of floor plans, in hard copy format, will be issued to the Fire Protection Sub-contractor, for preparation of Record Drawings.

The Fire Protection Sub-contractor shall prepare Record Drawings of the complete mechanical engineering services installation and return same to Consulting Mechanical Engineers.

### **2.21 Testing and Commissioning**

The Fire Protection Sub-contractor is responsible for carrying out all necessary testing on, and commissioning of, the electrical installation, to ensure the full and proper operation of thereof.



Where relevant, all testing procedures carried out during the factory acceptance testing exercise, shall be carried out by the Fire Protection Sub-Contractor and witnessed, accepted and approved by the Consulting Mechanical Engineers.

## **2.22 Staff Training**

The Fire Protection Sub-Contractor shall provide comprehensive training of male and female operational staff and nominated maintenance personnel, to the approval of the Consulting Mechanical Engineers.

Training shall be comprehensive, covering all aspects of systems installed as part of these Works.

The Fire Protection Sub-Contractor shall provide a detailed training programme and a copy of the training documentation to the Consulting Electrical Engineer, for comment and review, no less than 4 weeks prior to the commencement of training.

No training will commence on site prior to the written approval of the Consulting Mechanical Engineers. Should the Consulting Mechanical Engineers not approve the training programme and documentation, the training programme and documentation will be referred back to the Fire Protection Sub-Contractor for re-evaluation and re-submission to the Consulting Mechanical Engineers.

The number of staff to be trained is to the full discretion of the Client. However, the Fire Protection Sub-Contractor shall allow for 2 groups, each of up to 4 personnel. Each group shall receive a minimum of two 2-hour training sessions. One of these sessions shall be held after the commissioning of the generator set installation, and the other of these sessions, upon expiry of the defects liability period.

Training shall be adequate to ensure that the groups trained are :

- ☐ competent in the operation of systems
- ☐ adequately trained to carry out on-going training
- ☐ fully aware of the location of all equipment installed as part of this Sub-contract within their area of responsibility

The names of personnel attending the training shall be recorded and submitted to the Consulting Mechanical Engineers at the conclusion of training.

Maintenance staff shall demonstrate a complete understanding of the day-to-day operation of generator set.

All training aids and course notes necessary to conduct effective operational and maintenance training shall be supplied by the Fire Protection Sub-Contractor .

The training venue will be made available on site by the Client.

## **2.23 Defects Liability Period**

The defects liability period shall be twelve (12) months, which shall commence with the issue of the Works Completion Certificate (or Completion Advice Notice) in respect of the fully commissioned Works, by the Consulting Mechanical Engineers.

With effect from the date of the Works Completion Certificate, and for the duration of the defects liability period, the Fire Protection Sub-Contractor shall be responsible for all routine inspections, services and maintenance-related tasks that are specified for each component of the installation by the relevant Manufacturer / Supplier.

Furthermore, the Fire Protection Sub-Contractor shall be responsible for the carrying out of the following inspections, services and maintenance-related tasks, namely :

Three month interval :

- ☐ check system functions for normal operations
- ☐ check that all equipment has been serviced within the applicable service interval and correctly displayed on relevant service labels
- ☐ ICV test to be carried out and log book to be checked and updated
- ☐ where applicable, carry out relevant servicing of equipment and update relevant service labels

- ❑ each unit serviced is to be logged on a maintenance sheet in order to ensure that within a twelve (12) month period all equipment is serviced

Six month interval :

- ❑ check system functions for normal operations
- ❑ check that all equipment has been serviced within the applicable service interval and correctly displayed on relevant service labels
- ❑ ICV test to be carried out and log book to be checked and updated
- ❑ where applicable, carry out relevant servicing of equipment and update relevant service labels
- ❑ each unit serviced is to be logged on a maintenance sheet in order to ensure that within a twelve (12) month period all equipment is serviced

Nine month interval :

- ❑ check system functions for normal operations
- ❑ check that all equipment has been serviced within the applicable service interval and correctly displayed on relevant service labels
- ❑ ICV test to be carried out and log book to be checked and updated
- ❑ where applicable, carry out relevant servicing of equipment and update relevant service labels
- ❑ each unit serviced is to be logged on a maintenance sheet in order to ensure that within a twelve (12) month period all equipment is serviced

Twelve month interval :

- ❑ check system functions for normal operations
- ❑ check that all equipment has been serviced within the applicable service interval and correctly displayed on relevant service labels
- ❑ ICV test to be carried out and log book to be checked and updated
- ❑ where applicable, carry out relevant servicing of equipment and update relevant service labels
- ❑ each unit serviced is to be logged on a maintenance sheet in order to ensure that within a twelve (12) month period all equipment is serviced

The Fire Protection Sub-Contractor shall ensure that the inspections, services and maintenance-related tasks are undertaken at intervals not greater than three months.

The Fire Protection Sub-Contractor shall ensure that each inspection, service and / or maintenance-related task is undertaken in the presence of a representative of either the Consulting Mechanical Engineers or the Client.

The Fire Protection Sub-Contractor shall ensure that the necessary documentation is completed and submitted to the Consulting Mechanical Engineers confirming the completion of the relevant tasks after each and every inspection, service and / or maintenance-related task milestone.

The Fire Protection Sub-Contractor shall also timeously attend to any defects, which may occur through the normal operation of the Works.

If, during the defects liability period, the installation is not in working order for any reason for which the Fire Protection Sub-Contractor is responsible, or if the respective installation develops a defect, the Fire Protection Sub-Contractor shall, immediately upon being notified thereof, take steps to remedy the defects and make any necessary adjustments.

Should such stoppages, however be so frequent as to become troublesome, or should the installation otherwise prove unsatisfactory during the said period the Fire Protection Sub-Contractor shall, if called upon by the Consulting Mechanical Engineers, at his own expense replace the whole of the installation, or such parts thereof, as the Consulting Mechanical Engineers may deem necessary with equipment specified by the Consulting Mechanical Engineers.

Upon completion of the defects liability period, the Consulting Mechanical Engineers shall undertake the final inspection, service and / or maintenance-related task, as explained above and ensure that the necessary documentation is completed and submitted to the Consulting Mechanical Engineers on behalf of the Client.

## **2.24 Detailed Schedule of Work**

All parts of this installation shall require all equipment to be extensively cleaned for a hygienic system of operation.

It is to be noted that NO silicone is to be used within the facility due to the effect it has on the Tenant's production processes.

The Works will require finalization to each area, as the co-ordination with the Tenant services is yet to be finalised.

### **2.24.1 Sprinkler Installation**

There is an existing sprinkler system within the facility (24.5 mm/min). The sprinkler system shall be designed, supplied, installed and commissioned in accordance with the Automatic Sprinkler Inspection Bureau (ASIB) 11th Edition Rules, and parts thereof.

The sprinkler heads are to be the latest design-technology (FM and ASIB approved). Furthermore, the sprinkler heads shall be of the response type and have an operating temperature rating to match the existing system on site.

All ceiling sprinkler heads shall be white powder coated with white rosettes.

#### **2.24.1.1 Office Block Sprinkler Heads**

The office block system is based on an ordinary hazard system and shall be able to provide a discharge density of 5.0 mm / min.

Ceiling void sprinkler heads shall be 15 mm brass upright, pendant or conventional type, as suited to the installation position, and shall be rated at 68 °C.

Ceiling mounted sprinklers shall be standard response pendant sprinklers in ceiling tiles activating at 68 °C, with white polyester finish rosettes in a neat fitting to the ceiling installation.

#### **2.24.1.2 Factory Floor, Storage Areas and Canopy Sprinkler Heads**

There is an existing grid-type, Early Suppression Fast Response (ESFR) system on site. New sprinkler heads shall be brass pendant type, as suited to the installation position, coordinated on site wrt structures etc., and shall be rated at 74 °C (K factor = 363 to be confirmed) and to match the existing sprinkler system on site.

The sprinkler system shall be modified to suit the facility mezzanine floor, foam cell room and storage extensions within the existing facility.

#### **2.24.1.3 Valve Chamber**

There is an existing valve chamber on site. A new valve chamber extension is to be placed adjacent the existing valve chamber. The existing valve chamber is supplied with a Ø250 mm supply main from the existing fire booster system, and the existing sprinkler manifold is to be extended into the new valve chamber extension for the new sprinkler installation.

The valve chamber shall comprise of one (1) off Ø200 mm sprinkler control valve and two (2) off Ø200 mm blanked off spare flanged positions (Tenant allowance), complete with flow test apparatus, alarm gongs, gauges, test and drain, chamber protection, by pass loop, etc. as required.

#### **2.24.1.4 Control Valves**

The control valves within the valve chamber shall be of the wet type, as per ASIB Eleventh (11<sup>th</sup>) Edition.

Each control valve is to be equipped with all ancillary items, as required for ASIB approval, and shall comprise, but be not limited to, the following items:

- ❑ Gear operated wafer-type monitored stop valves, with pointer to indicate whether open or shut
- ❑ Approved patent automatic alarm valve with special seating designed to retain water in the pipework, and to pass water to the alarm motor under flow conditions (to match type installed)
- ❑ Bourdon type pressure gauges, to indicate water supply and installation pressure respectively. All pressure gauges shall be of the glycerin filled type, and shall have a range of 0-1600 kPa. Each gauge shall be mounted

remotely from the main pipe by means of a 100 mm long extension pipe, complete with an isolating ball valve mounted in its line

- ❑ Hydraulically driven alarm motor and gong assembly, connected to the alarm valves (The alarm valve shall not be connected directly to the isolating stop valve)
- ❑ One off fiberglass / galvanized cabinet, containing spare sprinkler heads and spanner
- ❑ One off block plan (non-fade material), giving all details as per the ASIB requirements
- ❑ Test pipe
- ❑ Drain pipe
- ❑ A bypass test loop of same diameter as the feed main
- ❑ One pressure operated micro switch will be provided within the valve chamber, mounted in the alarm gong line
- ❑ Booster pump installation
- ❑ Flow switch to be interfaced with the fire detection system

#### **2.24.1.5 Sprinkler Piping and Fittings**

All sprinkler pipe-work (including mains) installed within the facility shall be black mild steel to relevant South African Standards. All sprinkler pipe-work (including mains) installed externally i.e. canopies, etc. shall be galvanized steel to relevant South African Standards.

All pipework and fittings fabricated shall be de-greased with a suitable de-greasing agent. After de-greasing the pipework and fittings, they shall immediately be painted with red oxide (PA10) self-etching primer. All void pipe-work to be painted with red oxide and exposed pipe-work to be painted with red oxide and also signal red enamel.

All piping shall be hydraulically pressure tested in sections, in accordance with the Principal Contractor's construction programme. The testing thereof shall be witnessed by the Consulting Mechanical Engineers and the relevant pressure test certificates prepared accordingly.

Terminal points shall be installed at the extremities of the distribution pipe at each level to prove that the water is accessing all points of the system. These points must be accessible for demonstration at commissioning of the installation.

All pipe-work is to include galvanized / stainless steel hangers / fittings and must be adequately and neatly supported in both the horizontal and vertical direction.

Welded sections of piping shall have flange / coupling joints at suitable intervals to facilitate removal.

All fittings shall be groove type systems in accordance with SANS 1109 / BS21 and ASIB.

#### **2.24.1.6 Testing**

The entire system shall be robust and shall be capable of holding a pressure of 50% more than the working pressure of the systems proposed, and a minimum test pressure is to be in accordance with ASIB rules and capacities of relevant sprinklers installed. This pressure must hold for a period of twenty-four (24) hours without dropping. The Consulting Mechanical Engineer shall be informed of such tests, so that he

### **2.24.2 Fire Appliance Installation**

#### **2.24.2.1 Fire Hose Reels**

Fire hose reel of the size detailed in the Schedules of Quantities shall be installed.

The fire hose reel shall be mounted as detailed in SABS 0400 : 1990

Fire hose reels shall include pressure gauges and shall comply with the applicable standards equivalent to or exceeding SABS 543, 1475 or 0105, as applicable.

#### **2.24.2.2 Fire Extinguishers**

Portable fire extinguishers of the type and size detailed in the Schedules of Quantities shall be installed.

The portable fire extinguishers shall be mounted on a wooden (Meranti) back plate, chamfered on the four front edges and fixed :

- ❑ to the wall using 2 off 75 mm No. 8 countersunk wood screws with rawl plugs
- ❑ to steel columns using galvanized channel straddling the column with galvanized countersunk screws

The back plate shall be finished with two coats high quality clear gloss wood varnish and shall be sized:

- ❑ 600 mm x 100 mm x 20 mm (4.5 to 5 kg extinguishers)
- ❑ 800 mm x 100 mm x 20 mm (9 kg extinguishers)

The top of the wooden back plate shall be mounted at 1 500 mm AFFL, unless otherwise directed.

Portable fire extinguishers shall comply with the applicable standards equivalent to or exceeding SANS 1910, SABS 810, 889 or 1151, as applicable.

### **2.24.2.3 Fire Hydrants**

Fire hydrants of the size detailed in the Schedules of Quantities shall be installed in accordance to SANS 1128-1.

All fire hydrants shall be provided with an appropriate fire hose of 30 m in length, together with fittings, couplings and 16 mm internal diameter nozzle, all of which shall comply with the requirements of SANS 1128-2.

If no cupboard has been provided by the Architect, the fire hose, fittings, couplings and nozzle shall be stored in a red storage box positioned as agreed with the Consulting Mechanical Engineer.

### **2.24.2.4 Fire Appliance Piping and Fittings**

The fire appliance piping shall be galvanized steel to relevant South African Standards, and shall include red bands every 6 m lengths. The dropper pipes to relevant fire hydrants / fire hose reels shall be cleaned, primed and painted with red oxide and signal red enamel paint on completion of installation.

All piping shall be hydraulically designed and pressure tested in sections, in accordance with the Contractor's construction Programme. The testing thereof shall be witnessed by the Contractor's responsible Personal, and the relevant pressure test certificates prepared accordingly.

All pipe-work is to include galvanized / stainless steel hangers / fittings and must be adequately and neatly supported in both the horizontal and vertical direction.

Welded sections of piping shall have flange / coupling joints at suitable intervals to facilitate removal.

All fittings shall be groove type systems in accordance with SANS 1109 / BS21 and ASIB.

### **2.24.2.5 Non-Return Valves**

Non-Return Valves shall be as follows:

- ❑ "Check Rite" wafer check valves, Model 210 ANSI Series 300
- ❑ Steel body material
- ❑ Stainless steel disc
- ❑ Resilient O-Ring seat (Vitron)

### **2.24.2.6 Pressure Gauges**

All pressure gauges shall be of the glycerine filled type, and shall have a range of 0-1600 kPa. Each gauge shall be mounted remotely from the main pipe by means of a 100 mm long extension pipe, complete with an isolating ball valve mounted in this line.

### **2.24.2.7 Testing**

The entire system shall be robust and shall be capable of holding a pressure of 50% more than the working pressure of the systems proposed, and a minimum test pressure of 1200 kPa. This pressure must hold for a period of twenty-

four (24) hours without dropping. The Consulting Mechanical Engineer shall be informed of such tests, so that he can witness and approve them.

### **2.24.3 Bulk Fire Water Supplies**

#### **2.24.3.1 Fire Appliance Water Supply**

There is an existing fire appliance water ring within the CE2 facility. The new installation shall connect to the existing reticulation.

In the event of galvanized steel piping being used underground, all such underground steel piping and fittings shall be wrapped with “Wrap it Bond” in accordance with the manufacturer’s specification / recommendations, and to the Client’s approval, in order that the piping and fittings are fully protected against external corrosion.

#### **2.24.3.2 Sprinkler System Water Supply**

The water supply for sprinkler protection is provided by an ASIB-approved pumped firefighting system, comprising two (2) pumps and three (3) dedicated storage tanks as follows:

- ❑ Booster pumps duty capacity = 7500 l/min @ 950 kPa
- ❑ Sprinkler water storage effective capacity = 1050 m<sup>3</sup> (3 off 350 m<sup>3</sup>)

There is an existing 250 diameter steel main positioned within the Tugger Route, and extends into the existing ICV Chamber of CE2 Facility.

In the event of galvanized steel piping being used underground, all such underground steel piping and fittings shall be wrapped with “wrap it bond” type insulation in accordance with the manufacturer’s specification / recommendations, and to the Client’s approval, in order that the piping and fittings are fully protected against external corrosion.

The above existing pumping and storage capacities are to be taken into consideration for the new building development design. The new sprinkler hydraulic designs and storage requirements, including that of the respective Tenant, are to be within the pumping and storage capacities recorded above.

Where designs exceed the existing sprinkler booster system capacities, the ELIDZ are to be notified, and proof of the flow, pressure (hydraulics) and storage requirements for the new buildings are to be forwarded as confirmation thereof. Once received by the ELIDZ, further investigations shall take place and if necessary, they (the ELIDZ) may upgrade the existing system.

### **2.24.4 Conduit / Cable Tray / Trunking**

All exposed fire-related electrical conduit / cable tray / trunking shall be galvanized, yellow powder-coated, including relevant bushes, locknuts, couplings, galvanized saddles, etc.

Conduit and conduit accessories / cable support systems / wire duct and mesh installations shall comply with the requirements as detailed in the Electrical Specification.

### **2.24.6 Electrical Services**

An Electrical Sub-contractor, appointed as a Selected Sub-contractor to the Principal Contractor, will undertake the electrical services installation.

The Electrical Sub-contractor shall be responsible for the installation of all conduits, draw-boxes, draw-wires, distribution boards and / or power supplies, required for the fire protection services as indicated on the construction drawings.

The sizes of all conduits are indicated on the drawings. 2 mm<sup>2</sup> polyester draw tape shall be installed in all conduits.

The Fire Protection Sub-Contractor shall be responsible for the electrical works from the isolator (provided by the Electrical Sub-contractor) to and from the respective fire protection systems, i.e. :

- From the provided isolator to the respective MCC Panel and electrical works between the MCC Panel and respective fire services

The Electrical Sub-contractor shall generally assist the Fire Protection Sub-Contractor .

## **PART 3**

### **STANDARD TECHNICAL SPECIFICATIONS**

#### **CONTENTS**

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<b>SECTION FP 2</b>	General Requirements for an Automatic Sprinkler, Hydrant and / or Fire Hose Reel Installation	
<b>SECTION FP 3</b>	General Equipment Specifications for a High Pressure CO <sub>2</sub> Installation	
<b>SECTION FP 4</b>	Electrical Installation for a CO <sub>2</sub> Installation	
<b>SECTION FP 5</b>	Maintenance for a Co <sub>2</sub> Installation	
<b>SECTION FP 6</b>	General Requirements for an Automatic Sprinkler, Hydrant and / or Fire Hose Reel Installation	
<b>SECTION FP 7</b>	Piping : Automatic Sprinkler System	
<b>SECTION FP 8</b>	General Equipment Specifications for a Sprinkler Installation	

*(The afore-mentioned documentation has not been included in the Enquiry Document, but may be obtained from the offices of the Consulting Mechanical Engineers.)*



## **PART 4**

### **SCHEDULE OF QUANTITIES**

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## **PART 4**

### **SCHEDULES OF QUANTITIES**

#### **GENERAL NOTES**

##### **4.1 Specifications**

The Schedule of Quantities form part of the Tender Document and must be read in conjunction with the other parts forming the Tender Document in order to gain the full meanings of the descriptions of the work to be done and materials and equipment to be used.

##### **4.2 Alterations**

No alterations, erasure or addition is to be made in the text of the Schedule of Quantities. Should any alteration, erasure or addition be made, it will not be recognised but the original wording of the Schedule of Quantities will be adhered to.

##### **4.3 Issue of Schedule of Quantities in Electronic Format**

The Consulting Mechanical Engineers will make the Schedule of Quantities available to Tenderers in electronic (Microsoft Excel Workbook) format, upon request.

If utilised for tender submission, the Tenderer will be responsible for ensuring the correctness of all calculations. The Consulting Mechanical Engineers cannot be held responsible for any arithmetic inaccuracies in the electronic Schedule of Quantities.

##### **4.4 Pages**

Before submitting his Tender, the tenderer must check to ensure all pages have been included and are distinct. Should any obvious errors be found the Consulting Mechanical Engineers is to be notified immediately to have them corrected as no liability whatsoever will be admitted by the Consulting Mechanical Engineers in respect of errors in the Tender due to the foregoing.

##### **4.5 Responsibility**

The responsibility for the accuracy of the quantities written into the Schedule of Quantities remains with the person who prepared the Schedule of Quantities. The Tenderer shall be relieved of the responsibility of measuring quantities at the Tender stage, and the Tender Price submitted shall be in respect of the quantities set out in the Schedule of Quantities.

The Tenderer will be required to make his assessment of items such as brackets, fixings, etc., from details stated in the Schedule of Quantities and shall make allowances therefore within the rates tendered.

Tenderers shall make due allowance in their rates for any item of incidental or contingent work, labour and materials not contained in the Schedule of Quantities, but deemed necessary for the successful completion of the Works.

##### **4.6 Unit Rates**

Unless a separate rate for the supply and the installation of any item is specifically called for, the supply and installation costs of any items shall be fully included in the unit price.

The description of each item shall, unless otherwise stated herein, be held to include making, conveying and delivering, unloading, storing, unpacking, hoisting, setting, fitting and fixing in position, cutting and waste, patterns, models and templates plant, temporary works, return of water establishment charges, profit and all other obligations arising out of the Conditions of Contract.

#### **4.7 Variations**

Variations in the scope and extent of the work included in the Schedule of Quantities shall be allowed in order to meet the Client's requirements and shall be measured and costed at the rates entered in the Schedule of Quantities, where appropriate, forming an addition to or deduction from the total of the Schedule of Quantities. Any items or variations for which rates have not been added in the Schedule of Quantities shall be agreed and priced as non-scheduled items in accordance with the provisions of the contract.

The rules governing the extent and costing of the variations shall be those provided for in the Conditions of Contract and Variations to Sub-contract.

Variations to the planning before the work has been executed shall be priced as above. Alterations to work already executed cannot necessarily be priced as above and must be reviewed on its merits.

The appropriate portions of the Preliminary & General Costs are to be adjusted proportionately to the nett additions or omissions of the variations to the contract

#### **4.8 Preliminary and General**

Tenderers shall price the Preliminary & General under any or all of these groups, viz.:

- a) A fixed amount
- b) An amount varied in proportion to the final contract value as compared to the Tender Price
- c) An amount varied in proportion to the final contract period as compared to the originally specified contract period

The allocation of prices to the three categories listed above must be realistic and the Fire Protection Sub-contractor may be required to justify the allocation of the prices. Should no Preliminary & General Costs be entered against the variable items b) or c) above, no adjustment thereof shall be considered.

#### **4.9 Provisional Sums**

All Provisional Sums shall be expended only as directed by the Consulting Mechanical Engineers and any balance remaining shall be deducted from the amount of the Sub-contract sum. No work for which Provisional Sums are provided shall be commenced without written instructions from the Engineers.

All Provisional Sums may be utilised in full or in part. These Provisional Sums may be deleted in full or in part if not required.

#### **4.10 Contingency Sums**

All Contingency Sums shall be expended only as directed by the Consulting Mechanical Engineers. No work for which Contingency Sums are provided shall be commenced without written instructions from the Engineers.

All Contingency Sums may be utilised in full or in part. These Contingency Sums may be deleted in full or in part if not required.

#### **4.11 Dayworks**

The rates included for daywork shall not form part of the Tender Price, but Tenderers shall note that this item must be regarded as provisional and will only be payable to the Fire Protection Sub-contractor if and when a written order to this effect has been issued.

#### **4.12 Value Added Tax**

This Schedule of Quantities shall be priced nett, excluding VAT. VAT shall be added at the summary at the end of the Schedule of Quantities. The final price entered into the Tender Form shall be inclusive of VAT.

#### **4.13 Adjustment**

The Client reserves the right to adjust arithmetical errors in the extension of rates and totals in the Tender, and the Tenderer will be informed of the effect of any corrections on his Tender Sum prior to the award of the Contract. In no case will tendered rates be adjusted when correcting such errors.

In the event of there being tendered rates or prices which are declared by the Client to be unacceptable to him, because they are either excessively low or high or not in proper balance with other rates, the Tenderer may be required to produce evidence and advance arguments in support of the tendered rates or prices objected to. If after submission of such evidence and any further evidence requested, the Client is still not satisfied with the tendered rates or prices objected to, he may request the Tenderer to amend these rates and prices along the lines indicated by him.

The Tenderer may or may not thereupon alter and amend the rates and prices objected to and such other related prices as are agreed to by the Client. Should the Tenderer fail to amend his Tender in a manner acceptable to the Client, or at all, it may prejudice his Tender.

In the case of Tenders with Schedule of Quantities, the total corrected Tender Price in the Tender Form shall constitute the Sub-contract Sum. Tenderers are advised to check their extensions and additions. In the case of a Lump Sum Tender, the original uncorrected Tender Price shall be considered. The Consulting Mechanical Engineers shall negotiate adjustments to the rates tendered in order to correct the arithmetical extension or addition, whilst the Tender Price as submitted, remains unaltered.

In either case, the Tenderer shall be notified of any arithmetical error in his Tender, and shall be given the opportunity to withdraw the Tender at this stage.

#### **4.14 Quantification**

The successful Tenderer and the Client or his Agent may agree that the total of any Schedule, including any variations by way of additions thereto or deductions there from, represents a fair and accurate quantification of the items set out in the Schedule of Quantities and the parties may agree final payment on that basis. In the event of any dispute as to the quantities, the disputed item or items shall be adjusted where necessary.

#### **4.15 Ordering**

The quantities in this Schedule of Quantities shall not be used for ordering materials. The onus is on the successful Tenderer to order the correct quantities of materials as per the drawings.

#### **4.16 Payment**

The measurement and payment of Work done shall be made in accordance with the unit price rates, and rates of pay listed in the Schedule of Quantities. No payment will be made for any item of associated work not specifically detailed in the Schedule of Quantities.

### **C3.2.6: Dock Leveller Specifications**

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Tenderer \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_ Employer \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_



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Our File : DJE/Public/ECE Projects/2019/2019-348/Yanfeng (Existing)/Tender

Our Reference : Technical Specification (Dock Leveller)

## YANFENG, EAST LONDON INDUSTRIAL DEVELOPMENT ZONE

### MECHANICAL ENGINEERING SERVICES

#### SPECIFICATION FOR SUPPLY, DELIVERY, INSTALLATION, TESTING, COMMISSIONING AND DEFECTS LIABILITY PERIOD OF THE COMPLETE DOCK LEVELLER INSTALLATION

##### Dock Leveller

Dock levellers shall be designed supplied and installed in accordance with relevant SANS regulations, and shall include the following, but not limited to :

Type	: Fully automatic hydraulically-driven dock leveller system, including safety tread plates and lip, deck support stiffeners, below level fall safe legs and free-standing dock module ( <i>in accordance with SANS Regulations</i> )
Material and Finish	: Galvanized Steel
Frame	: Solid Base Frame
Components	: Robust Mechanical Lip Activation with override protection : Toe Guards (To slide away into outer skin of deck) : Hydraulic Actuator including motor etc. : Side Dust Seals (6 mm Flexible Neoprene Rubber mounted to the dock leveller including mounting strip)
Capacity	: Minimum 10 Tons (Electro Hydraulic Type)
Size (L x W x D)	: 2845 x 2110 x 500 mm
Working Range	: Minimum 350 mm above and minimum 200 mm below
Control	: Control Panel including Push Buttons positioned adjacent the dock leveller (Conduit to be recessed in the floor and rise below respective control panel)
Pit Size	: The pit shall be sized according to the supplier's requirements including pit frame for a free-standing system
Pit Frame	: The pit frame shall be hot dip galvanized and shall be sized according to suppliers' requirements and tolerances for a free-standing system
Dock Height	: Proposed 1200 mm, to be confirmed by Client / Tenant
Approach to Dock	: Level and Square
Fittings and Fasteners	: All fasteners, anchors, fittings etc. shall be heavy duty type and hot dip galvanized
Additional Items	: The installation shall include two off heavy duty rubber bumpers below the dock leveller (mounted to the wall), and two off heavy duty rubber bumpers on either end the pit frame (D-Type Heavy Duty Bumpers) : Any holes and welding requirements shall be completed prior galvanizing (No welding and drilling of the system shall be allowed after galvanizing)
Cushion Seal	: N/A
Guarantee	: Minimum 2 Years
Electrical Cables	: The wiring installation shall be to the necessary SABS / EN54 and SANS10142 standards. : All electrical cables between the Isolator provided for the control panel and the main electrical distribution board shall be supplied and installed by the appointed Electrical Sub-contractor
Manuals	: Operation and Maintenance Manuals shall include (but not be limited to) a complete schematic diagram of the dock leveller, operation thereof, control circuitry and positions of Control Panel

##### Members:

DARRYL JOHN EVANS Pr. Tech. (Eng.) CEM B. Tech. (Elec. Eng.)  
CET • ICMEE(SA) • IESSA • IPET • SAAE • SAFHE • SAIEE  
Engineering Manager

DEBBIE LEE EVANS  
Administration Manager

- Staff Training
- : The appointed Dock Leveller Sub-contractor shall allow for the training of the Client's personnel in the operation and routine maintenance of the complete dock leveller installation
  - : The appointed Dock Leveller Sub-contractor shall be responsible for the co-ordination of the training exercises and is to forward a copy of the attendance register to the Consulting Mechanical Engineer

Manufactures drawings are to be supplied and approved by the Client before manufacture / supply of the dock leveller system.

The above shall also include the testing and commissioning thereof, including certification, for a complete working dock leveller system.

**Approved Product (not limited too)**

Kelley AFX / LX 710 (Hydraulic)

- : Stab-A-Load
- : Mr. S (Shaun) Shear (031 700 5441)

### **C3.3: HEALTH AND SAFETY SPECIFICATIONS**

- **ELIDZ Standard OHS Specifications**
- **ELIDZ COVID Specifications**

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Tenderer \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_ Employer \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_



### C3.3: Health and Safety Specification



**Issued in terms of the Occupational Health and Safety Act, 1993  
Construction regulations 2014**

**CONTRACT NO: ASP/YANGFENG/EXT/11/09/Z1A  
EXTENSIONS TO YANFENG MANUFACTURING FACILITY IN ZONE 1A OF THE  
ELIDZ**

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

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East London IDZ SOC Ltd Contact person: G Whittaker Fax No: 086 605 0942 Email: <a href="mailto:gary@elidz.co.za">gary@elidz.co.za</a>	
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## 1 DEFINITIONS

For the purpose of the General Health and Safety Specification, the abbreviations or definitions given hereunder shall apply:

**“Agent”** means any person who acts as a representative for a client in managing the overall construction work;

**“angle of repose”** means the steepest angle of a surface at which a mass of loose or fragmented material will remain stationary in a pile on a surface, rather than sliding or crumbling away;

**“Batch plant”** means machinery, appliances or other similar devices that are assembled in such a manner so as to be able to mix materials in bulk for the purposes of using the mixed product for construction work;

**“Client”** means any person for whom construction work is performed;

**“competent person”** in relation to construction work, means any person having the knowledge, training and experience specific to the work or task being performed: Provided that where appropriate qualifications and training are registered in terms of the provisions of the South African Qualifications Authority Act, 1995 (Act No. 58 of 1995), these qualifications and training shall be deemed to be the required qualifications and training;

**“Construction work”** means any work in connection with:

- a) The erection, maintenance, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure;
- b) The installation, erection, dismantling or maintenance of a fixed plant where such work includes the risk of a person falling;
- c) the construction, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system or any similar civil engineering structure; or
- d) the moving of earth, clearing of land, the making of an excavation, piling, or any similar type of work;

**“construction vehicle”** means a vehicle used for means of conveyance for transporting persons or material or both such persons and material, as the case may be, both on and off the construction site for the purposes of performing construction work;

**“Contractor”** means an employer, as defined in section 1 of the Act, who performs construction work and includes principal contractors;

**“Design”** in relation to any structure includes drawings, calculations, design details and specifications;

**“Designer”** means any person who:

- a) Prepares a design;
- b) Checks and approves a design;
- c) Arranges for any person at work under his control (including an employee of his, where he is the employer) to prepare a design, as well as;
- d) Architects and engineers contributing to, or having overall responsibility for the design;
- e) Build services engineers designing details for fixed plant;
- f) Surveyors specifying articles or drawing up specifications;
- g) Contractors carrying out design work as part of a design and build project;
- h) Temporary works engineer designing formwork and false work; and
- i) Interior designers, shop-fitters and landscape architects.

**“ergonomics”** means the application of scientific information concerning humans to the design of objects, systems and the environment for human use in order to optimise human well-being and overall system performance;

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

**“Excavation work”** means the making of any man-made cavity, trench, pit or depression formed by cutting, digging or scooping;

**“explosive actuated tool”** means a tool that is activated by an explosive charge and that is used for driving bolts, nails and similar objects for the purpose of providing fixing;

**“fall prevention equipment”** means equipment used to prevent persons from falling from an elevated position, including personal equipment, body harness, body belts, lanyards, lifelines or physical equipment, guardrails, screens, barricades, anchorages or similar equipment;

**“fall arrest equipment”** means equipment used to arrest the person in a fall from an elevated position, including personal equipment, body harness, lanyards, deceleration devices, lifelines or similar equipment, but excludes body belts;

**“fall protection plan”** means a documented plan, of all risks relating to working from an elevated position, considering the nature of work undertaken, and setting out the procedures and methods to be applied in order to eliminate the risk;

**“Hazard identification”** means the identification and documenting of existing or expected hazards to the health and safety of persons, which are normally associated with the type of construction work being executed or to be executed;

**“Health and safety file”** means a file, or other record in permanent form, containing the information required as contemplated in these regulations;

**“Health and safety plan”** means a documented plan which addresses hazards identified and includes safe work procedures to mitigate, reduce or control the hazards identified;

**“Health and safety specification”** means a documented specification of all health and safety requirements pertaining to the associated works on a construction site, so as to ensure the health and safety of persons;

**“material hoist”** means a hoist used to lower or raise material and equipment, and includes cantilevered platform hoists, mobile hoists, friction drive hoists, scaffold hoists, rack and pinion hoists and combination hoists;

**“Medical certificate of fitness”** means a certificate valid for one year issued by an occupational health practitioner, issued in terms of these regulations, whom shall be registered with the Health Professions Council of South Africa;

**“Safe work procedure”** means a written document detailing the key activities to be performed in order to reduce as reasonably as practicable the hazards identified in any risk assessment;

**“Mobile plant”** means machinery, appliances or other similar devices that is able to move independently, for the purpose of performing construction work on the construction site;

**“National Building Regulations”** means the National Building Regulations made under section 17(1) of the National Building Regulations and Building Standards Act, 1977 (Act No.103 of 1977), and published under Government Notice No. R.1081 of 10 June 1988, as amended;

**“Person day”** means one individual carrying out construction work on a construction site for one normal working shift;

**“Plant”** includes fixtures, fittings, implements, equipment, tools and appliances, and anything which is used for any purpose in connection with such plant.

**“Premises”** includes any building, vehicle, vessel, train or aircraft.

**“principal contractor”** means an employer, as defined in section 1 of the Act who performs construction work and is appointed by the client to be in overall control and management of a part of or the whole of a construction site;

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

**“professional engineer or professional certificated engineer”** means any person holding registration as either a Professional Engineer or Professional Certificated Engineer under the Engineering Profession Act, 2000 (Act No. 46 of 2000);

**“Professional technologist”** means any person holding registration as a Professional Technologist under the Engineering Profession Act, 2000 (Act No. 46 of 2000);

**“Provincial director”** means the provincial director as defined in regulation 1 of the General Administrative Regulations under the Act;

**“risk assessment”** means a programme to determine any risk associated with any hazard at a construction site, in order to identify the steps needed to be taken to remove, reduce or control such hazard;

**“Roof apex height”** means the dimensional height in meters measured from the lowest ground level abutting any part of a building to the highest point of the roof;

**“SANS 085”** means the South African National Standards’ Code of Practice entitled “The Design, Erection, Use and Inspection of Access Scaffolding”;

**“SANS 0400”** means the South African National Standards, Code of Practice for the application of the National Building Regulations;

**“SANS EN 1808”** means the South African National Standards’ Standard Specification entitled: “Safety requirements on suspended access equipment – Design calculations, stability criteria, construction-tests”;

**“SANS 1903”** means the South African National Standards’ Standard Front-end Specification entitled: “Safety requirements on suspended access equipment – Design calculations, stability criteria, construction-tests”;

**“Scaffold”** means any temporary elevated platform and supporting structure used for providing access to and supporting workmen or materials or both;

**“shoring”** means a structure such as a hydraulic, mechanical or timber/steel shoring system that supports the sides of an excavation and which is intended to prevent the cave-in or the collapse of the sides of an excavation, and “shoring system” has a corresponding meaning;

**“Structure”** means:

- a) any building, steel or reinforced concrete structure (not being a building), railway line or siding, bridge, waterworks, reservoir, pipe or pipeline, cable, sewer, sewage works, fixed vessels, road, drainage works, earthworks, dam, wall, mast, tower, tower crane, batching plants, pylon, surface and underground tanks, earth retaining structure or any structure designed to preserve or alter any natural feature, and any other similar structure;
- b) any formwork, false work, scaffold or other structure designed or used to provide support or means of access during construction work; or
- c) any fixed plant in respect of work which includes the installation, commissioning, decommissioning or dismantling and where any such work involves a risk of a person falling two meters or more.

**“Suspended platform”** means a working platform suspended from supports by means of one or more separate ropes from each support;

**“The Act”** means the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993);

**“Tunneling”** means the construction of any tunnel beneath the natural surface of the earth for a purpose other than the searching for or winning of a mineral;

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## 2 INTRODUCTION

### 2.1 Introduction to the General Health and Safety Specification

This Health & Safety Specification (HSS) is published in terms of the Occupational Health & Safety Act of 1993 (OHSACT), Construction Regulations 2014.

The HSS (or any project specific version thereof) does not replace the Construction Regulations, 2014, but is a supplementary specification as required in terms of the Regulations. The Principal Contractor will remain responsible to fully address the full Construction Regulations in his Health and Safety Plan and in his implementation thereof.

### 2.2 Purpose of the Health and Safety Specification

The purpose of the HSS is to provide a standard on which Principal Contractors' H&S Plans must be based. This HSS will be applicable to the construction work proposed at the Manufacturing Facility.

### 2.3 Implementation of the Occupational Health and Safety Specification

This HSS forms an integral part of the Contract, and Principal Contractors are required to make it an integral part of their contracts with subcontractors and suppliers. The prospective Principal Contractors shall allow in their tenders for the cost of complying with the requirements of the HSS.

Acceptance by the Principal Contractor of the Construction Contract shall constitute acknowledgement that the Principal Contractor has familiarized himself/herself with the content of the HSS and that he/she will comply with all his/her obligations in respect thereof.

## 3 GENERAL HEALTH AND SAFETY PROVISIONS

### 3.1 Scope of Works

This HSS covers the general requirements for addressing and mitigating Occupational Health and Safety related problems, incidents and injuries at the proposed project. The scope also addresses legal compliance, hazard identification and risk assessment, promoting a health and safety culture amongst those working on this project and those affected by the activities taking place in and around them.

The HSS contains clauses that are generally applicable to construction work and imposes controls associated with activities that impact on human health and safety.

The Principal Contractor shall comply with the provisions of the OHSACT, all applicable Regulations (including the CR) and this HSS. The ELIDZ and / or its agent will monitor the Principal Contractor's compliance with the requirements of the OHSACT and their H&S Plan, but will not be responsible to prescribe to the Principal Contractor how such compliance is to be achieved.

#### 3.1.1 Extend of the Works

The scope of the works includes:

New Foaming cell enclosure	589m <sup>2</sup>
New Mezzanine platform	1620m <sup>2</sup>
Existing dispatch area to be converted to a receiving area	268m <sup>2</sup>
Upgrade to an existing export CUN dispatch area	66 m <sup>2</sup>
New Roller-shutter door in to Tugger	1
<b>Total Ground Floor</b>	<b>2 543 m<sup>2</sup></b>

#### 3.1.2 Location of the Works

Zone 1A of the East London Industrial Development Zone situated on the West Bank.

#### 3.1.3 Temporary works

The Contractor must price for re-instating the dedicated contractors site area.

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The dedicated Contractor site is also to house the office for the Clerk of Works and Resident Engineers as well as the office accommodation for meetings. Please refer to the following sketch highlighting the site establishment, offices and storage of materials demarcated area:



The temporary barriers and hoarding measured below are only for hoardings prescribed by the Employer, which is for the hoarding, scaffold and shutter board to under side of the roof. The extent of this work is depicted on the Section drawings attached.

#### **3.1.4 Sectional Completion**

In order to meet the tenant's programme, the works will be divided into five discrete sections, each with their own Sectional Completion date. The apportionment of these four sections is described below:

**Section 1:** Foaming cell enclosure, CUN despatch area (dock leveller and platform extension, New access door to tugger route,

**Section 2:** Mezzanine platform, Despatch receiving area conversion

#### **3.1.5 Sectional Completion Boundaries**

Please refer to the following sketch highlighting the Sectional Completion Boundaries.





### **3.2 Compensation of Occupational Injuries and Diseases Act 130 of 1993 (COLD Act)**

The Principal Contractor shall submit to the ELIDZ or its Agent, within 7 days from confirmation of the contract, proof of registration as an employer with the Department of Labour as well as a letter of good standing from the Compensation Commissioner or similar approved workman's compensation provider.

### **3.3 Application for Construction Work Permit (CR3) -Not Applicable**

Where construction work is to be carried out, the client must at least 30 days before that work is to be done, apply to the Department of Labour for a construction work permit to perform construction work if the intended construction work will:

- a) Exceed contract value of forty million rand or CIDB grading level 8. (Based upon DOL exemption of 2015-07-07); and
- b) Based upon the project value, it is expected that the Client, will have to submit an application for a construction work permit.

The Provincial director must issue a construction work permit in writing to perform construction work within 30 days of receiving the application and must assign a site-specific number for each construction site.

This site-specific number must be conspicuously displayed at the main entrance to the site for which that number is assigned.

A construction work permit may be granted only if the fully completed documents contemplated in regulation 5(1) (a) and (b) have been submitted and that the client complies with regulation 5(5). Ensure that the principal contractor is registered and in good standing.

The client must ensure that the principal contractor keeps a copy of the construction work permit in the occupational health and safety file for inspection by an inspector, the client's authorized agent or an employee.

No construction work may be commenced or carried out before the construction work permit and number have been issued and assigned.

### **3.4 Notification of Construction Work (CR 4)**

After receipt of confirmation of the contract, the Principal Contractor must at least 7 days before that work is to be carried out notify the Provincial Director in writing in a form similar

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to Annexure 2 of the Construction Regulations if the intended construction work will:

- a) Include excavation work;
- b) Include working at a height where there is a risk of falling;
- c) Include the demolition of a structure; or
- d) Include the use of explosives to perform construction work.

A copy of the notification letter to the Provincial Director must be filed with the H&S Plan.

### 3.5 Clients Duties (CR5)

A client must prepare a baseline risk assessment for the intended construction work as well as a suitable, sufficiently documented and coherent site specific health and safety specification for the intended construction work based on the baseline risk assessment.

The designer must be provided with the health and safety specification and ensure that the designer takes the prepared health and safety specification into consideration during the design stage.

The health and safety specification must be included in the tender documents.

The principal contractor must be appointed in writing for the project or part thereof. The client must approve the Principal Contractors Health & Safety file before commencement of work.

The client will ensure that periodic health and safety audits and document verification are conducted at intervals mutually agreed upon between the Principal Contractor and any contractor at least once every 30 days. The audit report must be given to the Principal Contractor within seven days after the audit.

The client is to stop any contractor from executing a construction activity which poses a threat to the health and safety of persons which is not in accordance with the client's health and safety specifications and the principal contractors' health and safety plan for the site.

Where changes are brought about to the design or construction work, the client will make sufficient health and safety information and appropriate resources available to the principal contractor to execute the work safely and ensure that the health and safety file is kept and maintained by the principal contractor.

The following high level risks and recommended risk controls are of relevance, to the proposed scope of work at this project. The contractor is to include these considerations into the scope of the Health and Safety plan as well as project financial and budget planning.

Risk	Ratings Red and Amber	Controls proposed to contractor
Working at heights - injury fall from height or drop from height: Use of MEWP; Access scaffolding; Roof work; Ladders; High wind; Ceilings, Fire Systems, Plumbing; CCTV; Painting; IT and Telecoms; Lighting; Airconditioners.	Red	Formal safe work procedures are to be determined relative to the process in question. The use of portable ladders, MEWP's, access scaffolding and similar fall protection equipment must be managed by an appointed competent person. The contractor is to determine a suitable fall protection plan and related safe work procedures. Including routine mandated inspections and checklists. Medical fitness to work at heights. (Ladders, MEWP's, fall arrest harnesses, etc) to be inspected as legislated.
Heavy mobile plant and equipment - Injury struck by: struck by; tip load onto	Red	Formal safe work procedures are to be determined relative to the process in question. All employees to wear high visibility vests. Machinery operators to be competent and medically fit. Heavy plant and equipment to be provided with rotating amber lights, back up alarms, audible reverse alarms, etc. Dust suppression to be applied when practicable.

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Risk	Ratings Red and Amber	Controls proposed to contractor
Excavation work injury: Engulfment collapse	Red	Formal safe work procedures are to be determined relative to the process in question. The work areas in question must be clearly and substantially demarcated and barricaded. A suitable safe work procedure must be established and applied. Excavations must be managed by an appointed, competent person. Excavation work must be conducted strictly as per the requirements of the CR.
Use of lifting machinery and equipment - injury struck by load, material and or equipment: Failure and or slew of load	Red	Formal safe work procedures are to be determined relative to the process in question. All lifting machinery and tackle is to be subject to routine inspections by a competent person, as well as annual performance testing. The contractor is to determine a safe work procedure relative to the risks associated with this process. Lifting machinery must strictly comply too the criteria of Driven Machinery Regulation 18 and 19.
Construction vehicles: Motor vehicle accident (MVA) - public and or private road; material and or equipment delivery	Red	Vehicles to be operated by competent personnel, maintained according to manufacturer's requirements. Maintained as per requirements of the NRTA.
Electricity: HV Connections electrocution; LV connections electrocution; Short circuit fire; failure to obtain COC.	Red	Formal safe work procedures are to be determined relative to the process in question. Electrical connections and related work to be conducted by registered competent electrical contractors. Work conducted within HV environment to be conducted by contractors with ESKOM HV regulations competencies. Provision of flash suits, tethers, face shields gloves and related PPE. COC compliance to be confirmed by a competent independant electrical contractor.
Driven machinery (Large plant) - Injury entanglement	Red	Formal safe work procedures are to be determined relative to the process in question. All driven machinery is to be substantially guarded. The plant is to be operated by competent personnel. The plant is to be managed by a competent formally appointed supervisor. All driven machinery, guarding and related is to be routinely inspected and maintained.
Stacking and storage - injury struck by falling material and or equipment: Stack failure of large, bulky, heavy material and or equipment	Red	Appoint a site laydown yard stacking and storage supervisor. Ensure good stacking and storage practices. The stacking and storage of cable reels is to be managed under the control of a stacking supervisor. Stored reels and drum dispensers must be provided with substantial chocks and stored on firm well drained ground.
Portable electrical machinery - Injury electrocution from damaged connections, janus plugs, wires - electrocution	Red	All portable power driven machinery is to be inventoried, subject to regular routine inspection, maintenance and repairs. When required, suitable eye and face protection is to be provided and worn.
Use of explosive actuated tools - injury penetration	Red	The contractor is to determine a formal safe work procedure for all aspects of this process. Cartridge order, storage and use must be approved by the SAPS Explosives and Firearms section. Cartridges must be stored separately within secure, lock up facilities suitable for such storage. An issue stock register must be strictly maintained. The entire process is to be managed by a competent appointed person. Tool operators must be competent (As defined) As a minimum, suitably specified eye, face, hand and hearing protection must be worn during this process. All tools and related equipment must be routinely maintained and operated as per manufacturer's instructions.

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Risk	Ratings Red and Amber	Controls proposed to contractor
Temporary works - Injury due to failure of temporary works	Red	The contractor is to determine a formal safe work procedure for all aspects of this process. Temporary works to be designed, inspected and supervised by a competent person. The work areas in question must be clearly and substantially demarcated and barricaded. All temporary works is to be designed and managed by a competent person (As defined) Scaffolding to be erected, routinely inspected and maintained by a competent person. The contractor must determine a safe work procedure relative to this process. Employees working at height, to be certified medically fit by an occupational medicine practitioner (As defined)
Vehicle Refueling - pollution spill to ground and or water source	Red	The contractor is to determine a formal safe work procedure for all aspects of this process. The contractor is to confirm the need for permitting and approval of the temporary fuel site with the BCMM Local Authority. Suitable spill containment technologies to be installed. Spill kits and related emergency equipment to be installed. Suitable dispensing nozzles to be installed.
Manual handling - ergonomics: sharp edges; bruises and or contusions, muscle strain; repetitive strain	Amber	The contractor is to determine a formal safe work procedure for all aspects of this process. Suitable PPE is to be provided. As far as possible employees are to assist one another. When practicable, suitable lifting machinery and equipment is to be provided and used.
Fire: Construction vehicles and heavy mobile plant	Amber	The contractor is to determine a formal safe work procedure for all aspects of this process. All mobile plant to be provided with suitable firefighting equipment and or AFFF. Fire systems are to be maintained. Plant is to be operated by competent personnel.
Use of noisy machinery, and or noisy processes - potential noise induced hearing loss (NIHL)	Amber	The contractor is to determine a formal safe work procedure for all aspects of this process. Implementation of a formal hearing conservation programme, to include audiometric screening, provision of hearing protection that is SANS approved. Implementation of a formal medical surveillance control programme.
Working in dusty environment: - potential silicosis	Amber	The contractor is to determine a formal safe work procedure for all aspects of this process. Dust suppression to be applied when practicable. In extreme conditions employees to be provided with respiratory equipment suitable for silica dust control. Baseline medicals are to include spirometric examination of employees.
Use of hazardous chemical substances (HCS) - illness poisoning	Amber	The contractor is to determine a formal safe work procedure for all aspects of this process. All HCS used on site is to be provided with 16 point MSDS's. Employees are to be provided with and use suitable PPE. Users of HCS must be provided with awareness training re' the health and safety risks of chemical exposure. HCS must be stored within chemical and flammable liquids cabinets and or stores. These are to be in compliance to the requirements of GSR 4 as well as HCSR 9A and 10. Implementation of a formal medical surveillance control programme, inclusive of medical surveillance of all exposed personnel, provision and use of suitable and effective PPE and related engineering controls. Provision and use of suitable and effective PPE and related engineering controls.
Use of portable electrical and hand held power tools: - Driven machinery, injury entanglement; foreign body - eye and or face injury	Amber	The contractor is to determine a formal safe work procedure for all aspects of this process. All moving components of driven machinery are to be substantially guarded and maintained. Machinery must be routinely inspected and maintained. Suitable PPE to be provided and worn, specifically, eye and face protection.

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Risk	Ratings Red and Amber	Controls proposed to contractor
Drill and blast - fly material, injury and or damages, seismic movement, damages	Amber	The contractor is to determine a formal safe work procedure for all aspects of this process. Blasting to be conducted by competent service providers. Blasters and related activities to be approved by the SAPS. No explosives are to be stored on site. A suitable safe work procedure must be established for blasting. This must include notifications to: To the East London Airport; East London Port Control; local bird farm; ELIDZ & the OHS agent.
Material stock pile: Stock pile failure, injury engulfment; tip of bulk material, injury engulfment.	Amber	The contractor is to determine a formal safe work procedure for all aspects of this process. All employees to wear high visibility vests. Machinery operators to be competent and medically fit. Heavy plant and equipment to be provided with rotating amber lights, back up alarms, audible reverse alarms, etc. Dust suppression to be applied when practicable.
Vibratory machinery - ergonomics - injury whole body and or segmental vibration	Amber	The contractor is to determine a formal safe work procedure for all aspects of this process. Ensure that the machinery is well maintained. Employees to wear suitable gloves as well as safety footwear.
Heavy mobile machinery and or equipment - collision with infrastructure and or other machinery and equipment, damages	Amber	The contractor is to determine a formal safe work procedure for all aspects of this process. Vehicles to be operated by competent personnel, maintained according to manufacturer's requirements. Maintained as per requirements of the NRTA.
Use of hand tools - injury struck by	Amber	The contractor is to determine a formal safe work procedure for all aspects of this process. The work areas in question must be clearly and substantially demarcated and barricaded. Hand tools must be well maintained.
Inclement weather - high winds, lightening, excessive rain - injury	Amber	The contractor is to determine a formal safe work procedure for all aspects of this process. The contractor is to purchase an anemometer. A formal safe work procedure must be established relative to high winds, inclement weather and lightening. The use of portable ladders, MEWP's, access scaffolding and similar fall protection equipment must be managed by an appointed competent person. The contractor is to determine a suitable fall protection plan and related safe work procedures. Including routine mandated inspections and checklists.
Plumbing work - illness, exposure to hazardous biological agents (HBA)	Amber	The contractor is to determine a formal safe work procedure for all aspects of this process. Plumbing personnel to be provided with suitable prophylaxis as well as PPE.
Glazing work - injury lacerations	Amber	The contractor is to determine a formal safe work procedure for all aspects of this process. It may be necessary that specialized tooling be used for large glass. Suitable PPE is to be provided and used. Provision and use of lifting frames, stillage suction cups and similar specialized tooling. Work to be conducted by competent persons.
General on foot access through-out the site - injury slip trip fall	Amber	The contractor is to determine a formal safe work procedure for all aspects of this process. Site housekeeping is to be continuously managed and enforced.

A copy of the full baseline risk assessment is to be provided to the prospective contractors at tender stage

### 3.6 Designer of Temporary Works (CR6.2)

The designer of temporary works must ensure that all temporary works are adequately designed so that it will be capable of supporting all anticipated vertical and lateral loads that may be applied; the designs of temporary works are done with close reference to the structural design drawings issued by the contractor, and in the event of any uncertainty consult the contractor; all drawings and calculations pertaining to the design of temporary works are kept at the office of the temporary works designer and are made available on request by an inspector and the loads caused by the temporary works and any imposed

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loads are clearly indicated in the design.

### **3.7 Principal Contractor's Health & Safety Plan (CR7.1.a)**

The principal contractor must provide and demonstrate to the client a suitable, sufficiently documented and coherent site specific health and safety plan, based on the client's documented health and safety specifications contemplated in regulation 5(1), which plan must be applied from the date of commencement of and for the duration of the construction work and which must be reviewed and updated by the principal contractor as work progresses.

The basic contents proposed are listed below:

- a) General administration
  - Notification of construction work
  - Section 37.2 agreement
  - Registration and good standing with an approved workman's compensation insurer
  - Appointment of the PC
  - List of sub-contractors expected on the project
  - H&S Policy
- b) Risk assessment
  - Assessment methodology
  - A record of risks expected on the project
  - Proposed risk control methods
- c) Safe work procedures
  - To be developed according to identified significant risks
  - To be formally documented
- d) Appointments
  - Records of all appointments applicable to the scope of work and as mandated by the Construction regulations
- e) Training, awareness and competence
  - Competencies of appointees applicable to the scope of work and as mandated by the Construction regulations
  - Records of H&S committee meeting
  - Records of training
  - Records of inductions
  - Records of toolbox talks or similar awareness training
- f) Emergency preparedness and incident management
  - A formal incident reporting, investigation and corrective action procedure to be established
  - A formal emergency response plan to be established, in line with the client emergency response plan
- g) Monitoring and measurement
  - Registers and checklists applicable to safe work procedures and identified risks and as mandated by the Construction regulations.
  - H&S Officer Audit templates
  - Medicals as mandated by the Construction regulations

### **3.8 Health & Safety File (CR 7.1.b)**

The Principal Contractor must open and keep on site a health and safety file, which must include all documentation required in terms of the Act and these Regulations, which must be made available on request to an inspector, the client, the client's agent or a contractor and on appointing any other contractor, in order to ensure compliance with the provisions of the Act provide contractors who are tendering to perform construction work for the principal

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contractor, with the relevant sections of the health and safety specifications contemplated in regulation 5(1)(b) pertaining to the construction work which has to be performed.

### **3.9 Duties of Principal Contractor and contractor (CR7.1.c)**

Ensure that potential contractors submitting tenders have made sufficient provision for health and safety measures during the construction process; ensure that no contractor is appointed to perform construction work unless the principal contractor is reasonably satisfied that the contractor that he or she intends to appoint, has the necessary competencies and resources to perform the construction work safely.

Ensure prior to work commencing on the site that every contractor is registered and in good standing with the compensation fund or with a licensed compensation insurer as contemplated in the Compensation for Occupational Injuries and Diseases Act, 1993.

The Principal Contractor must appoint each contractor in writing for the part of the project on the construction site.

The Principal Contractor must take reasonable steps to ensure that each contractor's health and safety plan is implemented and maintained on the construction site and that the periodic site audits and document verification are conducted at intervals mutually agreed upon between the principal contractor and any contractor, but at least once every 30 days.

Stop any contractor from executing construction work which is not in accordance with the client's health and safety specifications and the principal contractor's health and safety plan for the site or which poses a threat to the health and safety of persons.

Where changes are brought about to the design and construction, make available sufficient health and safety information and appropriate resources to the contractor to execute the work safely and discuss and negotiate with the contractor the contents of the health and safety plan and must thereafter finally approve that plan for implementation.

The Principal Contractor must ensure that a copy of his or her health and safety plan as well as the contractor's health and safety plan is available on request to an employee, an inspector, a contractor, the client or the client's agent.

The Principal Contractor must hand over a consolidated health and safety file to the client upon completion of the construction work and must, include a record of all drawings, designs, materials used and other similar information concerning the completed structure.

A principal contractor must take reasonable steps to ensure co-operation between all contractors appointed by the principal contractor to enable each of those contractors to comply with these Regulations.

The Principal Contractor must provide a comprehensive and updated list of all the contractors on site accountable to the principal contractor, the agreements between the parties and the type of work being done and ensure that all his or her employees have a valid medical certificate of fitness specific to the construction work to be performed and issued by an occupational health practitioner in the form of Annexure 3.

### **3.10 Duties of a Contractor (CR7.2)**

A contractor must prior to performing any construction work provide and demonstrate to the principal contractor a suitable and sufficiently documented health and safety plan, based on the relevant sections of the client's health and safety specification and provided by the principal contractor, which plan must be applied from the date of commencement of and for the duration of the construction work and which must be reviewed and updated by the contractor as work progresses.

Open and keep on site a health and safety file, which must include all documentation required in terms of the Act and these Regulations, and which must be made available on request to an inspector, the client, the client's agent or the principal contractor.

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Before appointing another contractor to perform construction work, the Principal contractor must be reasonably satisfied that the contractor that he or she intends to appoint has the necessary competencies and resources to perform the construction work safely.

Co-operate with the principal contractor as far as is necessary to enable each of them to comply with the provisions of the Act, and as far as is reasonably practicable, promptly provide the principal contractor with any information which might affect the health and safety of any person at work carrying out construction work on the site, any person who might be affected by the work of such a person at work, or which might justify a review of the health and safety plan.

No contractor may allow or permit any employee or person to enter any site, unless that employee or person has undergone health and safety induction training pertaining to the hazards prevalent on the site at the time of entry.

A contractor must ensure that all visitors to a construction site undergo health and safety induction pertaining to the hazards prevalent on the site and must ensure that such visitors have the necessary personal protective equipment.

A contractor must at all times keep on his or her construction site records of the health and safety induction training and such records must be made available on request to an inspector, the client, the client's agent or the principal contractor.

A contractor must ensure that all his or her employees have a valid medical certificate of fitness specific to the construction work to be performed and issued by an occupational health practitioner in the form of Annexure 3.

### **3.11 Construction Manager (CR8.1)**

A principal contractor must in writing appoint one full-time competent person as the construction manager with the duty of managing all the construction work on a single site, including the duty of ensuring occupational health and safety compliance, and in the absence of the construction manager an alternate must be appointed by the principal contractor

### **3.12 Assistant Construction Manager (CR8.2)**

A principal contractor must upon having considered the size of the project, in writing appoint one or more assistant construction managers for different sections thereof: Provided that the designation of any such person does not relieve the construction manager of any personal accountability for failing in his or her management duties in terms of this regulation.

### **3.13 Health & Safety Officer (CR8.5)**

A contractor must, after consultation with the client and having considered the size of the project, the degree of danger likely to be encountered or the accumulation of hazards or risks on the site, appoint a full-time or part-time construction health and safety officer in writing to assist in the control of all health and safety related aspects on the site: Provided that, where the question arises as to whether a construction health and safety officer is necessary, the decision of an inspector is decisive.

No contractor may appoint a construction health and safety officer to assist in the control of health and safety related aspects on the site unless he or she is reasonably satisfied that the construction health and safety officer that he or she intends to appoint is registered with a statutory body approved by the Chief Inspector and has necessary competencies and resources to assist the contractor.

### **3.14 Construction Supervisor (CR8.7)**

A construction manager must in writing appoint construction supervisors responsible for construction activities and ensuring occupational health and safety compliance on the construction site.

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No construction supervisor may supervise any construction work on or in any construction site other than the site in respect of which he or she has been appointed.

Provided that if a sufficient number of competent employees have been appropriately designated under sub-regulation (7) on all the relevant construction sites, the appointed construction supervisor may supervise more than one site.

### **3.15 Assistant Construction Supervisor (CR8.8)**

A contractor must, upon having considered the size of the project, in writing appoint one or more competent employees for different sections thereof to assist the construction supervisor, and every such employee has, to the extent clearly defined by the contractor in the letter of appointment, the same duties as the construction supervisor. Provided that the designation of any such employee does not relieve the construction supervisor of any personal accountability for failing in his or her supervisory duties in terms of this regulation.

### **3.16 Risk Assessment for Construction Work (CR9)**

A contractor must, before the commencement of any construction work and during such construction work, have risk assessments performed by a competent person appointed in writing, which risk assessments form part of the health and safety plan to be applied on the site, and must include:

- a) the identification of the risks and hazards to which persons may be exposed to;
- b) an analysis and evaluation of the risks and hazards identified based on a documented method;
- c) a documented plan and applicable safe work procedures to mitigate, reduce or control the risks and hazards that have been identified;
- d) a monitoring plan; and
- e) a review plan.

A contractor must ensure that as far as is reasonably practicable, ergonomic related hazards are analyzed, evaluated and addressed in a risk assessment.

A contractor must ensure that all employees under his or her control are informed, instructed and trained by a competent person regarding any hazard and the related work procedures and or control measures before any work commences, and thereafter at the times determined in the risk assessment monitoring and review plan of the relevant site.

A principal contractor must ensure that all contractors are informed regarding any hazard that is stipulated in the risk assessment before any work commences, and thereafter at the times that may be determined in the risk assessment monitoring and review plan of the relevant site.

A contractor must consult with the health and safety committee or, if no health and safety committee exists, with a representative trade union or representative group of employees, on the monitoring and review of the risk assessments of the relevant site.

A contractor must ensure that copies of the risk assessments of the relevant site are available on site for inspection by an inspector, the client, the client's agent, any contractor, any employee, a representative trade union, a health and safety representative or any member of the health and safety committee.

A contractor must review the relevant risk assessment:

- a) where changes are effected to the design and or construction that result in a change to the risk profile; or
- b) when an incident has occurred

### **3.17 Health & Safety Representative (OHSACT S17)**

Subject to the provisions of subsection (2), every employer who has more than 20 employees in his employment at any workplace, shall, within four months after the



commencement of this Act or after commencing business, or from such time as the number of employees exceeds 20, as the case may be, designate in writing for a specified period health and safety representatives for such workplace, or for different sections thereof.

An employer and the representatives of his employees recognized by him or, where there are no such representatives, the employees shall consult in good faith regarding the arrangements and procedures for the nomination or election, period of office and subsequent designation of health and safety representatives in terms of subsection (1): Provided that if such consultation fails, the matter shall be referred for arbitration to a person mutually agreed upon, whose decision shall be final: Provided further that if the parties do not agree within 14 days on an arbitrator, the employer shall give notice to this effect in writing to the President of the Industrial Court, who shall in consultation with the chief inspector designate an arbitrator, whose decision shall be final. [Sub-s. (2) Substituted by s. 4 of Act No. 181 of 1993.]

Arbitration in terms of subsection (2) shall not be subject to the provisions of the Arbitration Act, 1965 (Act No. 42 of 1965), and a failure of the consultation contemplated in that subsection shall not be deemed to be a dispute in terms of the Labour Relations Act, 1956 (Act No. 28 of 1956): Provided that the Minister may prescribe the manner of arbitration and the remuneration of the arbitrator designated by the President of the Industrial Court. [Sub-s. (3) Substituted by s. 4 of Act No. 181 of 1993.]

Only those employees employed in a full-time capacity at a specific workplace and who are acquainted with conditions and activities at that workplace or section thereof, as the case may be, shall be eligible for designation as health and safety representatives for that workplace or section.

The number of health and safety representatives for a workplace or section thereof shall in the case of shops and offices be at least one health and safety representative for every 100 employees or part thereof, and in the case of all other workplaces at least one health and safety representative for every 50 employees or part thereof: Provided that those employees performing work at a workplace other than that where they ordinarily report for duty, shall be deemed to be working at the workplace where they so report for duty.

If an inspector is of the opinion that the number of health and safety representatives for any workplace or section thereof, including a workplace or section with 20 or fewer employees, is inadequate, he may by notice in writing direct the employer to designate such number of employees as the inspector may determine as health and safety representatives for that workplace or section thereof in accordance with the arrangements and procedures referred to in subsection (2).

All activities in connection with the designation, functions and training of health and safety representatives shall be performed during ordinary working hours, and any time reasonably spent by any employee in this regard shall for all purposes be deemed to be time spent by him in the carrying out of his duties as an employee.

### **3.18 Functions of the Health & Safety Representatives (OHSACT S18)**

A health and safety representative may perform the following functions in respect of the workplace or section of the workplace for which he has been designated, namely:

- a) review the effectiveness of health and safety measures;
- b) identify potential hazards and potential major incidents at the workplace;
- c) in collaboration with his employer, examine the causes of incidents at the workplace;
- d) investigate complaints by any employee relating to that employee's health or safety at work;
- e) make representations to the employer or a health and safety committee on matters arising from paragraphs (a), (b), (c) or (d), or where such representations are unsuccessful, to an inspector;

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- f) make representations to the employer on general matters affecting the health or safety of the employees at the workplace;
- g) inspect the workplace, including any article, substance, plant, machinery or health and safety equipment at that workplace with a view to, the health and safety of employees, at such intervals as may be agreed upon with the employer: Provided that the health and safety representative shall give reasonable notice of his intention to carry out such an inspection to the employer, who may be present during the inspection;
- h) participate in consultations with inspectors at the workplace and accompany inspectors on inspections of the workplace;
- i) receive information from inspectors as contemplated in section 36; and
- j) In his capacity as a health and safety representative attend meetings of the health and safety committee of which he is a member, in connection with any of the above functions.

A health and safety representative shall, in respect of the workplace or section of the workplace for which he has been designated be entitled to:

- a) visit the site of an incident at all reasonable times and attend any inspection in loco;
- b) attend any investigation or formal inquiry held in terms of this Act;
- c) in so far as it is reasonably necessary for performing his functions, inspect any document which the employer is required to keep in terms of this Act;
- d) accompany an inspector on any inspection;
- e) with the approval of the employer (which approval shall not be unreasonably withheld), be accompanied by a technical adviser, on any inspection; and
- f) An employer shall provide such facilities, assistance and training as a health and safety representative may reasonably require and as have been agreed upon for the carrying out of his functions.

A health and safety representative shall not incur any civil liability by reason of the fact only that he failed to do anything which he may do or is required to do in terms of this Act.

### **3.19 Health & Safety Committees (OHSACT S19)**

An employer shall in respect of each workplace where two or more health and safety representatives have been designated, establish one or more health and safety committees and, at every meeting of such a committee as contemplated in subsection (4), consult with the committee with a view to initiating, developing, promoting, maintaining and reviewing measures to ensure the health and safety of his employees at work.

A health and safety committee shall consist of such number of members as the employer may from time to time determine: Provided that:

- a) if one health and safety committee has been established in respect of a workplace, all the health and safety representatives for that workplace shall be members of the committee;
- b) if two or more health and safety committees have been established in respect of a workplace, each health and safety representative for that workplace shall be a member of at least one of those committees; and
- c) The number of persons nominated by an employer on any health and safety committee established in terms of this section shall not exceed the number of health and safety representatives on that committee.

The persons nominated by an employer on a health and safety committee shall be designated in writing by the employer for such period as may be determined by him, while the health and safety representatives shall be members of the committee for the period of their designation in terms of section 17 (1).

A health and safety committee shall hold meetings as often as may be necessary, but at least once every three months, at a time and place determined by the committee: Provided

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that an inspector may by notice in writing direct the members of a health and safety committee to hold a meeting at a time and place determined by him: Provided further that, if more than 10 per cent of the employees at a specific workplace has handed a written request to an inspector, the inspector may by written notice direct that such a meeting be held.

The procedure at meetings of a health and safety committee shall be determined by the committee.

- a) A health and safety committee may co-opt one or more persons by reason of his or their particular knowledge of health or safety matters as an advisory member or as advisory members of the committee.
- b) An advisory member shall not be entitled to vote on any matter before the committee.

If an inspector is of the opinion that the number of health and safety committees established for any particular workplace is inadequate, he may in writing direct the employer to establish for such workplace such number of health and safety committees as the inspector may determine.

### **3.20 Functions of the Health & Safety Committee (OHSACT S20)**

A health and safety committee:

- a) may make recommendations to the employer or, where the recommendations fail to resolve the matter, to an inspector regarding any matter affecting the health or safety of persons at the workplace or any section thereof for which such committee has been established;
- b) shall discuss any incident at the workplace or section thereof in which or in consequence of which any person was injured, became ill or died, and may in writing report on the incident to an inspector; and
- c) Shall perform such other functions as may be prescribed.

A health and safety committee shall keep record of each recommendation made to an employer in terms of subsection (1) (a) and of any report made to an inspector in terms of subsection (1) (b).

A health and safety committee or a member thereof shall not incur any civil liability by reason of the fact only that it or he failed to do anything which it or he may or is required to do in terms of this Act.

An employer shall take the prescribed steps to ensure that a health and safety committee complies with the provisions of section 19 (4) and performs the duties assigned to it by subsections (1) and (2).

### **3.21 Induction**

The Principal Contractor must develop a job- or project-specific induction course in health and safety. The Principal Contractor shall ensure that all employees under his control have gone through the induction course before commencing duties on site.

The Principal Contractor shall keep in the health and safety file, a copy of the attendance register of all employees who attended the induction course. The content of the induction course must be submitted as part of the H&S Plan to the Directorate or its Agent for approval, prior to the site being handed over to the Principal Contractor.

### **3.22 Health & Safety Training**

The Principal Contractor shall arrange for health and safety talks or training to be given on site before any hazardous work takes place. The talks or training shall cover the relevant activity and an attendance register must be kept and signed by all attendees. The register of attendees and the content of the topic shall be kept on the site health and safety file as evidence of on-going training. The Principal Contractor must submit as part of his H&S Plan the list of hazardous works to be covered by these talks or training.

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### 3.23 General Inspection and Monitoring

The Principal Contractor shall carry out daily safety inspections on the site (or more frequent, where so required in the Regulations), and shall take steps to rectify any unsafe condition of which he is aware.

It is expected that the appointed Occupational Health and safety agent will conduct at least one full audit once every 30 days. In addition, routine site inspections, non-conformity reports and similar monitoring functions will also be conducted by the Occupational Health and safety agent.

The following monitoring interventions, amongst others may be of relevance:

- a) Accident/Incident Register (Annexure 1 of the General Administrative Regulations);
- b) OH&S Representatives Inspection Register;
- c) Asbestos Demolition & Stripping Register;
- d) Batch Plant Inspections;
- e) Construction Vehicles & Mobile Plant Inspections by Controller;
- f) Daily Inspection of Vehicles. Plant and other Equipment by the operator/Driver/User;
- g) Demolition Inspection Register;
- h) Designer's Inspection of Structures Record;
- i) Electrical Installations, -Equipment & -Appliances (including Portable Electrical Tools);
- j) Excavations Inspection;
- k) Explosive Powered Tool Inspection/Maintenance/Issue>Returns Register (incl. cartridges & nails);
- l) Fall Protection Inspection Register;
- m) First Aid Box Contents;
- n) Fire Equipment Inspection & Maintenance;
- o) Formwork & Support work Inspections;
- p) Hazardous Chemical Substances Record;
- q) Ladder Inspections;
- r) Lifting Equipment Register;
- s) Materials Hoist Inspection Register;
- t) Machinery Safety Inspection Register (incl. machine guards, lock-outs etc.);
- u) Scaffolding Inspections;
- v) Stacking & Storage Inspection;
- w) Inspection of Structures;
- x) Inspection of Suspended Platforms;
- y) Inspection of Tunneling Operations;
- z) Inspection of Vessels under Pressure;
- aa) Welding Equipment Inspections;
- bb) Oxy-Acetylene equipment inspections;
- cc) Inspection of Work conducted on or Near Water

The Principal Contractor shall maintain incident/ injury statistics and report on this to EAST LONDON IDZ (SOC) LTD on a monthly basis.

Disabling Injury: is defined as any incident which arises directly out and in the course of duty, resulting in any occupational illness, injury or disease: giving rise to any related temporary or permanent disablement as determined by a medical practitioner. Furthermore, incidents shall be classified as disabling where one or more of the following criteria are applicable:

- a) The affected person is unable to continue with all of the task for which they were appointed responsible for, and which constitutes their normal work duties;
- b) The loss of one or more days or shifts following the shift during which the incident occurred, inclusive of weekends and scheduled off-duty days;

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- c) All fractures and amputations, irrespective whether any days were lost (with exception of a hairline fracture which is certified by an attending physician as needing no further medical treatment, and provided no supportive materials are applied);
- d) Unconsciousness, irrespective of duration, resulting from workplace exposure or incident;
- e) Occupational illness which necessitates medical treatment resulting in restricted duties; and
- f) Any bone damage except close damage to the tuft of the terminal phalanx (E.g. closed fracture, amputation of the tip of a finger).

The Contractor shall report monthly incident/injury statistics in the following manner;

- a) *Disabling Injury Frequency Rate (DIFR)* = 
$$\frac{(\text{Number of Disabling injury cases}) \times 200\,000}{\text{Number of man-hours worked}}$$
- b) *First Aid Treatment Frequency Rate (FTFR)* = 
$$\frac{\text{Number of First aid treatments} \times 200\,000}{\text{Number of Man-hours}}$$
- d) *Fatality Frequency Rate (FFR)* = 
$$\frac{(\text{Number of fatalities}) \times 200\,000}{\text{Number of Man-hours worked}}$$

Each contractor must maintain and provide a monthly summary register of incidents in the following tabulated format

Contractor Name _____	Month _____
FATAL	
LTI	
MT	
FA	
Man hours worked for the month	

FATAL = Fatal injury

LTI = Lost time injury

Mt = Medical Treatment

FA = First aid

Statistics are to be completed month on month, representative of a calendar month. These statistics are to be submitted within the first week of the new month to the Health and Safety Agent.

### 3.24 Non-conformities and corrective actions

Non-conformities are raised by appointed SHE agents representing the ELIDZ. Typically reported on a daily or weekly basis for action by the contractors. Contractors are to summarize these non-conformities onto the following tabulation and submit comments re' close out of these at the end of each calendar month to the Health and safety agent representing the ELIDZ.

No #	Finding	OBS/NC/MNC	Proposed action	Deadline date	Action taken by contractor, (to be listed here by the contractor)
<b>OBS</b> = an observation. Physical defects, potential non-conformity, unclear information. <b>NC</b> = Non-Conformity. A deviation from a requirement of the OHS plan and or related legislation. Defined as any deviation from work standards, practices, procedures, regulations, management system performance etc. that could lead either directly or indirectly lead to injury or illness, property damage, damage to the workplace environment, or a combination of these. A non-fulfillment of a requirement					

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**MNC** = Major non-conformity. System failures, absence of mandatory procedures, major legal non-compliance, cluster of minor non-conformances, elevation of minor non-conformance due to lack of action.

1	Logged by OHS agent	Positive finding	Logged by OHS agent	Logged by OHS agent	<u><b>Logged by Contractor</b></u>
2	Logged by OHS agent	Positive finding	Logged by OHS agent	Logged by OHS agent	<u><b>Logged by Contractor</b></u>

### 3.25 Penalties

<b>Minor: Penalty: R50/count</b>	<b>Medium: Penalty: R200/count or non-conformance</b>	<b>Severe Penalty: R5000/count, non-conformance and/or activity stoppage</b>
Non-use of PPE supplied	Toilets not supplied or regularly serviced; lack of drinking water	Contractors working without Health and Safety Plan approval
Non completion of registers for plant and equipment on site	Contractors not audited	Workers transported in contravention of the OHS plan or legal requirements
Lack of H&S signage at work areas	Working without training or the appropriate H&S safe work procedures.	Invalid Letters of Good Standing
Tools and equipment identified in poor condition during inspections	Legal non-conformances identified during the previous audit and not addressed within the agreed time frame	Failure to adhere to requirements of fall protection and fall arrest controls
Minor at risk actions and or conditions of a continuous nature.	No monthly OHS report at site meeting to report on	Scaffolding and or formwork not inspected, signed off and grossly non-compliant to the SANS codes and legal requirements
	No certificates of fitness for workers as required	Deep excavations not inspected, signed off and grossly non-compliant to legal requirements
	General non-compliance to developed procedures, forms, appointments and other requirements of the contractors OHS plan	Continued or repeated gross at risk actions and or conditions.

The Contractor shall be penalized R1,000.00 for commencing works on site without requisite approved safe working procedures.

The Contractor shall be penalized R200.00 for each day on which work continues without requisite approved safe work procedures.

Penalties arising out of lack of safe work procedures shall be deductible from monthly payment certificates.

### 3.26 First Aid, Emergency Equipment, incident recording, reporting and investigation (GSR3)

The Principal Contractor shall submit a detailed Emergency Procedure as part of his H&S Plan. The procedure shall detail the following:

- a) List of key personnel,
- b) A contact list of all local emergency service providers (Fire department, Ambulance, Police, Medical and Hospital, etc.) must be maintained and be available to site personnel.

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- c) Actions or steps to be taken in the event of the emergency; and
- d) Information on any hazardous material and its situation on the site
- e) Information on hazardous material's potential impact or risk on the environment or to humans, and measures to be taken in the event of an accident.

Emergency procedure(s) shall include, but not be limited to, fire, spills, accidents to employees and injury resulting from the use of hazardous substances, etc.

In the event of an emergency arising, the Principal Contractor shall advise the Directorate or its Agent in writing of the incident, together with a record of any action taken, within 24 hours of the emergency occurring.

An employer shall take all reasonable steps that are necessary under the circumstances, to ensure that persons at work receive prompt first aid treatment in case of injury or emergency.

Where more than five employees are employed at a workplace, the employer of such employees shall provide a first aid box or boxes at or near the workplace which shall be available and accessible for the treatment of injured persons at that workplace.

Taking into account the type of injuries that are likely to occur at a workplace, the nature of the activities performed and the number of employees employed at such workplace, the employer shall make sure that the first aid box or boxes contain suitable first aid equipment which include at least the equipment listed in the Annexure hereto.

Such an employer shall make sure that only article and equipment or other similar equipment or medicine is kept in the first aid box or boxes.

Where more than 10 employees are employed at a workplace, the employer of such employees shall take steps to ensure that for every group of up to 50 employees at that workplace, or in the case of a shop or an office as contemplated in the Basic Conditions of employment Act, 1983 (Act No. 3 of 1983), for every group of up to 100 employees, at least one person is readily available during normal working hours, who is in possession of a valid certificate of competency in first aid, issued by:

- a) the SA Red Cross Society;
- b) the St. John Ambulance;
- c) the SA First Aid League; or
- d) A person or organisation approved by the chief inspector for this purpose.

An employer shall at a workplace where a high risk substance or toxic, corrosive or similar hazardous substances are used, handled, processed or manufactured, ensure that the first aid worker is trained in the first aid procedures that are necessary for the treatment of injuries that may result from such activities, including the acute detrimental effects of exposure to such substances, and in the emergency procedures which are necessary in the case of accidental leakage or dumping of such substances.

An employer shall affix a prominent notice or sign in a conspicuous place at a workplace, indicating where the first aid box or boxes are kept as well as the name of the person in charge of such first aid box or boxes.

An employee with an open wound, cut, sore or any similar injury, who works in a workplace where a substance is used, handled, processed or manufactured, shall report such injury to his employer forthwith. The employer may not permit such employee to continue working before the injury has been cleaned with soap and water or with a diluted disinfectant.

Where an employee is exposed or can be exposed to a potential hazard of injury to the eye through contact with a biological or chemical substance, the employer concerned shall make sure that there is an eyewash fountain or any similar facilities, in the immediate vicinity of the workplace of such employee and that the employee is trained in the use thereof.

Where an employee at a workplace is exposed or can be exposed to a potential hazard of

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injury to or absorption through the skin as a result of sudden contact with a large amount of toxic, corrosive, high risk or similar hazardous substance, the employer concerned shall make sure that there is a fast-reacting deluge-shower with clean water or a similar facility in the immediate vicinity of the workplace of such employee and that the employee is trained in the use thereof.

### 3.27 Minimum contents of a First Aid Box

In the case of shops and offices, the quantities stated under items 1, 8, 9, 10, 14, 15, 17, and 18 may be reduced by half.

Item 1	Wound cleaner / antiseptic (100ml)
Item 2	Swabs for cleaning wounds
Item 3	Cotton wool for padding (100g)
Item 4	Sterile gauze (minimum quantity 10)
Item 5	1 pair of forceps (for splinters)
Item 6	1 pair of scissors (minimum size 100mm)
Item 7	1 set of safety pins
Item 8	4 triangular bandages
Item 9	4 roller bandages (75mm x 5m)
Item 10	4 roller bandages (100mm x 5m)
Item 11	1 roll of elastic adhesive (25mm x 3m)
Item 12	1 Non-allergenic adhesive strip (25mm x 3m)
Item 13	1 Packet of adhesive dressing strips (minimum quantity 10 assorted sizes)
Item 14	4 First aid dressing (75mm x 100mm)
Item 15	4 First aid dressings (150mm x 200mm)
Item 16	2 Straight splints
Item 17	2 Pairs large and 2 pairs medium disposable latex gloves
Item 18	2 CPR mouth pieces or similar devices

### 3.28 Reporting of Incidents and Occupational Diseases (GAR8)

An employer or user, as the case may be, shall:

- within seven days of any incident referred to in section 24(1)(a) of the Act, give notice thereof to the provincial director in the form of WCL1 or WCL 2; and
- where a person, in consequence of such an incident, dies, becomes unconscious, suffers the loss of a limb or part of a limb, or is otherwise injured or becomes ill to such a degree that he or she is likely either to die or to suffer a permanent physical defect, such incident, including any other incident contemplated in section 24(1)(b) and (c) of the Act, shall forthwith also be reported to the provincial director by telephone, facsimile or similar means of communication.

If an injured person dies after notice of the incident in which he or she was injured was given in terms of sub-regulation (1), the employer or user, as the case may be, shall forthwith notify the provincial director of his or her death.

Whenever an incident arising out of or in connection with the activities of persons at work occur to persons other than employees, the user, employer or self-employed person, as the case may be, shall forthwith notify the provincial director by facsimile or similar means of communication as to the:

- name of the injured person;
- address of the injured person;
- name of the user, employer or self-employed person;
- address of the user, employer or self-employed person;
- telephone number of the user, employer or self-employed person;
- name of contact person;
- details of incident:
  - What happened?
  - Where it happened (place);

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- When it happened (date and time);
  - How it happened;
  - Why it happened; and
- h) Names of witnesses.

Any registered medical practitioner shall, within 14 days of the examination or treatment of a person for a disease contemplated in section 25 of the Act, give notice thereof to the chief inspector and the employer in the form of WCL 22.

Any other person not contemplated in this regulation may in writing give notice of any disease contemplated in section 25 of the Act, to the employer and chief inspector.

### **3.29 Recording and Investigation of Incidents**

An employer or user shall keep at a workplace or section of a workplace, as the case may be, a record in the form of Annexure 1 for a period of at least three years, which record shall be open for inspection by an inspector, of all incidents which he or she is required to report in terms of section 24 of the Act and also of any other incident which resulted in the person concerned having had to receive medical treatment other than first aid.

An employer or user shall cause every incident which must be recorded in terms of sub regulation (1), to be investigated by the employer, a person appointed by him or her, by a health and safety representative or a member of a health and safety committee within 7 days from the date of the incident and finalised as soon as is reasonably practicable, or within the contracted period in the case of contracted workers.

The employer or user shall cause the findings of the investigation contemplated in sub regulation (2) to be entered in Annexure 1 immediately after completion of such investigation.

An employer shall cause every record contemplated in sub regulation (1) to be examined by the health and safety committee for that workplace or section of the workplace at its next meeting and shall ensure that necessary actions, as may be reasonable practicable, are implemented and followed up to prevent the recurrence of such incident.

### **3.30 Personal Protective Equipment**

The Principal Contractor shall ensure that all workers are issued with, and wear, appropriate PPE including Hard Hats, Steel-Toe Safety Shoes and Overalls. The Principal Contractor shall make provision for, and keep adequate quantities of, SABS-approved PPE or clothing on site at all times.

This procedure must be included in the H&S Plan. A copy of the register of PPE issues must be filed with the H&S Plan.

### **3.31 Display of Occupational Health & Safety Signs and Notices (GSR2.b)**

If the provisions of any regulation prescribe a particular notice or sign to be displayed by an employer or by a user at a workplace, the employer or user may, in lieu thereof, display a corresponding symbolic sign, as contained in a safety standard incorporated for this purpose into these regulations under section 44 of the Act, in which case the employer or user shall be deemed to have complied with such provisions.

The Principal Contractor shall erect and maintain on site symbolic safety signage and notices that conform to the SABS requirements. The signage shall include, but not be limited to:

- a) Hard Hat Area
- b) Safety Shoes to be worn
- c) Dust Masks or Respirators in areas where there might be exposure to airborne pollutants
- d) Ear plugs or Muffs where there might be noise exposure over the safe limit
- e) Gloves; Safety Goggles; Safety Harness, etc.

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### **3.32 Intoxication (GSR2.a)**

An employer or a user, as the case may be, shall not permit any person who is or who appears to be under the influence of intoxicating liquor or drugs, to enter or remain at a workplace.

No person at a workplace shall be under the influence of or have in his or her possession or partake of or offer any other person intoxicating liquor or drugs.

An employer or a user, as the case may be, shall, in the case where a person is taking medicines, only allow such person to perform duties at the workplace if the side effects of such medicine do not constitute a threat to the health or safety of the person concerned or other persons at such workplace.

## **4 OCCUPATIONAL HEALTH AND SAFETY**

### **4.1 Fall Protection (CR10)**

A contractor must designate a competent person to be responsible for the preparation of a fall protection plan and ensure that the fall protection plan is implemented, amended where and when necessary and maintained as required and take steps to ensure continued adherence to the fall protection plan.

A fall protection plan must include a risk assessment of all work carried out from a fall risk position and the procedures and methods used to address all the risks identified per location, the processes for the evaluation of the employees' medical fitness necessary to work at a fall risk position and the records thereof.

A programme for the training of employees working from a fall risk position and the records thereof, the procedure addressing the inspection, testing and maintenance of all fall protection equipment; and a rescue plan detailing the necessary procedure, personnel and suitable equipment required to affect a rescue of a person in the event of a fall incident to ensure that the rescue procedure is implemented immediately following the incident.

A contractor must ensure that a construction manager appointed under regulation 8(1) is in possession of the most recently updated version of the fall protection plan.

A contractor must ensure that all unprotected openings in floors, edges, slabs, hatchways and stairways are adequately guarded, fenced or barricaded or that similar means are used to safeguard any person from falling through such openings. No person is required to work in a fall risk position; unless such work is performed safely.

Fall prevention and fall arrest equipment is approved as suitable and of sufficient strength for the purpose for which they are being used, having regard to the work being carried out and the load, including any person, they are intended to bear; and securely attached to a structure or plant, and the structure or plant and the means of attachment thereto are suitable and of sufficient strength and stability for the purpose of safely supporting the equipment and any person who could fall.

Fall arrest equipment is used only where it is not reasonably practicable to use fall prevention equipment.

Where roof work is being performed on a construction site, the contractor must ensure that it is indicated in the fall protection plan that:

- a) the roof work has been properly planned
- b) the roof erectors are competent to carry out the work;
- c) no employee is permitted to work on roofs during inclement weather conditions or if any conditions are hazardous to the health and safety of the employee;
- d) all covers to openings and fragile material are of sufficient strength to withstand any imposed loads;

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- e) suitable and sufficient platforms, coverings or other similar means of support have been provided to be used in such a way that the weight of any person passing across or working on or from fragile material is supported; and
- f) Suitable and sufficient guard-rails, barriers and toe-boards or other similar means of protection prevent, as far as is reasonably practicable, the fall of any person, material or equipment.

#### **4.2 Structures (CR11)**

A contractor must ensure that all reasonably practicable steps are taken to prevent the uncontrolled collapse of any new or existing structure or any part thereof, which may become unstable or is in a temporary state of weakness or instability due to the carrying out of construction work. No structure or part of a structure is loaded in a manner which would render it unsafe; and all drawings pertaining to the design of the relevant structure are kept on site and are available on request to an inspector, other contractors, the client and the client's agent or employee.

#### **4.3 Temporary Works (CR12) (Previously Formwork and Support work)**

A contractor must appoint a temporary works designer in writing to design, inspect and approve the erected temporary works on site before use.

A contractor must ensure that all temporary works operations are carried out under the supervision of a competent person who has been appointed in writing for that purpose.

A contractor must ensure that all temporary works structures are adequately erected, supported, braced and maintained by a competent person so that they are capable of supporting all anticipated vertical and lateral loads that may be applied to them, and that no loads are imposed onto the structure that the structure is not designed to withstand.

All temporary works structures are done with close reference to the structural design drawings, and where any uncertainty exists the structural designer should be consulted. Detailed activity specific drawings pertaining to the design of temporary works structures are kept on the site and are available on request to an inspector, other contractors, the client, the client's agent or any employee.

All persons required to erect, move or dismantle temporary works structures are provided with adequate training and instruction to perform those operations safely. All equipment used in temporary works structure are carefully examined and checked for suitability by a competent person, before being used.

All temporary works structures are inspected by a competent person immediately before, during and after the placement of concrete, after inclement weather or any other imposed load and at least on a daily basis until the temporary works structure has been removed and the results have been recorded in a register and made available on site.

No person may cast concrete, until authorization in writing has been given by the competent person if, after erection, any temporary works structure is found to be damaged or weakened to such a degree that its integrity is affected, it is safely removed or reinforced immediately and adequate precautionary measures are taken in order to:

- a) secure any deck panels against displacement;
- b) prevent any person from slipping on temporary works due to the application of release agents; and
- c) the health of any person is not affected through the use of solvents or oils or any other similar substances.

Upon casting concrete, the temporary works structure is left in place until the concrete has acquired sufficient strength to safely support its own weight and any imposed load, and is not removed until authorization in writing has been given by the competent person. The foundation conditions are suitable to withstand the loads caused by the temporary works structure and any imposed load in accordance with the temporary works design.

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

The contractor must ensure provision is made for safe access by means of secured ladders or staircases for all work to be carried out above the foundation bearing level. A temporary works drawing or any other relevant document includes construction sequences and methods statements.

The contractor must ensure that the temporary works designer has been issued with the latest revision of any relevant structural design drawing; a temporary works design and drawing is used only for its intended purpose and for a specific portion of a construction site and the temporary works drawings are approved by the temporary works designer before the erection of any temporary works.

No contractor may use a temporary works design and drawing for any works other than its intended purpose.

#### **4.4 Excavations (CR13)**

A contractor must ensure that all excavation work is carried out under the supervision of a competent person who has been appointed in writing for that purpose.

A contractor must evaluate, as far as is reasonably practicable, the stability of the ground before excavation work begins.

A contractor who performs excavation work must take reasonable and sufficient steps in order to prevent, as far as is reasonably practicable, any person from being buried or trapped by a fall or dislodgement of material in an excavation and may not require or permit any person to work in an excavation which has not been adequately shored or braced.

Provided that shoring and bracing may not be necessary where:

- a) the sides of the excavation are sloped to at least the maximum angle of repose measured relative to the horizontal plane; or
- b) such an excavation is in stable material:

Provided that:

- a) permission has been given in writing by the appointed competent person upon evaluation by him or her of the site conditions; and
- b) Where any uncertainty pertaining to the stability of the soil still exists, the decision from a professional engineer or a professional technologist competent in excavations is decisive and such a decision must be noted in writing and signed by both the competent person and the professional engineer or technologist, as the case may be.

The contractor must take steps to ensure that the shoring or bracing is designed and constructed in a manner that renders it strong enough to support the sides of the excavation in question and must ensure that no load, material plant or equipment is placed or moved near the edge of any excavation where it may cause its collapse and consequently endangers the safety of any person, unless precautions such as the provision of sufficient and suitable shoring or bracing are taken to prevent the sides from collapsing.

The contractor must ensure that where the stability of an adjoining building, structure or road is likely to be affected by the making of an excavation, steps are taken to ensure the stability of such building, structure or road and the safety of persons and must cause convenient and safe means of access to be provided to every excavation in which persons are required to work, and such access may not be further than six meters from the point where any worker within the excavation is working.

The contractor must ascertain, as far as is reasonably practicable, the location and nature of electricity, water, gas or other similar services which may in any way be affected by the work to be performed, and must before the commencement of excavation work that may affect any such service, take the steps that are necessary to render the circumstances safe for all persons involved.

The contractor must ensure that every excavation, including all bracing and shoring, is

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

inspected:

- a) daily, prior to the commencement of each shift;
- b) after every blasting operation;
- c) after an unexpected fall of ground;
- d) after damage to supports; and
- e) after rain,

by the competent person, in order to ensure the safety of the excavation and of persons, and those results must be recorded in a register kept on site and made available on request to an inspector, the client, the client's agent, any other contractor or any employee.

The contractor must cause every excavation which is accessible to the public or which is adjacent to public roads or thoroughfares, or whereby the safety of persons may be endangered, to be adequately protected by a barrier or fence of at least one meter in height and as close to the excavation as is practicable and provided with warning illuminants or any other clearly visible boundary indicators at night or when visibility is poor, or have resort to any other suitable and sufficient precautionary measure.

The contractor must ensure that all precautionary measures stipulated for confined spaces as determined in the General Safety Regulations, 2003, are complied with by any person entering any excavation.

#### **4.5 Drill and Blast**

Where the excavation work involves the use of explosives, the contractor must appointment a competent person in the use of explosives for excavation, and must ensure that a safe work procedure is developed by that person in accordance with the applicable explosives legislation and must cause warning signs to be positioned next to an excavation within which or where persons are working or carrying out inspections or tests.

The contractor is to determine a formal safe work procedure for all aspects of this process. Blasting to be conducted by competent service providers. Blasters and related activities to be approved by the SAPS. No explosives are to be stored on site. A suitable safe work procedure must be established for blasting. This must include notifications to: To the East London Airport; East London Port Control; local bird farm; ELIDZ & the OHS agent.

#### **4.6 Demolition Work (CR14) – if applicable**

A contractor must appoint a competent person in writing to supervise and control all demolition work on site.

A contractor must ensure that before any demolition work is carried out, and in order to ascertain the method of demolition to be used, a detailed structural engineering survey of the structure to be demolished is carried out by a competent person and that a safe work procedure on the procedure to be followed in demolishing the structure is developed by that person.

During a demolition, the competent person must check the structural integrity of the structure at intervals determined in the safe work procedure in order to avoid any premature collapses.

A contractor who performs demolition work must with regard to a structure being demolished, take steps to ensure that no floor, roof or other part of the structure is overloaded with debris or material in a manner which would render it unsafe, that all reasonably practicable precautions are taken to avoid the danger of the structure collapsing when any part of the framing of a framed or partly framed building is removed, or when reinforced concrete is cut and precautions are taken in the form of adequate shoring or other means that may be necessary to prevent the accidental collapse of any part of the structure or adjoining structure.

A contractor must ensure that no person works under overhanging material or a structure

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

which has not been adequately supported, shored or braced and ensure that any support, shoring or bracing is designed and constructed so that it is strong enough to support the overhanging material.

Where the stability of an adjoining building, structure or road is likely to be affected by demolition work on a structure, take steps to ensure the stability of such structure or road and the safety of persons. Ascertain as far as is reasonably practicable the location and nature of electricity, water, gas or other similar services which may in any way be affected by the work to be performed, and must before the commencement of demolition work that may affect any such service, take the steps that are necessary to render circumstances safe for all persons involved.

Every stairwell used and every floor where work is being performed in a building being demolished, to be adequately illuminated by either natural or artificial means and convenient and safe means of access to be provided to every part of the demolition site in which persons are required to work and erect a catch platform or net above an entrance or passageway or above a place where persons work or pass under, or fence off the danger area if work is being performed above such entrance, passageway, or place so as to ensure that all persons are kept safe where there is a danger or possibility of persons being struck by falling objects.

A contractor must ensure that no material is dropped to any point, which falls outside the exterior walls of the structure, unless the area is effectively protected.

No person may dispose of waste and debris from a high place by a chute unless the chute is adequately constructed and rigidly fastened. If inclined at an angle of more than 45 degrees to the horizontal, is enclosed on its four sides. If of the open type, is inclined at an angle of less than 45 degrees to the horizontal. Where necessary is fitted with a gate at the bottom end to control the flow of material and discharges into a container or an enclosed area surrounded by barriers.

A contractor must ensure that every chute used to dispose of rubble is designed in such a manner that rubble does not free-fall and that the chute is strong enough to withstand the force of the debris travelling along the chute.

A contractor must ensure that no equipment is used on floors or working surfaces, unless such floors or surfaces are of sufficient strength to support the imposed loads.

Where a risk assessment indicates the presence of asbestos, a contractor must ensure that all asbestos related work is conducted in accordance with the Asbestos Regulations, 2001, promulgated by Government Notice No. R. 155 of 10 February 2002.

Where a risk assessment indicates the presence of lead, a contractor must ensure that all lead related work is conducted in accordance with the Lead Regulations, 2001, promulgated by Government Notice No. R.236 of 28 February 2002.

Where the demolition work involves the use of explosives, a safe work procedure must be developed in accordance with the applicable explosives legislation, by an appointed person who is competent in the use of explosives for demolition work and all persons involved in the demolition works must adhere to demolition procedures issued by the appointed person.

A contractor must ensure that all waste and debris are as soon as reasonably practicable removed and disposed of from the site in accordance with the applicable legislation.

#### **4.7 Tunneling (CR15) – if applicable**

No person may enter a tunnel, which has a height dimension of less than 800 millimeters.

#### **4.8 Scaffolding (CR16)**

A contractor must appoint a competent person in writing who must ensure that all scaffolding work operations are carried out under his or her supervision and that all scaffold erectors, team leaders and inspectors are competent to carry out their work.

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

A contractor using access scaffolding must ensure that such scaffolding, when in use, complies with the safety standards incorporated for this purpose into these Regulations under section 44 of the Act.

Access scaffolding must be strictly managed in terms of SANS 1085

#### **4.9 Suspended Platforms (CR17)**

A contractor must appoint a competent person in writing who must ensure that all suspended platforms work operations are carried out under his or her supervision and that all suspended platform erectors, operators and inspectors are competent to carry out their work.

No contractor may use or permit the use of a suspended platform, unless:

- a) the design, stability and construction thereof comply with the safety standards incorporated for this purpose into these Regulations under section 44 of the Act;
- b) he or she is in possession of a certificate of system design issued by a professional engineer, certificated engineer or a professional technologist for the use of the suspended platform system; and
- c) he or she is, before the commencement of the work, in possession of an operational compliance plan developed by a competent person based on the certificate of system design contemplated in subparagraph (b) and applicable to the environment in which the system is being used, which operational compliance plan must include proof of the:
  - o appointment of the competent person
  - o competency of erectors, operators and inspectors;
  - o operational design calculations, which must comply with the requirements of the system design certificate;
  - o performance test results;
  - o sketches indicating the completed system with the operational loading capacity of the platform;
  - o procedures for and records of inspections having been carried out; and
  - o Procedures for and records of maintenance work having been carried out.

A contractor making use of a suspended platform system must submit a copy of the certificate of system design contemplated, including a copy of the operational design calculations, sketches and test results, to the provincial director before commencement of the use of the system and must further indicate the intended type of work that the system will be used for.

A contractor must submit a copy of the certificate of system design for every new project.

A contractor must ensure that the outriggers of each suspended platform are constructed of material of adequate strength and have a safety factor of at least four in relation to the load it is to carry; and have suspension points provided with stop devices or other effective devices at the outer ends to prevent the displacement of ropes.

A contractor must ensure that the parts of the building or structure on which the outriggers of a suspended platform are supported, are checked by means of calculations to ensure that the required safety factor is adhered to without risk of damage to the building or structure the suspension wire rope and the safety wire rope are separately connected to the outrigger. Each person on a suspended platform is provided with and wears a body harness as a fall prevention device, which must at all times be attached to the suspended platform. The hand or power driven machinery to be used for the lifting or lowering of the working platform of a suspended platform is constructed and maintained in such a manner that an uncontrolled movement of the working platform cannot occur. The machinery is so situated that it is easily accessible for inspection. The rope connections to the outriggers are vertically above the connections to the working platform and when the working platform is suspended by two ropes only, the connections of the ropes to the working platform are of a height above the level of the working platform to ensure the stability of the working

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

platform.

A contractor must ensure that a suspended platform is suspended as near as possible to the structure to which work is being done to prevent as far as is reasonably practicable horizontal movement away from the face of the structure. Is fitted with anchorage points to which workers must attach the lanyard of the safety harness worn and used by the worker, and such anchorage connections must have sufficient strength to withstand any potential load applied to it and is fitted with a conspicuous notice easily understandable by all workers working with the suspended platform, showing:

- a) the maximum mass load;
- b) the maximum number of persons; and
- c) the maximum total mass load, including load and persons, which the suspended platform can carry.

A contractor must cause the whole installation and all working parts of a suspended platform to be thoroughly examined by a competent person in accordance with the manufacturer's specification. The whole installation to be subjected to a performance test as determined by the standard to which the suspended platform was manufactured.

The performance test to be done by a competent person appointed in writing, with the knowledge and experience of erection and maintenance of suspended platforms or similar machinery, and who must determine the serviceability of the structures, ropes, machinery and safety devices before they are used, every time suspended platforms are erected; and the performance test contemplated in paragraph (b) of the whole installation of the suspended platform to be subjected to a load equal to that prescribed by the manufacturer or, in the absence of such load, to a load of 110 per cent of the rated mass load, at intervals not exceeding 12 months and in such a manner that every part of the installation is stressed accordingly.

A contractor must, cause every hoisting rope, hook or other load-attaching device which forms part of the suspended platform to be thoroughly examined in accordance with the manufacturer's specification by the competent person before they are used every time they are assembled, and, in cases of continuous use, at intervals not exceeding three months.

A contractor must ensure that the suspended platform supervisor, or the suspended platform inspector, carries out a daily inspection of all the equipment prior to use, including establishing whether:

- a) all connection bolts are secure;
- b) all safety devices are functioning;
- c) all safety devices are not tampered with or vandalized;
- d) the total maximum mass load of the platform is not exceeded;
- e) the occupants in the suspended platform are using body harnesses which have been properly attached;
- f) there are no visible signs of damage to the equipment; and
- g) all reported operating problems have been attended to.

A contractor must ensure that all inspection and performance test records are kept on the construction site at all times and made available to an inspector, the client, the client's agent or any employee upon request.

A contractor must ensure that all employees required to work or to be supported on a suspended platform are medically fit to work safely in a fall risk position or such similar environment by being in possession of a medical certificate of fitness. Is competent in conducting work related to suspended platforms safely. Is trained or received training, which includes at least:

- a) how to access and egress the suspended platform safely;
- b) how to correctly operate the controls and safety devices of the equipment;
- c) information on the dangers related to the misuse of safety devices; and

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_



d) information on the procedures to be followed in the case of:

- an emergency;
- the malfunctioning of equipment;
- the discovery of a suspected defect in the equipment; and
- instructions on the proper use of body harnesses.

A contractor must ensure that where the outriggers of a suspended platform are to be moved, only persons trained and under the supervision of the competent person effect such move, within the limitation stipulated in the operational compliance plan, and that the supervisor must carry out an inspection and record the result thereof prior to re-use of the suspended platform.

A contractor must ensure that the suspended platform is properly isolated after use at the end of each working day in such a manner that no part of the suspended platform presents a danger to any person thereafter.

#### **4.10 Rope Work (CR18)**

A contractor must appoint a competent person in writing as a rope access supervisor with the duty of supervising all rope access work on the site, including the duty of ensuring occupational health and safety compliance in relation to rope access work. Provided that the appointment of any such person does not relieve the construction manager of any personal accountability for failing in his management duties in terms of this regulation.

A contractor must ensure that all rope access work on the construction site is carried out under the supervision of a competent person; and ensure that all rope access operators are competent and licensed to carry out their work.

No contractor may use or allow the use of rope access work unless the design, selection and use of the equipment and anchors comply with the safety standards incorporated for this purpose into these Regulations under section 44 of the Act and he or she is in possession of a site specific fall protection plan developed by a competent person applicable to the specific work and environment prior to the commencement of the work, including records of maintenance and inspections of all the equipment used for the work operations.

A contractor must ensure that adequate measures are in place to allow rescue procedures to commence immediately in the event of a fall incident taking place.

#### **4.11 Material Hoists (CR20)**

A contractor must ensure that every material hoist and its tower have been constructed in accordance with the generally accepted technical standards and are strong enough and free from defects.

A contractor must ensure that the tower of every material hoist is erected on firm foundations and secured to the structure or braced by steel wire guy ropes, and extends to a distance above the highest landing to allow a clear and unobstructed space of at least 900 millimeters for over travel.

Is enclosed on all sides at the bottom, and at all floors where persons are at risk of being struck by moving parts of the hoist, except on the side or sides giving access to the material hoist, with walls or other effective means to a height of at least 2100 millimeters from the ground or floor level and provided with a door or gate at least 2100 millimeters in height at each landing, and that door or gate must be kept closed except when the platform is at rest at such a landing.

A contractor must cause the platform of every material hoist to be designed in a manner that it safely contains the loads being conveyed and that the combined mass of the platform and the load does not exceed the designed lifting capacity of the hoist. The hoisting rope of every material hoist which has a remote winch to be effectively protected from damage by any external cause to the portion of the hoisting rope between the winch and the tower of

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

the hoist and every material hoist to be provided with an efficient brake capable of holding the platform with its maximum load in any position when power is not being supplied to the hoisting machinery.

No contractor may require or permit trucks, barrows or material to be conveyed on the platform of a material hoist and no person may so convey trucks, barrows or material unless those articles are secured or contained in a manner that displacement thereof cannot take place during movement.

A contractor must cause a notice, indicating the maximum mass load which may be carried at any one time and the prohibition of persons from riding on the platform of the material hoist, to be affixed around the base of the tower and at each landing.

A contractor of a material hoist may not require or permit any person to operate a hoist, unless the person is competent in the operation of that hoist. No contractor may require or permit any person to ride on a material hoist.

A contractor must ensure that every material hoist is inspected on daily basis by a competent person appointed in writing by the contractor and such competent person must have the experience pertaining to the erection and maintenance of material hoists or similar machinery. Inspection includes the determination of the serviceability of the entire material hoist, including guides, ropes and their connections, drums, sheaves or pulleys and all safety devices. Inspection results are entered and signed in a record book by a competent person, which book must be kept on the premises for that purpose and is properly maintained and the maintenance records in this regard are kept on site.

#### **4.12 Bulk Mixing Plant (CR20)**

A contractor must ensure that the operation of a bulk mixing plant is supervised by a competent person who has been appointed in writing and is aware of all the dangers involved in the operation thereof; and conversant with the precautionary measures to be taken in the interest of health and safety.

No person supervising or operating a bulk mixing plant may authorize any other person to operate the plant, unless that person is competent to operate a bulk mixing plant.

A contractor must ensure that the placement and erection of a bulk mixing plant complies with the requirements set out by the manufacturer and that such plant is erected as designed.

A contractor must ensure that all devices to start and stop a bulk mixing plant are provided and that those devices are placed in an easily accessible position and constructed in a manner to prevent accidental starting.

A contractor must ensure that the machinery and plant selected is suitable for the mixing task and that all dangerous moving parts of a mixer are placed beyond the reach of persons by means of doors, covers or other similar means.

No person may remove or modify any guard or safety equipment relating to a bulk mixing plant, unless authorized to do so by the appointed person.

A contractor must ensure that all precautionary measures stipulated for confined spaces as determined in the General Safety Regulations, 2003, are complied with when entering any silo.

A contractor must ensure that a record is kept of all repairs or maintenance to a bulk mixing plant and that the record is available on site to an inspector, the client, the client's agent or any employee.

#### **4.13 Explosive Actuated Fastening Device (CR21)**

No contractor may use or permit any person to use an explosive actuated fastening device, unless the user is provided with and uses suitable protective equipment. The user is trained

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

in the operation, maintenance and use of such a device.

The explosive actuated fastening device is provided with a protective guard around the muzzle end, which effectively confines any flying fragments or particles; and the firing mechanism is so designed that the explosive actuated fastening device will not function unless it is held against the surface with a force of at least twice its weight and the angle of inclination of the barrel to the work surface is not more than 15 degrees from a right angle.

A contractor must ensure that only cartridges suited for the relevant explosive actuated fastening device, and the work to be performed, are used. An explosive actuated fastening device is cleaned and examined daily before use and as often as may be necessary for its safe operation by a competent person who has been appointed for that purpose. The safety devices of an explosive actuated fastening device are in good working order prior to use.

When not in use, an explosive actuated fastening device and its cartridges are locked up in a safe place, which is inaccessible to unauthorized persons. An explosive actuated fastening device is not stored in a loaded condition. A warning notice is displayed in a conspicuous manner in the immediate vicinity wherever an explosive actuated fastening device is used and the issuing and collection of cartridges and nails or studs of an explosive actuated fastening device are:

- a) controlled and done in writing by a person having been appointed in writing for that purpose; and
- b) recorded in a register by a competent person and that the recipient has accordingly signed for the receipt thereof as well as the returning of any spent and unspent cartridges.

#### **4.14 Cranes, lifting machinery and equipment (CR22&DMR18)**

A contractor must, in addition to compliance with the Driven Machinery Regulations, 1988 ensure that where tower cranes are used they are designed and erected under the supervision of a competent person. A relevant risk assessment and safe work procedures are developed and applied.

The effects of wind forces on the crane are taken into consideration and that a wind speed device is fitted that provides the operator with an audible warning when the wind speed exceeds the design engineer's specification. The bases for the tower cranes and tracks for rail-mounted tower cranes are firm, level and secured.

The tower crane operators are competent to carry out the work safely and the tower crane operators have a medical certificate of fitness to work in such an environment, issued by an occupational health practitioner in the form of Annexure 3. All mobile cranes, power driven lifting machinery, mechanical lifting devices, lifting tackle and similar must be strictly maintained as per the Driven Machinery regulation 18. As legislated, operators must be competent. Formal safe work procedures are to be determined relative to the process in question.

All lifting machinery and tackle is to be subject to routine inspections by a competent person, as well as annual performance testing. The contractor is to determine a safe work procedure relative to the risks associated with this process. Lifting machinery must strictly comply too the criteria of Driven Machinery Regulation 18 and 19.

#### **4.15 Construction Vehicles and Mobile Plant (CR23)**

A contractor must ensure that all construction vehicles and mobile plant:

- a) are of an acceptable design and construction;
- b) are maintained in a good working order;
- c) are used in accordance with their design and the intention for which they were designed, having due regard to safety and health;

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

- d) are operated by a person who has received appropriate training, is certified competent and in possession of proof of competency and is authorized in writing to operate those construction vehicles and mobile plant; and
- e) has a medical certificate of fitness to operate those construction vehicles and mobile plant, issued by an occupational health practitioner in the form of Annexure 3
- f) have safe and suitable means of access and egress;
- g) are properly organized and controlled in any work situation by providing adequate signaling or other control arrangements to guard against the dangers relating to the movement of vehicles and plant, in order to ensure their continued safe operation;
- h) are prevented from falling into excavations, water or any other area lower than the working surface by installing adequate edge protection, which may include guardrails and crash barriers;
- i) are fitted with structures designed to protect the operator from falling material or from being crushed should the vehicle or mobile plant overturn;
- j) are equipped with an acoustic warning device which can be activated by the operator;
- k) are equipped with an automatic acoustic reversing alarm; and
- l) are inspected by the authorized operator or driver on a daily basis using a relevant checklist prior to use and that the findings of such inspections are recorded in a register kept in the construction vehicle or mobile plant.

A contractor must ensure that no person rides or is required or permitted to ride on a construction vehicle or mobile plant otherwise than in a safe place provided thereon for that purpose. Every construction site is organized in such a way that, as far as is reasonably practicable, pedestrians and vehicles can move safely and without risks to health. The traffic routes are suitable for the persons, construction vehicles or mobile plant using them, are sufficient in number, in suitable positions and of sufficient size. Every traffic route is where necessary, indicated by suitable signs.

All construction vehicles and mobile plant left unattended at night, adjacent to a public road in normal use or adjacent to construction areas where work is in progress, have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, in order to identify the location of the vehicles or plant. All construction vehicles or mobile plant when not in use, have buckets, booms or similar appendages, fully lowered or blocked, controls in a neutral position, motors stopped, wheels chocked, brakes set and ignition secured. Whenever visibility conditions warrant additional lighting, all mobile plant is equipped with at least two headlights and two taillights when in operation. Tools, material and equipment are secured and separated by means of a physical barrier in order to prevent movement when transported in the same compartment with employees.

Vehicles used to transport employees have seats firmly secured and adequate for the number of employees to be carried and all construction vehicles or mobile plant traveling, working or operating on public roads comply with the requirements of the National Road Traffic Act, 1996.

#### **4.16 Electrical Installations and Machinery on Construction Sites (CR24)**

A contractor must, in addition to compliance with the Electrical Installation Regulations, 2009, and the Electrical Machinery Regulations, 1988, promulgated by Government Notice No. R. 1593 of 12 August 1988 ensure that before construction commences and during the progress thereof, adequate steps are taken to ascertain the presence of and guard against danger to workers from any electrical cable or apparatus which is under, over or on the site.

All parts of electrical installations and machinery are of adequate strength to withstand the working conditions on construction sites. The control of all temporary electrical installations on the construction site is designated to a competent person who has been appointed in writing for that purpose.

All temporary electrical installations used by the contractor are inspected at least once a

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week by a competent person and the inspection findings are recorded in a register kept on the construction site; and all electrical machinery is inspected by the authorized operator or user on a daily basis using a relevant checklist prior to use and the inspection findings are recorded in a register kept on the construction site.

#### **4.17 Use and Temporary Storage of Flammable Liquids on Construction Sites (CR25)**

A contractor must, in addition to compliance with the provisions for the use and storage of flammable liquids in the General Safety Regulations, 2003, ensure that where flammable liquids are being used, applied or stored at the workplace concerned, it is done in a manner that does not cause a fire or explosion hazard, and that the workplace is effectively ventilated.

No person smokes in any place in which flammable liquid is used or stored, and the contractor must affix a suitable and conspicuous notice at all entrances to any such areas prohibiting such smoking. An adequate amount of efficient fire-fighting equipment is installed in suitable locations around the flammable liquids store with the recognized symbolic signs.

Only the quantity of flammable liquid needed for work on one day is taken out of the store for use. All containers holding flammable liquids are kept tightly closed when not in actual use and, after their contents have been used up, are removed from the construction site and safely disposed of.

Where flammable liquids are decanted, the metal containers are bonded and earthed and no flammable material, including cotton waste, paper, cleaning rags or similar material is stored together with flammable liquids.

#### **4.18 Water Environments (CR26)**

A contractor must ensure that where construction work is done over or in close proximity to water, provision is made for preventing persons from falling into water and the rescuing of persons in danger of drowning.

A contractor must ensure that where a person is exposed to the risk of drowning by falling into the water, the person is provided with and wears a lifejacket.

#### **4.19 Housekeeping and General Safeguarding on Construction Sites (CR27)**

A contractor must, in addition to compliance with the Environmental Regulations for Workplaces, 1987, promulgated by Government Notice No. R. 2281 of 16 October 1987 ensure that suitable housekeeping is continuously implemented on each construction site, including the proper storage of materials and equipment. The removal of scrap, waste and debris at appropriate intervals. Ensuring that materials required for use, are not placed on the site so as to obstruct means of access to and egress from workplaces and passageways.

Ensuring that materials which are no longer required for use do not accumulate on and are removed from the site at appropriate intervals. Ensuring that waste and debris are not disposed of from a high place with a chute, unless the chute complies with the requirements set out in regulation 14(6).

Ensuring that construction sites in built-up areas adjacent to a public way are suitably and sufficiently fenced off and provided with controlled access points to prevent the entry of unauthorized persons; and ensuring that a catch platform or net is erected above an entrance or passageway or above a place where persons work or pass under, or fencing off the danger area if work is being performed above such entrance, passageway, or place so as to ensure that all persons are kept safe in the case of danger or possibility of persons being struck by falling objects.

#### **4.20 Stacking and Storage on Construction Sites (CR28)**

A contractor must, in addition to compliance with the provisions for the stacking of articles in

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

the General Safety Regulations, 2003, ensure that a competent person is appointed in writing with the duty of supervising all stacking and storage on a construction site. That adequate storage area is provided. There are demarcated storage areas and storage areas are kept neat and under control.

#### **4.21 Fire Precautions on Construction Sites (CR29)**

A contractor must, in addition to compliance with the Environmental Regulations for Workplaces, 1987, ensure that all appropriate measures are taken to avoid the risk of fire. Sufficient and suitable storage is provided for flammable liquids, solids and gases.

Smoking is prohibited and notices in this regard are prominently displayed in all places containing readily combustible or flammable materials. In confined spaces and other places in which flammable gases, vapours or dust can cause danger:

- a) only suitably protected electrical installations and equipment, including portable lights, are used;
- b) there are no flames or similar means of ignition;
- c) there are conspicuous notices prohibiting smoking;
- d) oily rags, waste and other substances liable to ignite are without delay removed to a safe place; and
- e) adequate ventilation is provided.

A contractor must ensure that combustible materials do not accumulate on the construction site. Welding, flame cutting and other hot work are done only after appropriate precautions have been taken to reduce the risk of fire. Suitable and sufficient fire-extinguishing equipment is placed at strategic locations or as may be recommended by the Fire Chief or local authority concerned, and that such equipment is maintained in a good working order.

The fire equipment is inspected by a competent person, who has been appointed in writing for that purpose, in the manner indicated by the manufacturer thereof. A sufficient number of workers are trained in the use of fire-extinguishing equipment. Where appropriate suitable visual signs are provided to clearly indicate the escape route in the case of a fire.

The means of escape is kept clear at all times. And that there is an effective evacuation plan providing for all:

- a) persons to be evacuated speedily without panic;
- b) persons to be accounted for; and
- c) plant and processes to be shut down; and (m) a siren is installed and sounded in the event of a fire.

#### **4.22 Construction Employees' Facilities (CR30)**

A contractor must, in addition to the construction site provisions in the Facilities Regulations, 2004, promulgated by Government Notice No. R. 924 of 3 August 2004 provide at or within reasonable access of every construction site, the following clean, hygienic and maintained facilities:

- a) shower facilities after consultation with the employees or employees representatives, or at least one shower facility for every 15 persons;
- b) at least one sanitary facility for each sex and for every 30 workers;
- c) changing facilities for each sex; and
- d) sheltered eating areas.

A contractor must provide reasonable and suitable living accommodation for the workers at construction sites who are far removed from their homes and where adequate transportation between the site and their homes, or other suitable living accommodation, is not available.

#### **4.23 Notification of Asbestos Work (AR3) – if applicable**

No employer or self-employed person shall carry out any asbestos work unless he or she has notified the provincial director in writing thereof prior to the commencement of such

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

work. No employer or self-employed person shall require or permit any person to work in an environment in which he or she would be exposed to asbestos in excess of the prescribed occupational exposure limit.

An employer shall, before any employee is exposed or may be exposed to asbestos dust, after consultation with the health and safety committee established for that section of the workplace, ensure that the employee is adequately and comprehensively informed and trained, on both practical aspects and theoretical knowledge, with regard to:

- a) the contents and scope of these Regulations;
- b) the potential sources of exposure, including the recognition of derelict asbestos-containing materials;
- c) the potential health risk caused by exposure to asbestos, including the health risks to employees' families and others, which could result from taking home asbestos contaminated equipment and clothing, and the dramatically increased risk of lung cancer for asbestos workers who smoke;
- d) the measures taken by the employer to protect an employee against any risk from exposure;
- e) the precautions to be taken by the employee to protect himself or herself against the health risks associated with the exposure, which precautions include the wearing and use of protective clothing and respiratory protective equipment;
- f) the necessity, correct use, maintenance and limitations of protective equipment, facilities and engineering control measures provided;
- g) the assessment of exposure, the purpose of air sampling, the necessity for medical surveillance and the long term benefits and limitations thereof;
- h) the occupational exposure limit and its meaning;
- i) the importance of good housekeeping at the workplace and personal hygiene;
- j) the safe working procedures regarding the use, handling, processing, and storage of any material containing asbestos, which procedures include the correct use of control measures to limit the spread of asbestos dust outside the work area, and to limit the exposure of workers inside the work area as far as is reasonably practicable;
- k) procedures to be followed in the event of an accidental spillage or any other similar emergency situation likely to result in the release of asbestos dust;
- l) procedures for reporting and correcting defects likely to result in the release of asbestos dust;
- m) safe disposal of asbestos waste;
- n) procedures for record keeping; and
- o) matters contemplated in regulation 6.

Refresher training on matters shall be given at least every year or at more frequent intervals that may be recommended by the health and safety committee.

Training should be given more frequently than once a year if:

- a) work methods change;
- b) the type of work carried out changes significantly; or
- c) The type of equipment used to control exposure changes.

Training shall be provided by somebody who is competent to provide it and has adequate personal practical experience and theoretical knowledge of all aspects of the work being carried out by the employer.

An employer or a self-employed person shall ensure, as far as is reasonably practicable, that his or her mandatory or any person other than employees who may be exposed to asbestos at the workplace are given adequate information, instruction and training.

An employer shall keep a record of any training, both practical and theoretical, that was given to an employee.

An employer or a self-employed person shall give instructions in writing of the procedures to

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

the drivers of vehicles carrying asbestos or asbestos-containing material that has the potential of causing environmental pollution or affecting human health.

## **5 APPOINTMENTS**

### **5.1 Legal and other appointments**

The Principal contractor is to include a site specific company organogram indicating the abovementioned appointments in their health and safety file.

Designations / Appointments (see Regulations of the Act)

Construction Manager	Construction Regulations 8(1)
Assistant Construction Manager	Construction Regulations 8(2)
Health & Safety Officer	Construction Regulations 8(5)
Construction Supervisor	Construction Regulations 8(7)
Assistant Construction Supervisor	Construction Regulations 8(8)
Risk Assessor	Construction Regulations 9(1)
Fall Protection Planner	Construction Regulations 10(1) (a)
Temporary Works Designer	Construction Regulations 12(1)
Temporary Works Supervisor	Construction Regulations 12(2)
Excavation Supervisor	Construction Regulations 13(1) (a)
Demolition Supervisor	Construction Regulations 14(1)
Scaffolding Supervisor	Construction Regulations 16(1)
Suspended Platform Supervisor	Construction Regulations 17(1)
Suspended Platform Inspector	Construction Regulations 17(8) (c)
Rope Access Supervisor	Construction Regulations 18(1) (a)
Rope Access Operator	Construction Regulations 18(1) (c)
Material Hoist Operator	Construction Regulations 19(6)
Material Hoist Inspector	Construction Regulations 19(8) (a)
Bulk Mixing Plant Supervisor	Construction Regulations 20(1)
Explosive Actuated Fastening Device Inspector	Construction Regulations 21(2) (b)
Explosive Actuated Fastening Device Issuer	Construction Regulations 21(2) (g)
Cranes – Design & Erection Supervisor	Construction Regulations 22(a)
Crane Operator	Construction Regulations 22(e)
Construction vehicle and mobile plant operators	Construction Regulations 23(1)
Control of Temporary Electrical Installations	Construction Regulations 24(c)
Stacking & Storage Supervisor	Construction Regulations 28(a)
Fire Equipment Inspector	Construction Regulations 29(h)
Health & Safety Representative	OHSACT Section 17(2)
First Aider	GSR Section 3(4)
Person Responsible for Machinery	GMR Section 2
Incident Investigator	GAR Section 9(2)
Hazardous Chemical Substances Supervisor	
Ladder Inspector	
Hand Tool Inspector	
Portable Electrical Equipment Inspector	
Safety Harness Inspector	

## **6 ANNEXURES**

### **6.1 Annexure 1 (GAR)**

### **6.2 Application for Permit to do Construction Work**

### **6.3 Notification of Construction work**

### **6.4 Medical Certificate of Fitness**

## **7 APPENDICES**

### **7.1 ELIDZ Occupational Health and Safety Policy**

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_



**ANNEXURE 1**

**OCCUPATIONAL HEALTH AND SAFETY ACT, 1993  
(ACT NO 85 OF 1993)**

**REGULATION 9 OF THE GENERAL ADMINISTRATIVE REGULATIONS  
RECORDING AND INVESTIGATION OF INCIDENTS**

**A. RECORDING OF INCIDENT**

1. Name of employer .....
2. Name of affected person.....
3. Identity number of affected person.....
4. Date of incident .....
5. Time of incident.....

6. Part of body affected	Head or Neck	Eye	Trunk	Finger	Hand
	Arm	Foot	Leg	Internal	Multiple

7. Effect on person	Sprains or strains	Contusion or wounds	Fractures	Burns	Amputation
	Electric shock	Asphyxiation	Unconsciousness	Poisoning	Occupational Disease

8. Expected period of disablement	0-13 days	2-4 weeks	>4-16 weeks	>16-52 weeks	>52 weeks or permanent disablement	Killed
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9. Description of occupational disease.....

10. Machine/process involved/type of work performed/exposure\*\* .....

11. Was the incident reported to the Compensation Commissioner and Provincial Director?

Yes	No
-----	----

12. Was the incident reported to the police?\*

Yes	No
-----	----

13. SAPS office and reference .....

\*to be completed in case of a fatal incident.\*\* in case of a hazardous chemical substance, indicate substance exposed to

Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

**B. INVESTIGATION OF THE ABOVE INCIDENT BY A PERSON DESIGNATED  
THERETO**

1. Name of investigator .....
2. Date of investigation .....
3. Designation of Investigator .....
4. Short description of incident  
.....  
.....  
.....
5. Suspected cause of incident  
.....  
.....  
.....
6. Recommended steps to prevent a recurrence  
.....  
.....  
.....  
.....

.....  
Signature of Investigator

.....  
Date

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**C. ACTION TAKEN BY EMPLOYER TO PREVENT THE RECURRENCE OF A SIMILAR  
INCIDENT**

.....  
.....  
.....  
.....

.....  
Signature of employer

.....  
Date

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**D. REMARKS BY HEALTH AND SAFETY COMMITTEE**

Remarks

.....  
.....  
.....  
.....

.....  
Signature of Chairperson of Health and Safety Committee

.....  
Date

## APPLICATION FOR A PERMIT TO DO CONSTRUCTION WORK

(In terms of Regulation 3(2) of Construction Regulations, 2014)

This application must be submitted with the following documents:

1. Health and Safety Specification
2. Health and Safety Plan
3. Baseline Risk Assessment

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1. Name, postal address and telephone numbers of the client:

.....  
.....  
.....  
.....

2. Details of the Agent:

a. Title, Surname and Initials .....

b. Identity number/Passport number .....

c. Registration number with SACPCMP .....

d. Office Tel. number and/or Mobile number .....

e. Postal address

.....  
.....  
.....  
.....

3. Name, postal address and telephone numbers of the appointed principal contractor:

.....  
.....  
.....  
.....

4. Name, postal address and telephone numbers of designer of the project:

.....  
.....  
.....  
.....

5. Name, postal address and telephone numbers of the following persons:

a. Construction Manager:.....

b. Construction Health and Safety Manager:.....

c. Construction Health and Safety Officer:.....

6. Exact physical address of the construction and site office:  
.....  
.....  
.....  
.....
7. Nature of construction work:  
.....  
.....  
.....  
.....
8. Expected commencement date:.....
9. Expected completion date:.....
10. Estimated maximum number of persons on the construction site: .....
11. Planned number of contractors on site accountable to principal contractor:.....
12. Name(s) of contractors appointed:  
.....  
.....  
.....  
.....  
.....  
.....
13. ....  
Signature of Client/Clients Agent
14. ....  
Signature of the Principal Contractor

---

**FOR OFFICE ONLY**

Authorisation/Unique No.	LABOUR CENTRE	OFFICIAL APPROVAL STAMP

15. Date of application: .....

16. Submitted documents prescribed in Construction Regulation 5(4) (Please Tick ✓):

CR 5 (1) (a)		CR 5 (1) (b)		CR 5 (1);(C-S)	
--------------	--	--------------	--	----------------	--

17. Result of the application (Please Tick ✓):

Approved		Declined	
----------	--	----------	--

18. Reason for declining the application:

.....

.....

.....

.....

.....

.....

19. ....

Signature of the Supervisor

20. ....

Signature of revoking Officer/Inspector

**NOTIFICATION OF CONSTRUCTION WORK**

(In terms of Construction Regulation 4 of Construction Regulations, 2014)

1. (a) Name and postal address of principal contractor:  
\_\_\_\_\_  
(b) Name and tel. no of principal contractors contact person:  
\_\_\_\_\_
2. Principal contractor's compensation registration number:  
\_\_\_\_\_
3. (a) Name and postal address of client:  
\_\_\_\_\_  
(b) Name and tel. no of clients contact person or agent:  
\_\_\_\_\_
4. (a) Name and postal address of designer(s) for project:  
\_\_\_\_\_  
(b) Name and tel. no of designer(s) contact person:  
\_\_\_\_\_
5. Name and telephone number of principal contractor's construction supervisor on site appointed in terms of regulation 8(1).  
\_\_\_\_\_
6. Name/s of principal contractor's sub-ordinate supervisors of site appointed in terms of regulation 8(2)  
\_\_\_\_\_
7. Exact physical address of the construction site or site office:  
\_\_\_\_\_

8. Nature of the construction work:

---

---

9. Expected commencement date:

---

10. Expected completion date:

---

11. Estimated maximum number of persons on the construction site

Total: \_\_\_\_\_ Male: \_\_\_\_\_ Female: \_\_\_\_\_

12. Planned number of contractors on the construction site accountable to principal contractor:

---

13. Name(s) of contractors already selected:

---

---

---

\_\_\_\_\_  
Principal Contractor

\_\_\_\_\_  
Date

\_\_\_\_\_  
Client's Agent (where applicable)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Client

\_\_\_\_\_  
Date

**THIS DOCUMENT IS TO BE FORWARDED TO THE OFFICE OF THE DEPARTMENT OF  
LABOUR PRIOR TO COMMENCEMENT OF WORKS ON SITE.**

# OCCUPATIONAL HEALTH & SAFETY ACT 85 OF 1993

## Construction Regulations 2014

### MEDICAL CERTIFICATE OF FITNESS

Name of Employee: \_\_\_\_\_ ID Number \_\_\_\_\_ Co. Number \_\_\_\_\_

	* Possible Exposures e.g. Noise, heat, fall risk, confined space, etc.	* Job Specific Requirements Operating mobile crane, digging trenches, erecting formwork and support work, etc.	*Protective Equipment eg. Dust respirator (light duty), welding gloves, etc.
*Occupation eg. General worker, welder, bricklayer, Steel fixer, mobile crane operator, etc.			

**\*The Employer to complete the information in the spaces marked with an \* before sending the Employee for a medical examination**

**Declaration by the Medical Examiner:**

I certify that I have, by examination and testing, using the above criteria specified by the employer, satisfied myself that the abovementioned employee is fit to perform the duties as described by the employer in the matrix above.

Occupational Medicine Practitioner / Occupational Health Nursing Practitioner: (Please print name) \_\_\_\_\_

Signature \_\_\_\_\_ Practice Number: \_\_\_\_\_ Date: \_\_\_\_\_

Address: \_\_\_\_\_

Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_



## **EAST LONDON INDUSTRIAL DEVELOPMENT ZONE (SOC) LTD**

### **OCCUPATIONAL HEALTH AND SAFETY POLICY**



The East London Industrial Development Zone (ELIDZ) (SOC) Ltd is a world class world class Operator of a prestigious industrial complex where highly competitive organisations thrive on streamlined business benefits and stimulate regional economic growth. ELIDZ aims to apply world-class occupational health and safety (OH&S) management practices within its Industrial Development Zone (IDZ), hence becoming the model for similar developments throughout Africa. The East London IDZ (ELIDZ) shall be developed and operated in a manner, which is economically and socially acceptable and sustainable. ELIDZ (SOC) Ltd recognizes that Occupational Health and Safety Management is an integral part of its overall business performance as any failure in this area will negatively impact on the Organization, its employees, tenants, contractors and the public.

**The ELIDZ (SOC) Ltd is committed to establish and maintain an OH&S Management System to:**

- Determine those occupational health and safety hazards related to the ELIDZ development and activities which may put the health and safety of ELIDZ (SOC) Ltd employees, contractors, tenants, visitors, and community at risk;
- Plan actions to mitigate negative occupational health and safety risks within the ELIDZ's jurisdiction;
- Monitor all ELIDZ tenant activities within ELIDZ's jurisdiction which can result in negative occupational health and safety risks;
- Provide a framework and the means for setting, monitoring and achieving objectives to improve OH&S performance;
- Ensure adherence to all OH&S legislation, government policy and other requirements relevant to the development and operation of the ELIDZ;
- Periodically monitor, audit and review progress.

In so doing, the ELIDZ (SOC) Ltd shall wherever reasonably practicable manage potentially detrimental effects on health and safety of all employees and communities affected by the ELIDZ development.

As a responsible corporate citizen the ELIDZ (SOC) Ltd shall work with companies operating within the ELIDZ and with all tiers of government to ensure appropriate management of OH&S risks within its scope of authority.

**The ELIDZ (SOC) Ltd shall pursue continual improvement through the use of:**

- Cost effective OH&S performance criteria; and
- Reduction of the risk of ill health, accidents and incidents.

This policy will be communicated to all employees and contractors working for or on behalf of the ELIDZ.

Top Management take full responsibility for the OH&S performance of the ELIDZ (SOC) Ltd and hereby assert that adherence to this OH&S Policy is mandatory to all ELIDZ employees and contractors. Top Management hereby further pledge on behalf of the ELIDZ (SOC) Ltd to integrate OH&S considerations into our decision-making processes.

This policy will be reviewed periodically as need arise to ensure it remains relevant and appropriate to the ELIDZ and will be distributed to the public on request.

**Simphiwe Kondlo**  
*Chief Executive Officer*

*SHE/DOC/01 rev 5 (05/01/2015)*

Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

### C3.3 Occupational Health and Safety COVID-19 Specification



**Issued in terms of the Occupational Health and Safety Act 85 of 1993 and the Disaster Management Act 57 of 2002: COVID-19 Occupational Health and Safety Measures in the Workplace**

**CONTRACT NO: ASP/YANGFENG/EXT/11/09/Z1A  
EXTENSIONS TO YANFENG MANUFACTURING FACILITY IN ZONE 1A OF  
THE ELIDZ**

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East London IDZ SOC Ltd  
Contact person: G Whittaker  
Fax No: 086 605 0942  
Email: gary@elidz.co.za

Contractor \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_ Employer \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_

Addendum OHS COVID-19 Site Management Specifications

Page 1

## 1 INTRODUCTION

Novel corona virus infection Involves your upper respiratory tract (nose, throat, airways, lungs). Caused by the newly discovered coronavirus, referred to as novel coronavirus, first identified in Wuhan, China, in December 2019.

COVID-19 is the infectious condition, which means it can be spread, directly or indirectly, from one person to another.

The COVID-19 has had and will continue to have an impact on our lives. We must all be responsible and ensure the safe return to our construction sites. Our actions and implemented controls will affect the lives of thousands of people in our communities.

This specification is written in conjunction with the Risk Adjusted Strategy Regulation promulgated under the Disaster Act and Regulation 43257, Vol, 658 Covid-19 Occupational Health and Safety Measures in Workplaces Covid-19, in the absence of a construction sector COVID-19/guidelines/regulations

## 2 DEFINITIONS (RELATED TO COVID-19)

**COVID-19** means the Novel Coronavirus (2019-nCov) which is an infectious disease caused by a virus, which emerged during 2019 and was declared a global pandemic by the WHO during the year 2020 that has previously not been scientifically identified in humans

**Disaster Management Act** means the Disaster Management Act, 2002 (Act No. 57 of 2002)

**Adequate space** means not more than one person per 1.5m<sup>2</sup> of floor space

**Gathering** means any assembly, concourse or procession of more than 100 persons, wholly or partially in open air or in a building or premises

**Isolation** means separating a sick individual with a contagious disease from healthy individuals without that contagious disease in such a manner as to prevent the spread of infection or contamination

**Worker** means any person who works in an employer's workplace including an employee of the employer or contractor, a self-employed person or volunteer

**Workplace** means any premises or place where a person performs work

**Quarantine** means separating asymptomatic individuals potentially exposed to a disease from non-exposed individuals in such a manner as to prevent the possible spread of infection or contamination

**Covid-19 Compliance officer**-who will oversee implementation of COVID-19 plan

**WHO** means the World Health Organisation

**Cleaning** means the removal of dirt and impurities from objects using water with detergents or soap but does not kill the virus

**Decontamination** means the use of chemicals to kill the virus after cleaning.

## 3 KEY REFERENCES

Occupational Health and Safety Act No. 85 of 1993 and Regulations (as amended)

Compensation for Injury and Occupational Diseases Act No. 100 of 1993 (as amended)

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/>

Advice and guidance from WHO on COVID-19

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019>

<https://www.epi-win.com/>

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Contractor \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_ Employer \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_

Addendum OHS COVID-19 Site Management Specifications

Page 2

Government Gazetted No. 43257, Vol, 658 Covid-19 Occupational Health and Safety Measures in Workplaces Covid-19 as well as the Risk Adjusted Strategy Regulation- issued by the Department of Cooperative Governance.

#### 4 SCOPE

This scope is in respect of:

Project: **EXPANSION OF SUNDALE DAIRY IN ZONE 1A OF THE ELIDZ**

- Provides the overarching framework within which the Principal Contractor is required to demonstrate compliance with COVID-19 requirements for occupational health and safety during construction work at the workplace (construction site);
- Establishes the way the Principal Contractor is to manage the COVID-19 risk of health and safety incidents during construction; and
- Establishes the way the Client's Health and Safety Agent will interact with The Principal Contractor on assessing compliance to the health and safety protocols for COVID-19.

The Principal Contractor (PC) is required adapt and change, implement and maintain a site-specific COVID 19 health and safety plan. The Client is providing this, an addendum to the site-specific health and safety specification to the Principal Contractor for the works to enable such a plan to be formulated. Accordingly, this specification on its own cannot ensure compliance with the COVID-19 regulations and in the absence of construction sector COVID-19 guidelines/ regulations (awaited).

The Construction Regulations, 2014, requires a Client to stop any contractor from executing construction work which is not in accordance with the contractor's health and safety plan for the site or which poses to be a threat to the health and safety of persons and this will now include all the COVID-19 health and safety workplace regulations.

#### 5 INTERPRETATION

The Act and its associated regulations shall have precedence in the interpretation of any ambiguity or inconsistency between it and this specification.

##### 5.1 Purpose of the addendum

The COVID-19 addendum is a performance specification to ensure that the Client and any bodies that have entered into formal agreements with the Client / Agents, Professional Service Consultants (Engineers, Quantity Surveyors and Architects), Principal Contractors and Contractors achieve an acceptable level of OHS COVID-19 performance.

No advice, approval of any document required by the Project Specific Health and Safety Specification (PSHSS), such as hazard identification and risk assessments, or any other form of communication from the Client shall be construed as acceptance by the Client of any obligation that absolves the Principal Contractor from achieving the required level of performance and compliance with legal requirements. Furthermore, there is no acceptance of liability by the Client, which may result from the Principal Contractor failing to comply with the COVID-19 H&S addendum, i.e. the Principal Contractor remains responsible for achieving the required performance levels.

Requirements may be changed/updated should new risks or issues be identified that could not have been foreseen during this risk adjusted strategy approach. Any new legislation or standards (legislated or determined by the Client) that are promulgated or accepted during the contract will automatically be applied.

It should be noted that this COVID-19 health and safety requirements in no way relieves the Contractor of any of his responsibilities set out in the Act and Regulations.

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Contractor \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

Addendum OHS COVID-19 Site Management Specifications

Page 3

## 5.2 COVID-19 Baseline Risk Assessment

Refer to **Annexure A** for the COVID-19 Baseline Risk Assessment.

## 5.3 COVID-19 Schedule of Quantities

Refer to **Annexure B** for the COVID-19 pricing template.

## 5.4 Requirements

A project specific COVID-19 H&S Plan in response to this addendum will be subject to approval by the CHS Agent. This must include all supporting documentation as required to verify the H&S system.

## 6 COVID-19 H&S PLAN

### 6.1 General Requirements

#### 6.1.1 Risks

Risks must include:

- Identification of exposure levels
- Identification of "high contact" activities

Identification of vulnerable workers and special measures for their protection, including protection against unfair discrimination or victimization.

The Principal Contractor is to utilize this addendum and the COVID-19 baseline risk assessment in preparation of his documents.

The Principal Contractor is to provide a detailed updated COVID-19 risk assessment for the works on site.

### 6.2 Occupational Health & Safety Management

#### 6.2.1 Appointment of Competent Site Personnel as per the COVID-19 regulations

Covid-19 Compliance Officer (Separate to CHSO)

Will oversee the:

- implementation of the plan;
- adherence to the standards of hygiene and health protocols relating to COVID-19 at the workplace;
- develop a plan for the phased-in return of their employees to the workplace, prior to reopening the workplace for business, which plan must contain the following information:
  - which employees are permitted to work;
  - what the plans for the phased-in return of their employees to the workplace are;
  - what health protocols are in place to protect employees from COVID-19;
  - phase in the return of their employees to work to manage the return of employees from other provinces, metropolitan and district areas; and
  - develop measures to ensure that the workplace meets the standards of health protocols, for adequate space (number of mobile toilets and frequency of disinfecting) for employees and social distancing, hand washing, wearing of face masks measures as required.

### 6.3 General Risk Management

#### 6.3.1 Health Risks and Medical Surveillance-Symptom Screening

The following is to be provided:

- formation of a COVID-19 response team within the ELIDZ (ELIDZ official, SHEQ Manager, the Pr CHSA and the COVID-19 Compliance Officer);
- a security fence and access gate to control all people arriving and leaving site;

Contractor \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

- a decontamination tunnel for people arriving and leaving the site;
- screening will be conducted at the entry point;
- for further tracing and testing, where applicable, symptomatic workers will be referred to off-site medical practitioners and related support staff for further testing and contact tracing;
- screening will enable the tracing, identification and quarantining of people who encounter the infected employee; and
- refer to Annexure C for symptom screening template.

### 6.3.2 Emergency Procedures

An emergency plan and procedure that is appropriate to the risks of COVID-19 is required prior to resumption on site. It is advised that the system should be simple and easy for any worker to follow.

Local emergency telephone numbers with COVID-19 must be displayed and made part of the emergency procedure.

The general principals of emergency management are to be applied as it applies to the hierarchy of control and management.

### 6.4 First Aiders and First Aid Equipment

First aiders will be permitted to wear N95 or medical face masks when attending to cases on site.

### 6.5 Emergency Management

Attention to emergency planning and procedures is very important during this Risk Adjusted Strategy level 4 of COVID-19 Requirement in terms of identified risks:

- Suitable areas of assembly with adequate space for distancing during roll call.

The emergency plan is to ensure the inclusion of COVID response team and the nearest COVID testing sites. Such arrangements should be made with these persons prior to the commencement of the project.

#### 6.5.1 Incident Management and COVID-19 Compensation

The Principal Contractor (PC) must notify its employees that if they are sick or have symptoms associated with COVID-19 that they must not come to work and to take paid sick leave in terms of section 22 of the BCEA.

If the employee is already at work, the PC must immediately isolate the worker, provide the employee with a FFP1 surgical mask and arrange for the employee to be transported in manner that does not place other employees at risk to an identified testing site.

If a employee has been diagnosed with COVID-19, the PC must inform the Department of Health and the Department of Employment and Labour.

Investigate the cause including any control failure and review its risk assessment to ensure that the necessary controls and PPE requirements are in place.

It must give administrative support to any contact tracing measures implemented by the Department of Health.

If an employee has been diagnosed with COVID-19 and isolated in accordance with Department of Health Guidelines, the PC may only allow the employee to return to work on the following conditions:

- The employee has undergone a medical evaluation confirming that the worker has been tested negative for COVID-19;
- The PC ensures all health and safety protocol are adhered to; and

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Contractor \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_ Employer \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_

- The PC closely monitors the employee for symptoms on return.

The PC must ensure that no employee is discriminated against on grounds of having tested positive for COVID -19 in terms of section 6 of the Employment Equity Act.

### 6.5.2 Personal Protective Equipment (PPE) and Clothing

The PC is to provide PPE to all employees free of charge based on a risk assessment.

The wearing of the identified COVID-19 PPE is non-negotiable:

- Cloth face masks for all (including visitors, suppliers entering site);
- Full face shields and cloth masks in relation to the construction activity; and
- Disinfection spray booths as an additional precaution.

### 6.6 Occupational Health and Safety Signage

On-site H&S signage to now include more COVID-19 workplace information.

Hereunder are examples:



Contractor \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

## **6.7 Induction of Employees and Visitors, General H&S Training**

A simple, formal re - induction is to be done in relation to the COVID-19 health and safety risks.

Education communication of COVID-19 hazards to employees and training on handwashing and respiratory etiquette, properly wearing, inspecting, and maintaining the cloth face masks.

The PC to utilize technology and be innovative to reduce the number of employees at any given time in a meeting room.

## **6.8 Transportation of Employees**

To cater for the directive return to work, the PC must provide a transportation plan as per the Transport Minister.

The transport must adhere to the hygienic conditions that must be adhered to and steps to be followed for the limitation of exposure of employees using public transport to COVID-19.

Form 2 – Permit to Perform an Essential or Permitted Service be completed for all employees and subcontractors.

## **6.9 Communication on Site**

The PC must keep clear records of all information, as the Labour Inspectors will be conducting inspections of the respective workplaces.

## **6.10 Care of Workers on Site (Welfare)**

### Social Distancing

Workplaces must be arranged to ensure a minimum of 1.5 meters between employees. If this is not practicable, physical barriers must be erected and workers must be supplied free of charge with appropriate Personal Protective Equipment (PPE).

Social distancing must be implemented in all common areas in and around the workplace to prevent crowding (including working spaces, canteens, meeting rooms etc.).

The PC must provide alternatives for shift work and rotation of employees.

### Sanitizers and Disinfectants

Provide enough quantities of hand sanitizer with at least 70% alcohol content.

Ensure that work surfaces, equipment and common areas such as toilets, door handles and shared equipment are regularly cleaned and disinfected.

Provide adequate facilities for hand washing with soap and clean water and enough paper towels and bins.

### Masks

Employees must wear cloth masks at work. The PC must also require members of the public entering a workplace to wear cloth masks.

Employers must provide each employee, free of charge, with at least two cloth masks to wear while at work or commuting. There must be suitable arrangements for washing and drying masks. Ultimately, the PC remains responsible for the maintenance and upkeep of PPEs. Where a risk assessment indicates, workers must be provided with alternative appropriate PPE (e.g. N95 or N97 masks) to provide a greater level of protection.

### Canteens and Lavatories

The PC to divide the workforce into groups, Staggering breaktimes to avoid concentration/congregation of workers in common areas.

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Contractor \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_ Employer \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_



The PC must ensure adequate number of mobile toilets (regulated number of toilets plus two) and must also provide a disinfecting schedule (minimum 2-hourly disinfecting together with provision of mechanisms and instructions for self-disinfecting before and after use).

The PC to discourage sharing of cups/mugs at canteens.

In order to comply with above the PC to provide a detailed disinfection policy.

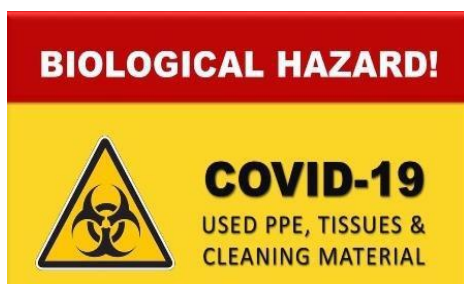
### **6.11 Discipline, Alcohol and Substance Abuse**

All employees (management included) are to follow instructions given in the interest of previous H&S and now COVID 19 H&S requirements. Disciplinary action is to be imposed on those who do not follow such instructions or company rules or policies.

### **6.12 Hazardous Waste Management and Disposal**

All discarded personal items such as used PPE (disposable dust masks and gloves, etc.), used paper towels or alcohol-based wipes, etc. must be treated as hazardous waste and disposed of as such.

The Principal Contractor must provide separate and appropriately labelled hazardous waste bins (symbolic signage to be used where appropriate – see example below) on site and ensure that waste is disposed of at a registered hazardous waste site and a hazardous waste disposal certificate must be obtained and kept on site for verification.



Workers who handling hazardous waste on site must be provided with proper instruction and suitable PPE.

### **6.13 Non-Conformances**

If the PC does not comply with the COVID-19 requirements they may be ordered to close their Site.

In addition, as the failure to comply fully with the OHSA (Occupational Health and Safety Act) is a criminal offence, failure to take the necessary measures to prevent the transmission of COVID19 may result in criminal prosecution.

## **7 SECURITY AND SCREENING DEVICE**

### **7.1 Temporary Security Fencing**

Access to the site will be restricted by means of a temporary security fence.

### **7.2 Access Control, Decontamination and Screening**

Access, screening and disinfection at the entry point to be implemented:

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Contractor \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_ Employer \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_

## **8 ANNEXURE A: BASELINE RISK ASSESSMENT**

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Contractor \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_ Employer \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_  
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## ANNEXURE A: COVID-19 BASELINE RISK ASSESSMENT

Note: This is a broad overview the anticipated hazards and risk issues for resuming work under lock down COVID-19 restrictions. Key issues will be addressed in this COVID-19 Risk Assessment, however this should not be seen as exhaustive. This will be reviewed and adjusted with any new COVID-19 regulations as gazetted by Government

#	ITEM	HAZARD /ISSUE	RISK/ISSUE	Raw Risk			ACTION REQUIRED	RESPONSIBLE	Residual Risk			RESIDUAL ACTION
				LIKELIHOOD (P)	IMPACT (I)	RISK (P X I)			LIKELIHOOD (P)	IMPACT (I)	RISK (P X I)	
1	Occupational Health-Screening	Workers symptom free but infected with COVID-19, older workers of 60+, workers with underlying auto-immune or chronic diseases	Increased risk of transmission to others and family, compromising the vulnerable.	10	10	100	H&S Plan update, Policy and method statement to be available relating to screening surveillance. All workers are to be symptom screened at the time that they report to work , to ascertain whether they have any of the observable symptoms associated with COVID 19, namely- fever , cough , sore throat, redness of eyes or shortness of breathing.PC to provide methodology to remove staff from site safely to an identified test site.  Staff in exposed age group and compromised health condition to be considered high risk and managed appropriately.	PC  PC	5  5	5  5	25  25	Manage the risk
2	Demographics of labour	Vulnerability due to age, underlying auto-immune or chronic diseases, socio-economic status, having to use public transport to get to work	Increased exposure, increased infected positive persons	10	10	100	The screening surveillance policy and method statement to be adhered to. Daily temperature checks on entry to site. Induction, DSTIs and toolbox talks to be done daily on topics relating to covid, personal hygiene and PPE. Strict enforcement for use of PPE Job substitution if possible for those who are affected. Must include catering and cleaning facilities.  Staff in exposed age group and compromised health condition to be considered high risk and managed appropriately.	PC	5	5	25	Manage the risk
3	Accommodation	Social density - inability to maintain social distancing in local communities, cross contamination from the lack of social distancing, shared utilities and belongings, shared ablutions, cross infection among inhabitants and cleaning, catering staff	Workers older than 60 years and workers with compromised health/immune condition statistically has a low chance to recover. Increased risk of transmission to others	10	10	100	Policy and method statement for accommodation. Sleeping and dining quarters to allow for minimum 1.5m space between persons. Dedicated bedding, towels, utensils, soaps etc. Individual facilities for safe keeping. Individual, segregated facilities for storage of laundry. Procedures and rules of occupancy and cleaning. Induction and primary health promotion to be done regularly. Isolation area to be available should anyone display symptoms, and safe removal for testing. Food to be served wrapped and available individually.  Staff in exposed age group and compromised health condition to be considered high risk and managed appropriately.	PC	5	5	25	Manage the risk
4	Origin of labour	Transportation of employees/workers across borders and between towns and cities, districts and municipalities.	Workers older than 60 years and workers with compromised health/immune condition statistically has a low chance to recover. Transmission to others and families.	5	10	50	Selection and provision of transport services compliant with gazetted requirements. Policy and procedures and rules for travel, where possible to limit the use of public transport, or to arrange selective methods of transport, ongoing toolbox talks and if possible supply of cloth masks to be worn when travelling. Limitation of border crossing unless specialised contractors.  Staff in exposed age group and compromised health condition to be considered high risk and managed appropriately.	PC	2	5	10	Accept the risk
5	Transportation	Maximum allowed capacity exceeded. No facilities for sanitising vehicles and passengers. No additional protective measures available, e.g. face masks. Unlicensed drivers and operators.	Workers older than 60 years and workers with compromised health/immune condition statistically has a low chance to recover.	10	10	100	Selection and provision of transport services compliant with gazetted requirements. Policy and procedures and rules for travel, where possible to limit the use of public transport, or to arrange selective methods of transport, ongoing toolbox talks and supply of cloth masks to be worn when travelling or moving on and off site. Vehicles maintained at 70% capacity or less. Vehicles sanitised between trips. Hand sanitiser provided for passengers.  Staff in exposed age group and compromised health condition to be considered high risk and managed appropriately.	PC	5	5	25	Manage the risk

#	ITEM	HAZARD /ISSUE	RISK/ISSUE	Raw Risk			ACTION REQUIRED	RESPONSIBLE	Residual Risk			RESIDUAL ACTION
				LIKELIHOOD (P)	IMPACT (I)	RISK (P X I)			LIKELIHOOD (P)	IMPACT (I)	RISK (P X I)	
6	Social distancing	Many construction tasks require more than one worker, that will be required to work within the limit of 2m. Access/egress to and off site. Welfare facilities, meeting areas.	Workers older than 60 years and workers with compromised health/immune condition statistically has a low chance to recover. Transmission to others and families.	7	10	70	Policy and method statements for the provision of suitable and sufficient PPE. Demarcation and spacing of queueing areas. Segregation of queueing areas and public outside site perimeters. Meeting/eating areas large enough to maintain 2m distance at maximum occupancy, use of drones, security cameras to limit the need to spend time on site. Only essential workers to spend time on site. Staggered meeting/eating times, use of Zoom, Skype, teams for meetings where necessary. Individual, segregated facilities for safe keeping. Induction training and a programme for information and training.	PC	2	5	10	Accept the risk
7	Alcohol and substance abuse	Workers, visitors arriving at site under the influence of substances.	Workers older than 60 years and workers with compromised health/immune condition statistically has a low chance to recover. Transmission to others and families.	5	10	50	Policy and method statement for substance abuse to be reviewed, management of visitors, workers under the influence of alcohol or other substances. No breathalysers unless individual testing units used, and appropriate disposal in hazardous waste.		2	2	4	Accept the risk
8	Waste management	Spreading of virus and contact with virus causing infection from handwashing, drying hands, cleaning equipment and other related aspects.	Workers older than 60 years and workers with compromised health/immune condition statistically has a low chance to recover. Transmission to others and families.	7	10	70	Prepare a policy, method statements, HIRA and review by PA. Establish and follow protocols for disposal of hazardous waste (containers). Awareness through notices (posters) regarding correct procedures and classification of waste. Competent supervision and adequate awareness training required. Provide adequate supplies of material and consumables, provision of sealable disposal containers/bags through appropriate waste removal company. Provide adequate supply of paper towels. Ensure appropriate management.	PC	5	5	25	Manage the risk
9	Signage	Provision of sealable disposal containers/bags, unintentional entry to site and work areas compromising workers being contaminated. Acts and behaviours that compromises workers.	Workers older than 60 years and workers with compromised health/immune condition statistically has a low chance to recover.	10	10	100	A policy and method statement to be prepared. Display of posters and signage with the site rules and protocols that needs to be maintained at strategic points. Awareness through notices and posters regarding correct protocols to be maintained. Competent supervision and adequate awareness training required. Discipline to be applied to those not complying.  Temporary security fence around construction sites (sub-zone) to avoid free movement of people.	PC  ELIDZ	5	5	25	Manage the risk
10	Security access	Workers, visitors, site administration arriving on site via personal and public transportation.	Workers older than 60 years and workers with compromised health/immune condition statistically has a low chance to recover. Transmission to others and families.	10	10	100	Policy and method statements to be revised and reviewed by the PA. All persons entering site to sanitize hands, prior to entry to site. Access controller trained on correct procedure to utilize no-contact hand-held thermometer. Back-up access controllers trained on same procedure. All persons entering site screened by trained access controller. Periodic alcohol testing will continue however only when warranted through suspicion.	PC and ELIDZ	5	5	25	Manage the risk
11	Welfare facilities	Spreading of virus and contact with virus causing infection.	Workers older than 60 years and workers with compromised health/immune condition statistically has a low chance to recover. Transmission to others and families.	10	10	100	Updating of policy, method statements and HIRA, limiting of personnel on site to minimum number required to maintain control and management. Implement and maintain cleaning and disinfecting programme (esp. frequency). Site rules for social distancing to 1.5m. Stagger number of people attending induction and training sessions. Use technology to avoid close proximity between individuals where possible. Number of toilets on sites to be increased.	PC	5	5	25	Manage the risk

#	ITEM	HAZARD /ISSUE	RISK/ISSUE	Raw Risk			ACTION REQUIRED	RESPONSIBLE	Residual Risk			RESIDUAL ACTION
				LIKELIHOOD (P)	IMPACT (I)	RISK (P X I)			LIKELIHOOD (P)	IMPACT (I)	RISK (P X I)	
12	Emergency planning	Assembly points may have more than 50 people, limited space for social distancing when practice or actual sessions	Workers older than 60 years and workers with compromised health/immune condition statistically has a low chance to recover.	5	10	50	Review emergency plan and method statements. DSTIs and toolbox talks. Competent supervision to be trained in the emergency arrangements. Updating of the emergency plan communicated to all personnel. Emergency Number List updated to include National Institute of Communicable Diseases (NICD) Emergency Hotline – 0800 029 999 and dedicated Isolation Hospital Details	PC	5	5	25	Manage the risk
13	Personal protective equipment	Spread of droplet infection through coughing, sneezing when in close contact.	Workers older than 60 years and workers with compromised health/immune condition statistically has a low chance to recover. Transmission to others and family.	10	10	100	Update the policy, method statements and HIRA for PPE. No employee and or visitor will be allowed on site without a face mask. N95 masks only for medical or high risk workers. Adequate training must be provided in the correct use and disposable of these masks. Cloth masks must washed and ironed daily. Face shields protect mouth, nose and eyes. Daily cleaning of face shields No sharing of PPE will be permitted. Adequate supervision, inclusion induction, policy, method statements and HIRAs. Covid PPE does not replace conventional PPE as per Construction activity HIRA.	PC	2	5	10	Accept the risk
13	Construction vehicle plant Fleet vehicles	Spread of droplet infection in fleet vehicles & driven machinery. Rotation of operators- no 1 operator allocated to plant /fleet for entire project duration. Lack of awareness amongst operators. Failure to disinfect construction vehicles and mobile plant.	Operators allowing others inside operator cabs that are designed for one person may increase the risk of contamination and infection. Contaminated surfaces due to failure to disinfect.	8	10	80	Updated policy, method statements and HIRA; Proper induction of operators, toolbox talks and relevant DSTIs; Implementation and maintenance of disinfecting programme for construction vehicles and mobile plant; Operators to also wear prescribed PPE at all times; Supervision to monitor and control;	PC	5	6	30	Manage the risk
14	Consequence management	Non compliance issues not promptly addressed.	All workers, suppliers, contractors; Workers older than 60 years and workers with compromised health/immune condition statistically has a low chance to recover. Transmission to others and family.	7	10	70	Revision of policy, method statements and HIRA. PC must ensure that workers are updated daily with all the relevant COVID-19 information through DSTIs/Toolbox talks, notices etc.. PC must ensure that site is updated daily with all the relevant COVID-19 information. Workers should be updated with new information daily. PC must ensure that company disciplinary procedures are in place. All employees should have knowledge of the company disciplinary procedures. Work stoppage/site closure where non compliance exists.	PC	2	5	10	Accept the risk
<b>LEGEND</b>												
								Eliminate Risk (> 50)				
								Mitigate Risk (31 - 50)				
								Manage/Deflect Risk (11 - 30)				
								Accept risk (< 11)				

## 9 ANNEXURE B: COVID-19 SCHEDULE OF QUANTITIES

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Contractor \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_ Employer \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_

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ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	TOTAL
	<b>PRELIMINARY &amp; GENERAL ITEMS</b>				
<b>1</b>	<b>Occupational Health &amp; Safety Obligations</b>				
1.1	Update of the Contractor's site specific COVID-19 Health and Safety Plan	Sum	1		
1.2	Principal Contractor's initial obligations in respect of the COVID-19 Workplace Regulations and COVID-19 Construction Sector Regulations	Sum	1		
1.3	Principal Contractor's time related obligations in respect of the COVID-19 Workplace Regulations (Anticipated Period)	Month	4		
<b>2</b>	<b>COVID-19 Compliance Officer (In Addition to H&amp;S Officer)</b>				
2.1	Provision of a full time COVID-19 Compliance Officer (Anticipated Period)	Month	4		
<b>3</b>	<b>Provision of Personal Protective Equipment (PPE)</b>				
3.1	(a) Plastic face shield mask (quantity to be aligned with scaling in employment)	No			
3.2	(b) Disposable gloves (quantity to be aligned with scaling in employment)	No			
3.3	(c ) Cloth face masks (quantity to be aligned with scaling in employment)	No			
<b>4</b>	<b>Cost of medical certificates and medical surveillance</b>				
4.1	(a) Initial (baseline) medical examinations (quantity to be aligned with risk assessment and scaling in employment)	No			
4.2	(b) Periodic and exit examinations (quantity to be aligned with risk assessment and scaling in employment)	No			
<b>5</b>	<b>Education &amp; Training</b>				
5.1	Initial COVID-19 training (quantity to be aligned with risk assessment and scaling in employment)	No			
5.1	Weekly COVID-19 toolbox talks	Months	4		
<b>6</b>	<b>Facilities and equipment</b>				
6.1	(a) Separate office (16m2) with windows and a door for use by COVID-19 Compliance Officer including electricity connection and supply	No	1		
6.2	(b) Provision and upkeep of infrared handheld thermometer	No	2		
<b>TOTAL CARRIED FORWARD</b>					

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	TOTAL
<b>TOTAL BROUGHT FORWARD</b>					
<b>8</b>	<b>Supply and fix COVID-19 signs</b>				
8.1	Hand Hygiene (800 x 800mm)	No	4		
8.2	Sanitisation Station (297 x 400mm)	No	4		
8.3	Face Mask (297 x 420mm)	No	4		
8.4	Social Distancing (400 x 400mm)	No	4		
8.5	Prevention Tips (297 x 420mm)	No	4		
<b>9</b>	<b>Cleaning materials and Hand sanitizers</b>				
9.1	Monthly disinfection of facilities	Months	4		
9.2	Supply and upkeep of hand sanitizer dispensers and consumables (paper towel)	Months	4		
<b>10</b>	<b>List any extra COVID-19 requirements not mentioned above</b>				
10.1					
10.2					
10.3					
10.4					
10.5					
10.6					
<b>TOTAL (Excluding VAT)</b>					



**10 ANNEXURE C: SYMPTOM SCREENING TEMPLATE****COMPANY NAME:**.....**Date:**..... **Site Address:**.....

No	Employee Name & Surname	Job Title	Contact Details	Attended a Funeral		Temperature		Symptoms	
				YES	NO	AM	PM	YES	NO
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

Symptom Legend (Place number under symptom column as shown below e.g for fever, temperature 1)Signs of COVID-19

- 1.Fever, Temperature greater than 37. 2
- 2.Cough
- 3.Sore throat
- 4.redness of eyes
- 5.shortness of breath

Additional Symptoms

- 6.Body Aches
- 7.Loss of smell or Loss of taste
- 8.Nausea
- 9.Vomitting
- 10.Diarrhoea
- 11.Fatigue
- 12.Weakness
- 13.Tiredness

**Any employee presenting with any of the above symptoms – should not be allowed onto site, refer to identified testing sites for management**

Contractor \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_ Employer \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_

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## **C3.4: CONSTRUCTION ENVIRONMENT MANAGEMENT PLAN**

SHE/WI/02 rev 8 (January 2016)

EAST LONDON INDUSTRIAL DEVELOPMENT ZONE (SOC) LTD  
**GENERAL REQUIREMENTS OF THE CONSTRUCTION ENVIRONMENT MANAGEMENT PLAN  
(CEMP)**

## **FOREWORD**

The East London Industrial Development Zone (SOC Ltd ) (ELIDZ) encourages sustainable environmental management practices in the East London Industrial Development Zone (IDZ). This applies to all planning, design, construction and operation of the ELIDZ.

The Strategic Environmental Assessment (SEA) for the ELIDZ - completed in November 1997 by the CSIR - recommended that a series of principles and guidelines be applied to minimise negative environmental impacts and enhance the positive environmental impacts during the planning of the ELIDZ. These conditions and guidelines (as part of the Draft SEA) were submitted for public comment and, revised accordingly.

The CEMP incorporates specifications derived from recommendations in the SEA, ELIDZ Rezoning Environmental Impact Assessment (EIA) and Comments Report, Department of Economic Affairs, Environment and Tourism's Conditions of Approval for the rezoning EIA, together with specifications for 'good environmental practice' for construction work.

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**List of Abbreviations**

<b>CSIR</b>	<b>Council for Scientific and Industrial Research</b>
<b>ELIDZ</b>	<b>East London Development Zone (SOC) Ltd.</b>
<b>IDZ</b>	<b>Industrial Development Zone</b>
<b>SHEM</b>	<b>Safety, Health and Environment Manager for the ELIDZ (SOC) Ltd.</b>
<b>CEMP</b>	<b>Construction Environmental Management Plan</b>
<b>EMS</b>	<b>Environmental Management System for the ELIDZ (SOC) Ltd</b>
<b>ESA</b>	<b>Environmentally Sensitive Area</b>
<b>ECO</b>	<b>Environmental Control Officer</b>
<b>PECO</b>	<b>Project Environmental Control Officer</b>
<b>SABS</b>	<b>South African Bureau of Standards</b>
<b>SSSI</b>	<b>Sites of Special Scientific Interest</b>
<b>DEDEA</b>	<b>Department of Economic Development and Environmental Affairs</b>
<b>PA</b>	<b>Principal Agent, or duly appointed principal Consultant</b>

## **1 PURPOSE OF THE CEMP**

The purpose of the CEMP is to translate the recommendations of the SEA and the Rezoning EIA into a contractual environmental management plan for application during construction activities within the ELIDZ.

The CEMP provides specifications that the Contractor shall adhere to in order to minimise adverse environmental impacts and so that the costs of implementing the CEMP are included into the Contract pricing.

## **2 IMPLEMENTATION OF THE CEMP**

The CEMP is intended for dissemination by the SHEM to approved PA's (or persons responsible for management of projects) who shall ensure that it is included in all Tender Documents issued to the prospective Contractors

The Safety, Health and Environment Manager (SHEM) shall be responsible for updating the CEMP as required, auditing the implementation of the CEMP for each construction project and for maintaining the document control and record systems associated with the CEMP

The Contractor shall appoint a representative permanently associated with the works site to act of the Environmental Control Officer (ECO) for the duration of the project. The ECO shall have the necessary training and experience to receive and act upon instructions from the SHEM and PA and to report as required.

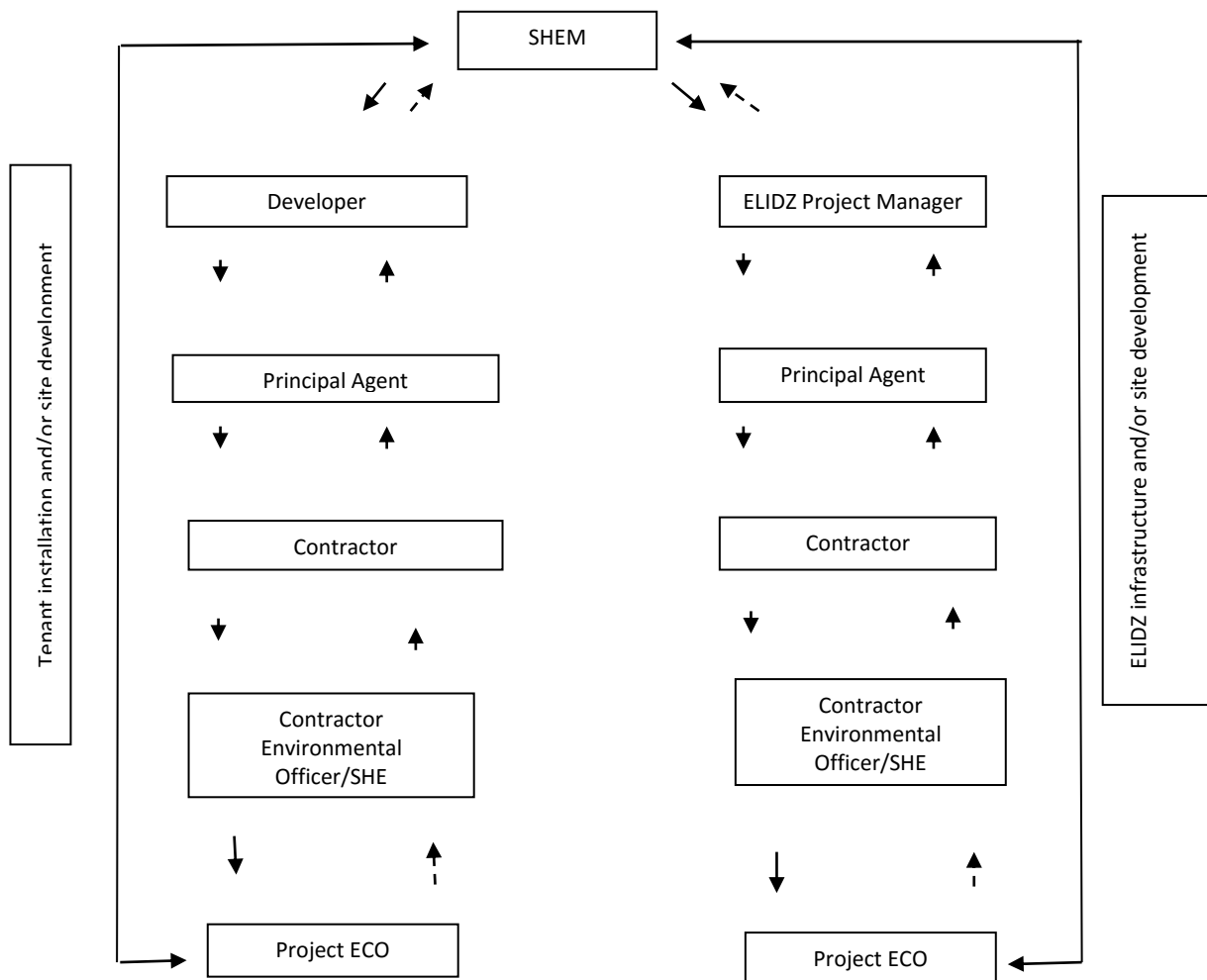
## **3 ORGANIZATIONAL REQUIREMENTS**

### **3.1 Organizational Structure**

This section outlines the required management structure for the administration of the CEMP, with particular emphasis on the roles and responsibilities of key individuals.

The organizational structure for the implementation of the CEMP is presented in Figure 1 and should be viewed in conjunction with the roles and responsibilities identified below.





**Figure 1: Organisational structure showing lines of responsibility and communication.**

### 3.2 Roles and responsibilities

#### 3.2.1 Safety, Health and Environment Manager (SHEM)

The ELIDZ is ultimately responsible for ensuring effective environmental management of the ELIDZ in terms of the conditions in the Environmental Management System. It is the function of the Safety, Health and Environment Manager (SHEM) of the ELIDZ or the duly appointed representative to monitor the implementation of the requirements of the CEMP by Consultants and Contractors, as specified in the CEMP.

The SHEM shall appoint a Project Environmental Control Officer (PECO) to act as his representative. The PECO shall have the same authority as the SHEM except that a work stoppage instruction shall be subject to a 24 hour delay pending confirmation by the SHEM and the PA.

In terms of the application of this CEMP the SHEM or his representative shall have, inter alia, the

following responsibilities:

- 3.2.1.1 Maintain the CEMP and its contents for issue to PA's and Contractors.
- 3.2.1.2 Receive and adjudicate any requests for deviations from PA's and Contractors and issue a decision within 21 days of the date of receipt of any application.
- 3.2.1.3 Confirm the issue of the CEMP for every construction project within the ELIDZ.
- 3.2.1.4 PECO to brief Contractors on the general requirements of the CEMP for each project prior to establishing site and stipulate any variations to the CEMP and indicate the method statements required for the project.
- 3.2.1.5 PECO to conduct contractor environmental awareness and induction.
- 3.2.1.6 PECO to receive, review and approve in writing any method statements required for the project within 10 days of receipt, or reject inadequate method statements and request alterations within the same 10 day period.
- 3.2.1.7 PECO to frequently inspect the Contractor's site to check compliance with the CEMP and any required method statements (at least monthly) and maintain independent inspection reports on file.
- 3.2.1.8 PECO to participate in monthly project site meetings.
- 3.2.1.9 PECO to provide SHEM with written reports related to non-conformance with the CEMP and method statements. Escalate to SHEM issues which cannot first be resolved in co-operation with the relevant PA and Contractor, and distribute copies of the record to the PA and Contractor.
- 3.2.1.10 Issue any work stoppage instruction for serious non-compliance of the CEMP to the PA for further action.
- 3.2.1.11 Carry out site completion inspections and provide details of any outstanding issues for the Contractors attention.
- 3.2.1.12 Carry out at least two (2) post -construction inspections to monitor the site with respect to re-vegetation, alien vegetation control and erosion.
- 3.2.1.14 PICO to submit Environmental Close-out report for SHEM to Issue a project closure instruction for the requirements of the CEMP to the PA to authorize the release of retention monies for the project.

### **3.2.2 The Developer**

In terms of the application of this CEMP the Developer or his duly appointed representative shall, inter alia, have the following responsibilities:

- 3.2.2.1 The Developer shall notify the ELIDZ (SOC Ltd) in writing of any intention to undertake construction activities or installation of infrastructure;
- 3.2.2.2 Notify the ELIDZ (SOC Ltd) in writing of the appointed Principal Agent for the project.
- 3.2.2.3 Include the CEMP with any tender document related to maintenance or construction activities on site;
- 3.2.2.4 Submit an Environmental Management Plan (EMP) for the proposed development to the ELIDZ (SOC Ltd);
- 3.2.2.5 Allow the SHEM or PECO access to the site for monitoring purposes; and
- 3.2.2.6 Submit monthly environmental reports and audits to the ELIDZ (SOC Ltd).

### **3.2.3 Principal Agent (PA) and ELIDZ Project Managers**

In terms of the application of this CEMP the PA or his duly appointed representative shall, inter alia, have the following responsibilities:

- 3.2.3.1 Include most up to date version of the CEMP in any tender document related to construction activities within the ELIDZ
- 3.2.3.2 Provide feedback to the SHEM on any areas of the project for which the CEMP may require deviation.
- 3.2.3.3 Instruct the Contractor to appoint an Environmental Control Officer (ECO) for the project.
- 3.2.3.4 Include in all site meetings the opportunity to address environmental matters from all parties to the works and keep minutes of these meetings.
- 3.2.3.5 Stop work on site on instructions of the SHEM in the event of serious non-compliance to the CEMP.
- 3.2.3.6 Request a project closure instruction for the requirements of the CEMP from the SHEM to authorize the release of retention monies for the project.
- 3.2.3.7 Only release the retention monies for the project once the CEMP project closure instruction is received from the SHEM.

### **3.2.5 Contractor**

In terms of the application of this CEMP the Contractor shall have, inter alia, the following responsibilities:

- 3.2.5.1 Comply with the requirements of the CEMP as provided in the contract document
- 3.2.5.2 Provide copies of any method statements required for the work to the PA 10 days prior to commencing work on site. These method statements shall be in sufficient detail that a third party with the relevant experience of the work and the site could reasonably carry out the work based on the method statement provided.
- 3.2.5.3 Provide to the PA and the PECO, a detailed CV of the proposed Environmental Control Officer (ECO), responsible for managing the CEMP on the Contractors behalf, for approval. The proposed ECO shall have the required environmental experience to manage the CEMP and the SHEM shall reserve the right to reject the appointment of unsuitable persons.
- 3.2.5.4 Provide a copy of the letter of appointment of the Environmental Control Officer (ECO) to the PA and SHEM within 7 days of the appointment to commence work. The appointed ECO shall be available on site during normal working hours.
- 3.2.5.5 The contractor shall be required to undertake post-construction CEMP activities on site until such time as a project closure certificate is issued by the PA..
- 3.2.5.6 Provide information to the ELIDZ as required during external audits that shall be conducted by the ELIDZ as part of the EMS auditing procedure. The information required shall include the reports of internal audits conducted by the Contractor.

### **3.2.6 Contractor Environmental Control Officer (ECO)**

The ECO for the Contractors site shall be responsible for, inter alia, the following tasks:

- 3.2.6.1 Be familiar with the contents of the CEMP and be capable of ensuring compliance with all aspects of the document.
- 3.2.6.2 Conduct regular internal audits to ensure that the system for implementation of the CEMP is operating effectively.
- 3.2.6.3 Be familiar with the method statements that apply to any work and audit the compliance to those requirements.
- 3.2.6.4 Ensure that employees of Contractors, sub-Contractors, suppliers etc. receive appropriate environmental awareness training prior to commencing work on the project and maintain records of training.

- 3.2.6.5 Record any transgressions of the method statements, that lead to environmental impacts in an incident register, and report these to the PECO, PA and SHEM immediately.
- 3.2.6.6 Participate in monthly project site meetings.
- 3.2.6.7 Maintain a site log of any public complaints, details of the corrective action taken, and confirmation that the complainant has been advised that the issue has been resolved.
- 3.2.6.8 At the completion of the contract period a full record of the correspondence pertaining to the application of the CEMP for the work shall be handed in within 30 days to the PECO.

#### **4. MANAGEMENT AND MONITORING**

##### **4.1 General inspection, monitoring and reporting**

The Contractor shall ensure that the following is complied with:

- 4.1.1 Keep the records of daily site inspection reports to ensure that the environmental specifications are adhered to.
- 4.1.2 4.1.3 Maintain a record of all incidents (spills, impacts, complaints, legal transgressions etc) as well as corrective and preventive actions taken, for submission to the PECO, SHEM and PA at the scheduled monthly meetings.

##### **4.2. Method Statements**

The Contractor shall submit written method statements indicating how compliance with the Particular Specification for Environmental Management will be achieved.

- 4.2.1 Method statements shall state clearly:
  - timing and phasing of activities
  - materials to be used
  - equipment and staffing requirements
  - the proposed construction procedure designed to implement the relevant environmental specifications
  - the system to be implemented to ensure compliance with the above
  - other information deemed necessary by the ELIDZ and Consultant.
- 4.2.2 Method statements shall be submitted to the PECO , for approval at least ten working days prior to commencement of related works on site, to allow the PECO time to study and approve the method statement. The Contractor shall not commence work on the activity requiring a method statement until such time as the method statement has been approved in writing by the PECO which shall be done within ten working days of receipt.
- 4.2.3 Approved method statements shall be kept on site for auditing purposes.

##### **4.3 Documentation**

- 4.3.1 The Contractor shall maintain files of method statements, monthly reports, internal audits and other relevant material. These files shall be available on site at all times and are to be presented on request.
- 4.3.2 The Contractor shall ensure that all records of spills, pollution incidents, spot fines, training details etc. are copied to the PECO .
- 4.3.3 The Contractor shall ensure that a register of public complaints and action taken thereon, plus the relevant documentation from the PECO , is maintained.

- 4.3.4 All records relating to the CEMP are to be copied to a file which is to be handed over to the PECO on completion of the project.

#### **4.4. Penalties**

Failure to comply with the provisions of the CEMP will attract the following penalties:

##### **4.4.1 Spot Fines**

Spot fines not exceeding R1,500.00 shall be imposed by the PA on the Contractor if the Contractor is found to be in breach of this Specification. The PA shall advise the Contractor in writing of the nature of the infringement and the amount of the spot fine, which shall be deducted from monthly payment certificates.

The imposition of spot fines does not replace any legal proceedings the ELIDZ (SOC Ltd), authorities, land owners and/or members of the public may institute against the Contractor. The severity of the spot fine shall be decided at the discretion of the PA, and the PA's decision is final.

Spot fines will be imposed for the following infringements that include but might not be limited to:

- 4.4.1.1 Commencement of work without approval of method statements
- 4.4.1.2 Moving outside the demarcated Site boundaries;
- 4.4.1.3 Using the river for any purposes other than those specified;
- 4.4.1.4 Littering of the Site and surrounds;
- 4.4.1.5 Burying waste on Site and surrounds;
- 4.4.1.6 Smoking in the vicinity of fuel storage and filling areas and in any other areas where flammable materials are stored/used;
- 4.4.1.7 Making fires outside designated areas;
- 4.4.1.8 Defacement of natural features;
- 4.4.1.9 Performing ablutions outside of designated ablution areas.
- 4.4.1.10 Spillage onto the ground of oil, diesel, etc;
- 4.4.1.11 Harming / damaging Flora and Fauna within the EL IDZ.
- 4.4.1.12 Other acts deemed by the PECO to be in breach of the CEMP.

Spot fines that are issued by the PA, will be issued as a 'Compliance Notice' to the Contractor, and the Compliance Notice shall present the activity that caused the non-compliance, and the amount to be paid. A copy of the Compliance Notice will also be submitted to the financial manager for the project who will deduct the value of the fine from the Contractors payment claim.

##### **4.4.2 Fines**

More severe fines may be issued by the SHEM on a Contractor if there are repeated contraventions of the CEMP. The fines that are issued shall be in accordance with the severity of the incident, and these will be classified as minor-, medium-, or major environmental incidents.

##### **4.4.2.1 Minor environmental incidents**

This refers to an incident or sequence of incidents, whether immediate or delayed, that does not result in any negative impact on the environment immediately after remedial action, and does not result in pollution, and does not pose risk of injury or death.

Minor environmental incidents may attract a fine not exceeding R5,000.00 imposed at the discretion of the SHEM. The SHEM's decision is final and the Contractor remains liable for the costs of any remedial action required.

#### **4.4.2.2 Medium environmental incidents**

This refers to an incident or sequence of incidents, whether immediate or delayed, that results in reversible significant negative impact on the environment, and/or risk of legal liability to the ELIDZ, and does pose risk of injury or death.

Medium environmental incidents may attract a fine not exceeding R10,000.00 imposed at the discretion of the SHEM. The SHEM's decision is final and the Contractor remains liable for the costs of any remedial action required and / or legal liabilities.

#### **4.4.2.3 Major environmental incidents**

This refers to an incident or sequence of incidents, whether immediate or delayed, that results in irreversible significant negative impact on the environment, and/or risk of legal liability to the ELIDZ.

Major environmental incidents may attract a fine not exceeding R50,000.00 imposed at the discretion of the SHEM. The SHEM's decision is final and the Contractor remains liable for the costs of any remedial action required and / or legal liabilities.

#### **4.4.2.4 Fines Procedure**

1. PECO will issue the contractor with a pre-compliance notice.
2. The pre-compliance notice will include the non-conformance as well as recommendations for corrections.
3. Final corrective actions are to be implemented within 48 hours of receipt of the pre-compliance notice.
4. Failure to address the pre-compliance notice will result in a compliance notice being issued to the contractor and copy to the PA as well as SHEM.
5. The compliance notice will include the non-conformance, proposed corrective action, failure to address non-conformance and recommended fine value.
6. The compliance notice shall be addressed within 48 hours, failing which related construction activities are at risk of being stopped by SHEM.
7. The PA will ensure that a copy of the Compliance Notice will be submitted to the project's financial manager with an instruction to deduct the value of the fine from the Contractor's next payment certificate.

#### **4.4.2.5 Repeat Offences**

A repeated contravention of the CEMP requirements shall be sufficient grounds for the removal by the SHEM of the person responsible for the non-compliance from the Site, and the Contractor shall have no claim for such action.

A repeat major environmental incident may be grounds for the SHEM to claim a 'breach of contract' against the Contractor and the ELIDZ shall have the right to terminate the contract in such circumstances.

#### **4.4.3 Dispute Resolution**

Dispute resolution will be in accordance with the terms dictated by the construction contract entered into between the Contractor and ELIDZ (SOC) Ltd (ie GCC, JBCC etc).

**5. ENVIRONMENTAL AUDITING**

It shall be the responsibility of the SHEM and the PECO to attend to the preliminary briefing of the Contractor on the CEMP at the site hand-over meeting, and to conduct external audits of the works area at not less than 8 week intervals.

The audit shall assess compliance with each clause of the CEMP, including any variations and additions which may have been approved.

**6. ENVIRONMENTALLY SENSITIVE AREAS**

6.1 The Contractor is advised that certain areas within the IDZ have been identified as being Environmentally Sensitive Areas (ESA's). The ESA's include the following:

- coastal grasslands
- wetlands which protect and support aquifers and riverine systems
- the Mvubukazi and Ngqenga River
- steep slopes which are prone to erosion when vegetation is removed or disturbed and which support areas of pristine indigenous vegetation.

6.2 No ESA shall not be entered or used for any purpose unless a written motivation has been submitted to the SHEM by the Contractor, and a written approval has been received from the SHEM.

6.3 The Contractor shall exercise special care when working close to the ESA in order to avoid physical disturbance or pollution of these areas.

## **PARTICULAR SPECIFICATIONS TO THE ELIDZ CEMP**

### **PS 1 INTRODUCTION**

The Contractor's attention is drawn to requirements of the Environmental Specification which are intended to complement the requirements laid down in SABS 1200 and are not intended to extend these requirements except where the Contractor fails to take due care, whereupon any additional requirements shall be at the expense of the Contractor.

### **PS 2 GENERAL ISSUES**

#### **PS 2.1 Access to Marine Zone**

The Contractors and their staff are specifically prohibited from going across to the marine zone (and beach) adjacent to the ELIDZ directly from the ELIDZ.

#### **PS 2.2 Pollution of Groundwater**

The Contractor must ensure that pollution of the ground or surface water does not occur as a result of the release, accidental or otherwise, of contaminated run-off from construction sites, discharge of contaminated construction water, chemicals, oils, fuels, sewage, run off from stockpiles, solid waste and litter.

#### **PS 2.3 Wind Generated Pollution**

The Contractor is advised that the site is prone to strong winds. All material storage areas should be designed so as to reduce the risk of spillage, dispersal or damage from materials as a result of strong winds. The protection of stored materials should be included in method statements.

#### **PS 2.4 General Emergency Procedures**

- PS 2.4.1 The Contractor shall submit his Emergency Procedure Method Statement to the SHEM, and ensure that emergency response procedures are in place, prior to commencing activities on site.
- PS 2.4.2 Emergency response procedures shall include, but are not limited to, the reaction to fire, spills contamination , ground contamination, accidents to employees, accidental discharge of hazardous substances, etc.
- PS 2.4.3 Emergency procedures, including contact details of emergency response services, shall be made available to all the relevant personnel and shall be clearly displayed at the relevant locations around the site.
- PS 2.4.4 The Contractor shall advise the SHEM and PA of any emergencies on site, together with a record of action taken as soon as practical but not later than 36 hours after the event.
- PS 2.4.5 The contractor must provide the PECO and the PA with temporary site closure procedures in the event that the construction site is closed for five days or more.



#### **PS 2.5 Fire prevention**

The Contractor shall take all the necessary precautions to ensure that fires are not started as a result of his activities on site, and shall also comply with the requirements of the Occupational Health and Safety Act 85 of 1993.

The Contractor shall be liable for any expenses incurred by any organisations called to assist with fighting fires, and for any costs relating to the rehabilitation of burnt areas.

#### **PS 2.6 Hazardous materials**

The Contractor shall provide Drizit or equivalent spill kits and his staff are to be trained in the use of the equipment. In addition the Contractor shall ensure that key personnel are aware of local Contractors who are experienced in hazmat handling in the event of the on-site reaction proving inadequate.

### **PS 3 ENVIRONMENTAL PROTECTION**

#### **PS 3.1 Protection of Flora and Fauna**

PS3.1.1 Indigenous flora is to be protected throughout the areas surrounding the site. All fauna within and around the site is protected.

PS 3.1.2 It is illegal, in terms of the Eastern Cape Nature and Environmental Conservation Ordinance 19 of 1974, to remove or pick any protected or unprotected indigenous flora without the written permission of the land owner. The Ordinance sets out particular penalties for offenders and the SHEQM will ensure compliance..

#### **PS 3.2 Poaching, disturbance of Wildlife and domestic pets**

PS 3.2.1 No fauna shall be disturbed on site or in surrounding forestry/bush areas.

PS 3.2.2 Wildlife shall not be caught or killed by any means, including poisoning, trapping, shooting or setting of snares. Offenders shall be prosecuted in terms of the Eastern Cape Nature and Environmental Conservation Ordinance 19 of 1974

PS 3.2.3 Any Contractor's staff caught interfering with wildlife will face suspension from the project. Criminal charges will be initiated if poaching is detected.

PS 3.2.4 No domestic pests will be allowed on site.

#### **PS 3.3 Defacement of Natural Features**

Defacement of any features within the ELIDZ shall be cause for the SHEM to invoke penalties in accordance with clause 4.4 - Penalties

#### **PS 3.4 "Endangered" or "Protected Plants"**

A number of species of plants have been declared "Endangered" or "Protected Plants" in terms of the Environmental Forestry legislation, which includes Cycads, Tree Ferns, Aloes, Lilies, Orchids amongst others.

In terms of the regulation these plants may not be gathered, transported or relocated without a permit. These plants must therefore be avoided, or if unavoidable, the SHEM and the PA must be notified timeously so that the necessary approvals for removal and rehabilitation can be obtained.

**PS 3.5 Indigenous Vegetation**

- PS 3.5.1 No indigenous trees or bush shall be disturbed or removed without approval from the SHEQM.
- PS 3.5.2 Areas where construction will occur in close proximity to indigenous forest/bush must be strictly controlled and the limits of the construction activities must be demarcated with hazard tape. No construction staff may access this indigenous vegetation at any time.

**PS 3.6 Alien Vegetation**

- PS 3.6.1 The PECO will assist in the identification of alien plant species which must be removed and will advise the Contractor on methods of eradication
- PS 3.6.2 The Contractor shall remove all alien vegetation that establishes within the demarcated site after construction commences. The removal of alien vegetation shall comply with legal and other requirements, with related method statements approved by the PECO prior to removal.
- PS 3.6.3 The treatment of alien vegetation with herbicides shall be approved by the PECO prior to implementation.

**PS 3.7 Fire Prevention and Control**

- PS 3.7.1 The Contractor shall at all times ensure that fires do not start or spread within the site or the environs thereof as a result of the Works or the actions of employees.
- PS 3.7.2 In the event of fire the Contractor shall immediately implement construction site emergency preparedness protocol to have the fire emergency addressed.

**PS 3.8 Erosion Control**

- PS 3.8.1 Areas affected by construction related activities must be monitored on an ongoing basis for evidence of soil erosion. The Contractor shall implement remedial measures as instructed by the SHEQM and / or the PA at an early stage to avoid severe erosion problems occurring.
- PS 3.8.2 The disturbance of steep slopes by the removal of vegetation, may result in slope instability and erosion by rain and surface run off. The Contractor shall ensure that slopes that are disturbed during construction are stabilised to prevent erosion occurring. Where re-vegetation of slopes is undertaken, this shall be in accordance with the CEMP specification for rehabilitation.
- PS 3.8.3 The positions of scour valves are to be checked on site by the PA, PECO and Contractor prior to construction thereof, to ensure that scouring will not cause erosion. All scour positions will require some form of erosion protection.

**PS 3.10 ENVIRONMENTALLY SENSITIVE AREAS**

- 3.10.1 The Contractor is advised that certain areas within the IDZ have been identified as being Environmentally Sensitive Areas (ESA's). The ESA's include the following:

- coastal grasslands
- wetlands which protect and support aquifers and riverine systems
- the Mvubukazi and Ngqenga River
- steep slopes which are prone to erosion when vegetation is removed or disturbed and which support areas of pristine indigenous vegetation and a site drawing indicating the ESAs is included with the specification.

3.10.2 No ESA shall not be entered or used for any purpose unless a written motivation has been submitted to the SHEM by the Contractor, and a written approval has been received from the SHEM.

3.10.3 The Contractor shall exercise special care when working close to the ESA in order to avoid physical disturbance or pollution of these areas.

3.10.4 Damage caused to an ESA by the Contractor shall be cause for the SHEM to invoke penalties in accordance with clause 4.4 - Penalties.

#### **PS 3.9 Archaeological and Paleontological sites**

If any possible paleontological / archaeological material is found during excavations, the Contractor shall stop work immediately and inform the SHEM who will inform the National Monuments Council (NMC) and arrange for a palaeontologist /archaeologist to inspect, and if necessary excavate the material, subject to acquiring the requisite permits from the NMC

#### **PS 4 CONSTRUCTION SITE ACTIVITIES**

##### **PS 4.1 Sanitation**

PS 4.4.1 The Contractor shall provide the necessary ablution facilities for all his personnel. A temporary connection to the ELIDZ sewerage system for use during construction shall take precedence, failing which chemical toilets shall be provided with a minimum of one toilet per 15 persons.

Chemical toilets shall be cleaned and serviced regularly by a reputable toilet servicing company, and shall be emptied before long weekends and builders' holidays. The toilet servicing company shall provide proof that they are licensed to dispose of waste to the Buffalo City Municipality sewers.

PS 4.4.2 The Contractor shall ensure that chemicals and/or waste from toilet cleaning operations are not spilled on the ground at any time. Should there be repeated spillage of chemicals and/or waste (i.e. more than three), the Contractor shall place the toilets on a solid base with a sump, at his own expense. Accumulations of chemicals and waste will have to be removed from the site and disposed at an approved waste disposal site or sewage plant.

PS 4.4.3 Waste water from any other ablution or kitchen facilities on site shall be discharged into a suitable conservancy tank or directed to the nearest sewer. The Contractor shall be responsible for ensuring that the system continues to operate effectively for the duration of the construction activity and that the conservancy tank is emptied as required during the project.

The Contractor shall engage a suitably qualified sub-contractor or the local authority to empty the conservancy tank and provide proof that the effluent is discharged to a licensed disposal site.

#### **PS 4.2 Refuse**

PS 4.2.1 All waste shall be collected and contained immediately.

PS 4.2.2 The Contractor shall not dispose of any waste and/or construction debris by burning or burying. Waste bins and / or skips are to be provided. The bins shall have lids and an external closing mechanism to prevent their contents blowing out. Bins shall not be used for any purposes other than waste collection and shall be emptied on a regular basis. All waste shall be disposed of off-site at approved landfill sites.

PS 4.2.3 Waste generated at the construction camps shall be separated into recyclable and non-recyclable waste, and shall be separated as follows:

- Hazardous waste (including old oil, diesel, petrol tins, paint, bitumen, etc.)
- Recyclable waste (paper, tins, glass)
- General waste
- Reusable construction material.

PS 4.2.3.1 Recyclable waste shall be deposited in separate skips and removed off site for recycling

PS 4.2.3.2 Hazardous waste, including waste oil and other chemicals (e.g. paints, solvents) shall be stored in enclosed area/s and shall be clearly marked. Such waste shall be disposed of off-site by a specialist waste contractor, at a licensed hazardous waste disposal site.

#### **PS 4.3 Dust**

The Contractor shall at all times control dust emanating from all of the Works, access roads/tracks, stockpiles, spoil sites and borrow pits. Dust suppression may entail the judicious use of water and care shall be taken to avoid unnecessary runoff and / or erosion.

#### **PS 4.4 Cement and Concrete**

The Contractor is advised that cement and concrete are regarded as highly hazardous to the natural environment on account of the very high pH of the material, and the chemicals contained therein.

PS 4.4.1 On site mixing of Concrete and Mortar

The Contractor shall ensure that:

- All mixing is done on mortar boards, and not directly on the ground;
- the visible remains of concrete, either solid, or from washings, are physically removed immediately and disposed of as waste. Washing the visible signs into the ground is not acceptable.

PS 4.4.2 Cement stabilization

The Contractor shall not undertake cement stabilization during windy periods. Special care shall be taken when working in the vicinity of the demarcated wetlands and Mvubukazi and Ngqenga Rivers to avoid damage caused by cement entering the water.

PS 4.4.3 Concrete Batching

PS 4.4.3.1 Concrete batching plants shall be located more than 100 m from the nearest river channel or wetland. The batching site shall be bunded with earth berms or sandbags such that

runoff cannot escape from the site. Contaminated stormwater and wastewater runoff shall not be permitted to enter streams but shall be led to a pit where the water can soak away.

- PS 4.4.3.2 Waste concrete and cement sludge shall be scraped off the site of the batching plant and carted to an approved landfill site.
- PS 4.4.3.3 Adequate measures shall be taken to control dust from stockpiles and the batching plant processes. The placement of the batching plant shall not be closer than 500 metres from the nearest dwelling or occupied premises, other than the site camp.
- PS 4.4.4 Concrete Mixing
- PS 4.4.4.1 Concrete mixing stations shall be located on the construction site and shall be bunded with earth berms or sandbags such that runoff cannot escape from the site. Contaminated stormwater and wastewater runoff shall not be permitted to enter streams but shall be led to a pit where the water can soak away.
- PS 4.4.4.2 The cleaning of concrete mixing trucks is prohibited on the construction site or anywhere else on the ELIDZ property.

#### **PS 4.5 Blasting Operations**

Notification of blasting operations shall be provided to the SHEM, PECO and PA at least 72 hours before the planned activity. Blasting activities may not commence until written approval is received from the SHEM, (SHE agent where applicable), PA and PECO.

The Contractor must take appropriate measures to minimise the generation of dust and fly rock from blasting operations. No blasting is permitted unless the Contractor has satisfied the PA, PECO and SHEM that the proposed blasting methods and controls are such that no damage will be caused to any adjoining structures, pipelines, services, trees or sensitive vegetation.

Topsoil may not be used as over-burden for blasting.

#### **PS 4.6 Open Excavations**

Adequate measures must be taken to prevent humans or animals from injuring themselves by falling into an open excavations. All excavations deeper than 1.5 m that are likely to be left unattended for more than 24 hours are to have the side cut back to a 1 : 3 slope to allow persons or animals to climb out.

#### **PS 4.7 Protection of Indigenous trees**

Indigenous trees shall be protected and may not be removed nor damaged. The area immediately around the stems of the trees must be kept free of piled rubble and soil

#### **PS 4.8 Servicing and Refuelling of Equipment**

- PS 4.8.1 Servicing should preferably occur off site however if these activities occur on site the contractor will be required to conduct all servicing of machines and equipment within a designated area within the site camp.
- PS 4.8.2 The contractor shall ensure that there are adequate facilities for the handling and storage of used parts, oils, grease, cleaning fluids and fuels. Drip trays are to be available for use at the servicing area.

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- PS 4.8.3 In the event of a breakdown on site, the contractor may temporarily repair equipment on location provided that drip trays are in place during all work and a spill control kit is immediately available.
- PS 4.8.2 No vehicles or machines shall be refuelled on site except at designated refuelling locations.

### **PS 4.9 Fuels and Chemicals**

The Contractor shall take all reasonable precautions to prevent the pollution of the ground and/or water resources by fuels and chemicals as a result of his activities.

- PS 4.9.1 The Contractor shall keep the necessary materials and equipment on site to deal with ground spills of any of the materials used or stored on site.
- PS 4.9.2 The Contractor shall ensure that no oil, petrol, diesel, etc. is discharged onto the ground. Drip trays shall be provided where required, cleaned and emptied regularly, and the waste disposed of off-site at a facility capable of handling such waste water.
- PS 4.9.3 The Contractor shall remove any oil-, petrol-, and diesel-soaked ground immediately and shall dispose of it as hazardous waste.
- PS 4.9.4 Tanks containing fuels shall have lids and shall remain firmly shut. Fuel stores shall be placed on a bunded sealed base - the bunds shall have a volume of 110% of the volume of the largest tank in the storage area. Any waste water or spilled fuel collected within the bund shall be disposed of as hazardous waste.
- PS 4.9.5 The Contractor shall ensure that there is adequate fire-fighting equipment at the fuel stores, and smoking shall be prohibited in the vicinity of the stores

### **PS 4.9 Storage Areas**

All areas used for the storage of materials shall be clearly demarcated and shall prohibit unauthorised access. The storage of sand, stone, bricks and large pipes is not to take place on areas without removing and stockpiling topsoil for the rehabilitation of the site after use

## **PS 5 MATERIAL HANDLING**

### **PS 5.1 Borrow Pits**

Material from outside of the actual construction site may not be borrowed without the prior approval of the SHEM and PA. Contractors will not be allowed to open borrow pits outside of the site and all materials supplied to site are to be sourced from external sites with valid licenses from the Department of Minerals and Energy. The Contractor shall be required to supply copies of the licenses to the PECO prior to obtaining material from the site.

### **PS 5.2 Spoil Sites**

- PS 5.2.1 Spoil sites within the ELIDZ are reserved for stockpiling of good quality topsoil for later use on the site for rehabilitation. The SHEM and PA shall approve the quality of material to be stockpiled and location thereof.
- PS 5.2.2 The on-site stockpiles shall be maintained by the Contractor for the duration of the project. This maintenance shall include, inter alia, seeding, erosion control and stormwater management relating to the stockpile.

- PS 5.2.3            The spoiling of surplus material off-site will be required and the Contractor shall be responsible for identifying suitable sites for the disposal of this material. The contractor shall provide a letter of consent for the location of the disposal of such material from the land owner.

**PS 5.3    Construction Materials**

The manner in which materials are transported onto site, and stored prior to use, must be controlled by the Contractor. The impacts of noise, dust, traffic and social disruption must be considered, and materials stored on site are to be placed so as not to negatively impact on operations within the ELIDZ.

**PS 5.4    Hazardous Materials**

- PS 5.4.1            The Contractor shall comply with all relevant National, Regional and Local legislation with regard to the transport, use and disposal of hazardous materials. If necessary, the Contractor shall obtain the advice of the manufacturer with regard to the safe handling of hazardous materials.
- PS 5.4.2            The Contractor shall provide the SHEM and PA with a list of all hazardous materials on site, together with storage procedures for these materials.
- PS 5.4.3            The Contractor shall ensure that information on all hazardous substances is available to all relevant personnel on site. The Contractor shall furthermore be responsible for the training of all personnel on site who will be handling the material, regarding the proper use, handling and disposal thereof.

**PS 6      SITE REHABILITATION**

- PS 6.1              The Contractor shall be responsible for rehabilitating all areas cleared or disturbed for construction purposes to return these areas to their former condition. This will include removal of all cement sludge, waste concrete, builders, refuse etc, ripping of compacted surfaces to a depth of 150 mm to loosen soil, replacement of topsoil and re-grassing / re-vegetating such areas.
- PS 6.2              The re-establishment of vegetation will be monitored for six months after completion of rehabilitation to ensure the vegetation cover is adequate to prevent erosion. i.e: When in the PA's opinion the grass is fully established (75% cover per square metre).  
Extra measures including composting, sodding, sprigging, hand seeding or hydro-seeding may be required in order to achieve this.
- PS 6.2.1            Seeding  
A commercial annual and perennial grass seed mix shall be used which has an annual to perennial ratio of greater than 1.5:1 Seeding shall not take place in windy conditions
- PS 6.2.2            Irrigation will enhance the rehabilitation and should be considered if unusually dry conditions prevail..
- PS 6.2.3            Fertiliser  
Before seeding, 2:3:2 (N:P:K:) fertiliser shall be mixed into the topsoil at a rate of 30g/m<sup>2</sup>. Trafficked topsoil shall be loosened. The soil shall then be watered so that it is visibly moist to a depth of 100 mm (15 mm/m<sup>2</sup> per week should be sufficient).

- PS 6.2 The Contractor shall remove all alien vegetation that establishes within the demarcated site after construction commences. The removal of alien vegetation shall be by uprooting. The treatment of alien vegetation by weed killer is not acceptable. Disposal of alien vegetation, after removal, may be controlled by burning with the written permission of the PECO.
- PS 6.3 All construction equipment and excess aggregate, gravel, stone, concrete, bricks, temporary fencing and the like shall be removed from the site upon completion of the work. No discarded materials of whatsoever nature shall be buried on the site or within the confines of the ELIDZ.

**PS 7 Stormwater and Effluent Management**

- PS 7.1 The Contractor must take reasonable precautions to prevent the pollution of the ground and / or water resources on and adjacent to the site as a result of his activities.
- PS 7.2 No natural watercourse is to be used for the cleaning of tools or any other apparatus. This includes for purposes of bathing, or the washing of clothes etc.
- PS 7.3 All washing operations will take place off-site at a location where wastewater can be disposed of in an acceptable manner
- PS 7.4 No spills may be hosed down into a storm water drain or sewer, or into the surrounding natural environment.

**PS 8 Access to water**

- PS 8.1 Contractors shall not make use of/collect water from any other source than those pointed out to them as suitable for use by them.

**PS 9 Noise control**

- PS 9.1 Noise levels must be kept within acceptable limits for a protected area, and must not be of such nature as to detract from the natural experience of other visitors to the protected area.
- PS 9.2 The contractor shall take into consideration that the project areas are located within a natural environment and that noise could be a major disturbance/nuisance for the fauna and visitors



## **PS 7 FINANCIAL CLAIMS**

The ELIDZ shall make payment to the contractor on submission of a payment certificate from the Consultant. The Consultant shall adjudicate claims on the basis of performance and compliance with the requirements of the CEMP and fulfilment by the contractor of the requirements of the CEMP specification against the scheduled items.

These scheduled items shall inter alia include:

1. Provision for management of the general requirements of the CEMP as a lump sum payable pro rata against progress (time based). This amount shall be considered to include all contractual obligations of the CEMP not priced separately in the Bill.
2. Costs of administration of the meetings required for the CEMP, including minute keeping, distribution, venue and management. The amount payable shall be reflected as a monthly cost and shall include all the administration costs of managing the CEMP.
3. Requirement for method statements for selected activities shall be paid per method statement provided the method statement adequately fulfils the requirement of the activity. The amount payable will be deemed to include all costs of producing the method statement, including any revisions and the costs of applying the requirements of the method statement.
4. Training requirements of the CEMP shall be payable as a lump sum once proof of training has been provided to the Consultant and certified adequate by the ELIDZ 25 % of the amount will be withheld until the end of the contract and shall be paid if additional training obligations for new staff were met.
5. Provision for penalties to be applied shall be assigned in the Bill and any penalties deducted against this item.

## **LEGISLATION APPLICABLE TO THIS SPECIFICATION**

In terms of the constitution, environmental matters are delegated to the province, but not exclusively. National Acts of relevance to this environmental specification are:

Conservation of Agricultural Resources Act, No 43 of 1983  
Environment Conservation Act, No 73 of 1989  
National Environmental Management Act, No 107 of 1998 (NEMA)  
National Environmental Management: Biodiversity Act of 2004  
National Environmental Management: Waste Act of 2008  
National Forests Act, No 84 of 1998  
National Heritage Resources Act, No 25 of 1999 (NHRA)  
National Veld and Forest Fires Act, No 101 of 1998  
National Water Act, No 36 of 1998 (NWA)  
Provincial Nature Conservation Ordinances.  
Minerals and Petroleum Resources Development Act, No 28 of 2002.  
Health Act, No 63 of 1977  
Atmospheric Pollution Prevention Act, No 45 of 1965.  
Occupational Health & Safety Act, No.85 of 1993.

## **EAST LONDON INDUSTRIAL DEVELOPMENT ZONE (SOC) LTD ENVIRONMENTAL POLICY**

The East London Industrial Development Zone (ELIDZ) (SOC) Ltd is a world class operator of a prestigious industrial complex where highly competitive organisations thrive on streamlined business benefits and stimulate regional economic growth. ELIDZ aims to apply world-class environmental management practices within its Industrial Development Zone (IDZ), hence becoming the model for similar developments throughout Africa. The East London IDZ (ELIDZ) shall be developed and operated in a manner, which is economically, socially acceptable and sustainable. ELIDZ (SOC) Ltd recognizes that Environmental Management is an integral part of its overall business performance as any failure in this area will negatively impact on the Organization, its employees, tenants, contractors and the public.

The ELIDZ (SOC) Ltd is committed to striving for environmental best practice in all phases of development by:

1. Complying with all applicable environmental legislation, government policies and any other requirements that pertains to the Industrial Development Zone (IDZ);
2. Encouraging the participation of all interested and affected parties in all phases of development of the IDZ;
3. Monitoring all tenants activities within ELIDZ's jurisdiction that could have potential detrimental impacts for the environment.
4. Avoiding or limiting the disturbance of landforms, ecosystems and loss of biological diversity though all phases of development and operation;
5. Promote the responsible use of water, energy and other non-renewable natural resources where feasible;
6. Preventing pollution and waste where feasible.

7. Limiting potentially detrimental impacts of the IDZ on neighbouring communities.
8. Continual improvement of the Environmental Management System

These objectives focus on the planning, design and development and operations phases of the IDZ. In order to achieve the aforementioned objectives the ELIDZ (SOC) Ltd will develop and maintain an Environmental Management System according to the principles contained in ISO 14001.

This policy will be communicated to all employees and contractors working for or on behalf of the ELIDZ.

Top Management take full responsibility for the Environmental responsibility of the ELIDZ (SOC) Ltd and hereby assert that adherence to this Environmental Policy is mandatory to all employees and contractors within the ELIDZ. Top Management hereby further pledge on behalf of the ELIDZ (SOC) Ltd to integrate Environmental considerations into our decision-making processes.

The environmental policy will be reviewed periodically as need arise to ensure it remains relevant and appropriate to the ELIDZ and will be distributed to the public on request.

**C3.5: HIV/AIDS SPECIFICATION**

### C3.5: HIV Aids Specification



**CONTRACT NO: ASP/YANFENG/EXT/11/09/Z1A**

**EXTENSIONS TO YANFENG MANUFACTURING  
FACILITY IN ZONE 1A OF THE ELIDZ**

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East London IDZ SOC Ltd  
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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

## 1 SCOPE

This specification contains all requirements applicable to the Contractor for creating HIV/AIDS awareness amongst all of the Workers involved in this project for the duration of the construction period, through the following strategies:

- 1) Raising awareness about HIV/AIDS through education and information on the nature of the disease, how it is transmitted, safe sexual behaviour, attitudes towards people affected and people living with HIV/AIDS, how to live a healthy lifestyle with HIV/AIDS, the importance of voluntary testing and counselling, the diagnosis and treatment of Sexually Transmitted Infections and the closest health Service Providers.
- 2) Informing Workers of their rights with regard to HIV/AIDS in the workplace.
- 3) Providing Workers with access to condoms and other awareness material that will enable them to make informed decisions about sexual practices.

## 2 DEFINITIONS AND ABBREVIATIONS

### 2.1 Definitions

**Service Provider:** The natural or juristic person recognised and approved by the Department of Public Works as a specialist in conducting HIV/AIDS awareness programmes.

**Service Provider Workshop Plan:** A plan outlining the content, process and schedule of the training and education workshops, presented by a Service Provider which has been approved by the Representative/Agent.

**Worker:** Person in the employ of the Contractor or under the direction or supervision of the Contractor or any of his Sub-contractors, who is on site for a minimum period of 30 days in all.

### 2.2 Abbreviations

HIV: Human Immunodeficiency Virus

AIDS: Acquired Immune Deficiency Syndrome

STI: Sexually Transmitted Infection

## 3 BASIC METHOD REQUIREMENT

The Contractor shall, through a Service Provider, conduct onsite workshops with the Workers.

The Service Provider shall develop and compile a Service Provider Workshop Plan to be presented at the workshops and which will be best suited for this project to achieve the specified objectives with regard to HIV/AIDS awareness.

The Service Provider Workshop Plan shall be based on the following information provided by the Contractor:

- 1) Number of Workers and Sub-contractors on site;
- 2) When new Workers or Sub-contractors will join the construction project;
- 3) Duration of Workers and Sub-contractors on site;
- 4) How the maximum number of Workers can be targeted with workshops;
- 5) How the Contractor prefers workshops to be scheduled, e.g. three hourly sessions per Worker, or one 2.5 hour workshop per Worker;
- 6) Profile of Workers, including educational level, age and gender (if available);
- 7) Preferred time of day or month to conduct workshops;
- 8) A Gantt chart reflecting the construction programme, for scheduling of workshops; and
- 9) Suitable venues for workshops.

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The Contractor shall submit the Service Provider Workshop Plan for approval within 21 days after the tender acceptance date. After approval by the Representative/Agent, the Contractor shall make available a suitable venue that will be conducive to education and training.

The Service Provider Workshop Plan shall address, but will not be limited to the following:

- 1) The nature of the disease;
- 2) How it is transmitted;
- 3) Safe sexual behavior;
- 4) Post exposure services such as voluntary counselling and testing (VCT) and nutritional plans for people living with HIV/AIDS;
- 5) Attitudes towards other people with HIV/AIDS;
- 6) Rights of the Worker in the workplace;
- 7) How the Awareness Champion will be equipped prior to commencement of the HIV/AIDS awareness programme with basic HIV/AIDS information and the necessary skills to handle questions regarding the HIV/AIDS awareness programme on site sensitively and confidentially;
- 8) How the Service Provider will support the Awareness Champion;
- 9) Location and contact numbers of the closest clinics, VCT facilities, counselling services and referral systems;
- 10) How the workshops will be presented, including frequency and duration;
- 11) How the workshops will fit in with the construction programme;
- 12) How the Service Provider will assess the knowledge and attitude levels of attendees to structure workshops accordingly;
- 13) How the video will be used;
- 14) How the Service Provider will elicit maximum participation from the Workers; and
- 15) A questions and answers slot (interactive session)
  - a. The Service Provider Workshop Plan shall encompass the Specific Learning Outcomes (SLO) as stipulated.

## **4 HIV/ AIDS AWARENESS EDUCATION AND TRAINING**

### **4.1 Workshops**

The Contractor shall ensure that all Workers attend the workshops.

The workshops shall adequately deal with all the aspects contained in the Service Provider Workshop Plan. A video of HIV/AIDS in the construction industry, which can be obtained from all Regional Offices of the Department of Public Works, is to be screened to Workers at workshops. In order to enhance the learning experience, groups of not exceeding 25 people shall attend the interactive sessions of the workshops.

### **4.2 Recommended practice**

#### **4.2.1 Workshop Schedule**

Presenting information contained in the Service Provider Workshop Plan can be divided in as many workshop sessions as deemed practicable by the Contractor, provided that all Workers are exposed to all aspects of the workshops as outlined in the Service Provider Workshop Plan.

Breaking down the content of information to be presented to Workers into more than one workshop session however, has the added advantage that messages are reinforced over time while providing opportunity between workshop sessions for Workers to reflect and test information. Workers will also have an opportunity to ask questions at a following session.

#### **4.2.2 Service Providers**

A database of recommended Service Providers is available from all Regional Offices of the Department of Public Works

### 4.2.3 HIV/AIDS Specific Learning Outcomes and Assessment Criteria

Workers shall be exposed to workshops for a minimum duration of two-and-a-half hours. In order to set a minimum standard requirement, the following specific learning outcomes and assessment criteria shall be met.

#### 4.2.3.1 UNIT 1: The nature of HIV/AIDS

After studying and understanding this unit, the Worker will be able to differentiate between HIV and AIDS and comprehend whether or not it is curable. The Worker will also be able to explain how the HI virus operates once a person is infected and identify the symptoms associated with the progression of HIV/AIDS.

##### Assessment Criteria:

- 1) Define and describe HIV and AIDS; and
- 2) List and describe the progression of HIV/AIDS.

#### 4.2.3.2 UNIT 2: Transmission of the HI virus

After studying and understanding this unit, the Worker will be able to identify bodily fluids that carry the HI virus. The Worker will be able to recognise how HIV/AIDS is transmitted and how it is not transmitted.

##### Assessment Criteria:

- 1) Record in what bodily fluids the HI virus can be found;
- 2) Describe how HIV/AIDS can be transmitted; and
- 3) Demonstrate the ability to distinguish between how HIV/AIDS is transmitted and misconceptions around transmittance of HIV/AIDS.

#### 4.2.3.3 UNIT 3: HIV/AIDS preventative measures

After studying and understanding this unit, the Worker will comprehend how to act in a way that would minimise the risk of HIV/AIDS infection and to use measures to prevent the HI virus from entering the bloodstream.

##### Assessment Criteria:

- 1) Report on how to minimise the risk of HIV/AIDS infection;
- 2) Report on precautions that can be taken to prevent HIV/AIDS infection;
- 3) Explain or demonstrate how to use a male and female condom; and
- 4) List the factors that could jeopardize the safety of condoms provided against HIV/AIDS transmission.

#### 4.2.3.4 UNIT 4: Voluntary HIV/AIDS counselling and testing

After studying and understanding this unit, the Worker will be able to recognise methods of testing for HIV/AIDS infection. The Worker will be able to understand the purpose of voluntary HIV/AIDS testing and pre- and post-test counselling.

##### Assessment Criteria:

- 1) Describe methods of testing for HIV/AIDS infection;
- 2) Report on why voluntary testing is important; and
- 3) Report on why pre- and post-test counselling is important.

#### 4.2.3.5 UNIT 5: Living with HIV/AIDS

After studying and understanding this unit, the Worker will be able to recognise the importance of caring for people living with HIV/AIDS and be able to manage HIV/AIDS.

##### Assessment Criteria:

- 1) List and describe ways to manage HIV/AIDS;
- 2) Describe nutritional needs of people living with HIV/AIDS;
- 3) Describe ways to embrace a healthy lifestyle as a person living with HIV/AIDS; and

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- 4) Explain the need for counselling and support to people living with HIV/AIDS.

#### 4.2.3.6 UNIT 6: Treatment options for people with HIV/AIDS

After studying and understanding this unit, the Worker will be familiar with the various treatments available to HIV/AIDS infected or potentially HIV/AIDS infected people

##### Assessment Criteria:

- 1) Discuss anti-retroviral therapy;
- 2) List methods of treatment to prevent HIV/AIDS transmission from mother-to-child;
- 3) Describe the need for treatment of opportunistic diseases for people living with HIV/AIDS; and
- 4) Describe post exposure prophylactics.

#### 4.2.3.7 UNIT 7: The rights and responsibilities of Workers in the workplace with regard to HIV/AIDS

After studying and understanding this unit, the Worker will be able to identify the rights and responsibilities of the Worker living with HIV/AIDS in the workplace. The Worker will recognise the importance of accepting colleagues living with HIV/AIDS and treating them in a non-discriminative way

##### Assessment Criteria:

- 1) Discuss the rights of a person living with HIV/AIDS in the workplace;
- 2) Discuss the responsibilities of a person living with HIV/AIDS in the workplace; and
- 3) Report on why acceptance and non-discrimination of colleagues living with HIV/AIDS is important.

### **4.3 Displaying of plastic laminated posters and distribution of information booklets**

The Contractor shall obtain a set of four laminated posters conveying different key messages and information booklets, which are available from all Regional Offices of the Department of Public Works.

The above-mentioned posters and information booklets have been prepared to raise awareness and to share information about HIV/AIDS and STI's.

Posters or display stands shall be displayed on site as soon as possible, but not later than 14 days after the date of site handover.

Posters shall be displayed in areas highly trafficked by Workers, including toilets, rest areas, the site office and compounds.

The posters on display must always be intact, clear and readable.

Information booklets must be distributed to all Workers as soon as possible, but not later than 14 days after site handover, or as soon as the Worker joins the site.

## **5 PROVIDING WORKERS WITH ACCESS TO CONDOMS**

The Contractor shall provide and maintain condom dispensers and make both male and female condoms, complying with the requirements of SABS ISO 4074, available at all times to all Workers at readily accessible points on site, for the duration of the contract. The Contractor may obtain condom dispensers from the Department of Health and condoms may be obtained from the Local Clinic or the Department of Health.

At least one male and one female condom dispenser and a sufficient supply of condoms, all to the approval of the Representative/Agent, shall be made available on site within 14 days of site hand over. Contractors should note that arrangements to obtain condoms from the Department of Health Clinics prior to site hand over may be necessary, to ensure that condoms are available within 14 days of site handover.

Condoms shall be made available in areas highly trafficked by Workers, including toilets, the site office and compounds.

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## **6 ENSURING ACCESS TO HIV/AIDS TESTING AND COUNSELLING FACILITIES AND TREATMENT OF SEXUALLY TRANSMITTED INFECTIONS (STI)**

The Contractor shall provide Workers with the names of the closest Service Providers that provide HIV/AIDS testing and counselling and Clinics providing Sexually Transmitted Infection (STI) diagnosis and treatment. Information on these Service Providers and Clinics must be displayed on a poster of a size not smaller than A1 in an area highly trafficked by Workers.

## **7 APPOINTMENT OF AN HIV/AIDS AWARENESS CHAMPION**

Within 14 days of site handover the Contractor shall appoint an Awareness Champion from amongst the Workers, who speaks, reads and writes English, who speaks and understands all the local languages spoken by the Workers and who shall be on site during all stages of the construction period. The Contractor shall ensure that the Awareness Champion has been trained by the Service Provider on basic HIV/AIDS information, the support services available and the necessary skills to handle questions regarding the HIV/AIDS programme in a sensitive and confidential manner.

The Awareness Champion shall be responsible for:

- 1) Liaising with the Service Provider on organising awareness workshops;
- 2) Filling condom dispensers and monitoring condom distribution;
- 3) Handing out information booklets; and
- 4) Placing and maintaining posters.

## **8 MONITORING**

The Contractor shall grant to the Representative/Agent reasonable access to the construction site, in order to establish that the Contractor complies with his obligations regarding HIV/AIDS awareness under this contract.

The Contractor must report problems experienced in implementing the HIV/AIDS requirements to the Representative/Agent.

The attached SITE CHECKLIST (SCHEDULE A) shall be completed and submitted at every construction progress inspection to the Representative/Agent.

The attached SERVICE PROVIDER REPORT (SCHEDULE B) shall be completed and submitted on a monthly basis to the Department's Project Manager, through the Representative/Agent.

The attached CONTRACTOR HIV/AIDS PROGRAMME REPORT (SCHEDULE C), a close out programme report, shall be completed by the Contractor at the end of the contract.

**SCHEDULE A****HIV/AIDS PROGRAMME: SITE CHECKLIST**

When did construction commence \_\_\_\_\_

Name of Departmental Project Manager \_\_\_\_\_

*Please refer to HIV/AIDS Programme activities during the reporting period*

Tick the block if Contractor satisfactorily complied with specifications																												
DATE	PI				PI				PI				PI				PI				PI							
	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M
Programme implemented within 14 days of site handover																												
Awareness champion on site																												
HIV/AIDS awareness service provider report																												
Male condom dispenser																												
Sufficient male condoms available																												
Male condom dispenser in a highly trafficked area																												
Female condom dispenser																												
Sufficient female condoms available																												
Female condom dispenser in a highly trafficked area																												
All four types of posters displayed																												
Posters in a good condition																												
Posters in a highly trafficked area																												
Posters displayed on local support services: clinic & VCT centre																												
Support service poster/s in highly trafficked area																												
Support service poster/s in a good condition																												

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<i>Please indicate the applicable number for the reporting period</i>							
Workers on payroll (at PI)							
Sub-Contractors who will be on site for longer than 30 days (at PI)							
Workshop attendees							
Number of workshops held							
Scheduled workshops according to approved workshop plan							
Booklets distributed							
Male condoms distributed							
Female condoms distributed							
Representative/Agent							
Contractor							

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Date of progress inspection (dd/mm/yy) \_\_\_\_\_

Reporting period: (dd/mm/yy) \_\_\_\_\_ to (dd/mm/yy) \_\_\_\_\_

Deviations from HIV/AIDS awareness programme plan:

Corrective actions:

\_\_\_\_\_  
Representative/Agent

\_\_\_\_\_  
Departmental Project Manager

\_\_\_\_\_  
Date:

\_\_\_\_\_  
Date:

## SCHEDULE B

### HIV/AIDS AWARENESS PROGRAMME: SERVICE PROVIDER REPORT

Reporting period: (dd/mm/yy) \_\_\_\_\_ to (dd/mm/yy) \_\_\_\_\_

Number of workshops conducted in reporting period: \_\_\_\_\_

Number of scheduled workshops according to approved workshop plan: \_\_\_\_\_

Deviations from workshop plan:

State reasons for deviating from workshop plan:

Corrective actions:

\_\_\_\_\_  
Service Provider

\_\_\_\_\_  
Contractor

\_\_\_\_\_  
Date:

\_\_\_\_\_  
Date:

## HIV/AIDS AWARENESS PROGRAMME: WORKSHOP CONTENT ADDRESSED

Fill in the applicable information with regard to each workshop conducted																												
DATE	W/S				W/S				W/S				W/S				W/S				W/S				W/S			
	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M
<b>Content of workshop:</b> (Mark the content included)																												
SLO1																												
SLO2																												
SLO3																												
SLO4																												
SLO5																												
SLO6																												
SLO7																												
HIV/AIDS in construction video																												
Indicate the duration of the workshop in hours																												
Total number of Workers																												
Indicate workshop venue																												

## HIV/AIDS AWARENESS PROGRAMME: ATTENDANCE REGISTER

*Fill in your name and indicate attendance by ticking the appropriate date*

[illegible]

Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_



## SCHEDULE C

### CONTRACTOR HIV/AIDS PROGRAMME REPORT

Project name \_\_\_\_\_

Project Location \_\_\_\_\_

Contract value of project (R) \_\_\_\_\_

Department of Public Works Project Manager \_\_\_\_\_

HIV/AIDS Programme duration: (dd/mm/yy) \_\_\_\_\_ to (dd/mm/yy) \_\_\_\_\_

#### AWARENESS MATERIAL

Describe location of posters displayed during the programme \_\_\_\_\_

\_\_\_\_\_

Comments on posters \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Indicate total number of booklets distributed \_\_\_\_\_

Comments on booklets \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

#### CONDOMS

Indicate total number of male condoms distributed \_\_\_\_\_

Indicate total number of female condoms distributed \_\_\_\_\_

Describe where male condom dispenser was placed \_\_\_\_\_

Describe where female condom dispenser was placed \_\_\_\_\_

#### HIV/AIDS WORKSHOPS

Indicate the total number of HIV/AIDS workshops conducted \_\_\_\_\_

Indicate the duration of workshops \_\_\_\_\_

Indicate the total number of Workers that participated in the HIV/AIDS workshops \_\_\_\_\_

Indicate the total number of Workers that were exposed to the video on HIV/AIDS in the Construction Industry \_\_\_\_\_

\_\_\_\_\_

Comments on HIV/AIDS workshops on site \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

## GENERAL

Briefly describe programme activities and satisfaction with outcome \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Additional comments, suggestions or needs with regard to the HIV/AIDS awareness programmes on site

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Please indicate if your company has a formal HIV/AIDS policy focussing on HIV/AIDS awareness raising and care and support of HIV/AIDS Workers

Currently		
Yes	No	developing one

Please indicate if, to your knowledge, you have lost any workers during the duration of the project to HIV/AIDS related sicknesses. One or more of the following might indicate an HIV/AIDS related death:

Excessive weight loss  
Reactive TB  
Hair loss  
Severe tiredness

Coughing or chest pain  
Pain when swallowing  
Persistent fever  
Diarrhoea

Vomiting  
Meningitis  
Memory loss  
Pneumonia

Number of HIV/AIDS-related deaths \_\_\_\_\_

\_\_\_\_\_  
**Contractor**

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
**Departmental Project Manager**

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

## **C3.6: NATIONAL TREASURY DESIGNATED SECTORS MINIMUM LOCAL CONTENT SPECIFICATION**

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Tenderer \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_ Employer \_\_\_\_ Witness 1 \_\_\_\_ Witness 2 \_\_\_\_

Part C3.6: National Treasury Designated Sectors Minimum Local Content Specification

**SBD 6.2**

**DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR  
DESIGNATED SECTORS**

This Standard Bidding Document (SBD) must form part of all bids invited. It contains general information and serves as a declaration form for local content (local production and local content are used interchangeably).

Before completing this declaration, bidders must study the General Conditions, Definitions, Directives applicable in respect of Local Content as prescribed in the Preferential Procurement Regulations, 2011, the South African Bureau of Standards (SABS) approved technical specification number SATS 1286:2011 (Edition 1) and the Guidance on the Calculation of Local Content together with the Local Content Declaration Templates [Annex C (Local Content Declaration: Summary Schedule), D (Imported Content Declaration: Supporting Schedule to Annex C) and E (Local Content Declaration: Supporting Schedule to Annex C)].

**1. General Conditions**

- 1.1. Preferential Procurement Regulations, 2011 (Regulation 9) makes provision for the promotion of local production and content.
- 1.2. Regulation 9.(1) prescribes that in the case of designated sectors, where in the award of bids local production and content is of critical importance, such bids must be advertised with the specific bidding condition that only locally produced goods, services or works or locally manufactured goods, with a stipulated minimum threshold for local production and content will be considered.
- 1.3. Where necessary, for bids referred to in paragraph 1.2 above, a two stage bidding process may be followed, where the first stage involves a minimum threshold for local production and content and the second stage price and B-BBEE.
- 1.4. A person awarded a contract in relation to a designated sector, may not sub-contract in such a manner that the local production and content of the overall value of the contract is reduced to below the stipulated minimum threshold.
- 1.5. The local content (LC) expressed as a percentage of the bid price must be calculated in accordance with the SABS approved technical specification number SATS 1286: 2011 as follows:

$$LC = [1 - x / y] * 100$$

Where

x is the imported content in Rand

y is the bid price in Rand excluding value added tax (VAT)

Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by South African Reserve Bank (SARB) at 12:00 on the date of advertisement of the bid as indicated in paragraph 4.1 below.

**The SABS approved technical specification number SATS 1286:2011 is accessible on [http://www.thedti.gov.za/industrial\\_development/ip.jsp](http://www.thedti.gov.za/industrial_development/ip.jsp) at no cost.**

- 1.6 A bid may be disqualified if –
  - (a) This Declaration Certificate and the Annex C (Local Content Declaration: Summary Schedule) are not submitted as part of the bid documentation; and
  - (b) The bidder fails to declare that the Local Content Declaration Templates (Annex C, D and E) have been audited and certified as correct.

---

Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

## 2. Definitions

- 2.1. **“bid”** includes written price quotations, advertised competitive bids or proposals;
- 2.2. **“bid price”** price offered by the bidder, excluding value added tax (VAT);
- 2.3. **“contract”** means the agreement that results from the acceptance of a bid by an organ of state;
- 2.4. **“designated sector”** means a sector, sub-sector or industry that has been designated by the Department of Trade and Industry in line with national development and industrial policies for local production, where only locally produced services, works or goods or locally manufactured goods meet the stipulated minimum threshold for local production and content;
- 2.5. **“duly sign”** means a Declaration Certificate for Local Content that has been signed by the Chief Financial Officer or other legally responsible person nominated in writing by the Chief Executive, or senior member / person with management responsibility(close corporation, partnership or individual).
- 2.6. **“imported content”** means that portion of the bid price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or its subcontractors) and which costs are inclusive of the costs abroad (this includes labour or intellectual property costs), plus freight and other direct importation costs, such as landing costs, dock duties, import duty, sales duty or other similar tax or duty at the South African port of entry;
- 2.7. **“local content”** means that portion of the bid price which is not included in the imported content, provided that local manufacture does take place;
- 2.8. **“stipulated minimum threshold”** means that portion of local production and content as determined by the Department of Trade and Industry; and
- 2.9. **“sub-contract”** means the primary contractor’s assigning, leasing, making out work to, or employing another person to support such primary contractor in the execution of part of a project in terms of the contract.

## 3. The stipulated minimum threshold(s) for local production and content (refer to Annex A of SATS 1286:2011) for this bid is/are as follows:

#	Industry/Sector/Sub-Sector Already Designated	Minimum local content
2.1	Steel Products and Components for Construction	
	Steel Value-added Products: <ul style="list-style-type: none"> <li>Fabricated Structural Steel Joining/Connecting Components Frames</li> <li>Roof and Cladding</li> <li>Fasteners</li> <li>Wire Products</li> <li>Ducting and Structural pipework</li> <li>Gutters, downpipes &amp; lauders</li> </ul>	100%
	Primary Steel Products: <ul style="list-style-type: none"> <li>Plates</li> <li>Sheets</li> <li>Galvanized and Colour Coated Coils</li> <li>Wire Rod and Drawn Wire</li> <li>Sections</li> <li>Reinforcing bars</li> </ul>	100%

Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

#	Industry/Sector/Sub-Sector Already Designated	Minimum local content
2.2	Pumps, Medium Voltage (MV) motors and associated Accessories	
	Pumps: <ul style="list-style-type: none"> <li>• End Suction Centrifugal Multistage Centrifugal Horizontal Split casing pumps Vertical Turbine Pumps Positive displacement</li> <li>• Self-priming Centrifugal Pumps</li> <li>• Slurry Pumps</li> <li>• Vacuum Pumps</li> <li>• Centrifugal Process Pumps</li> </ul>	70%
	Medium voltage electric motor  Components and manufacturing Processes: <ul style="list-style-type: none"> <li>• Casting and Frame Fabrication Fabrication and winding if the stator core Fabrication and winding of the rotor core Accessories</li> <li>• Assembly and testing of the fully built unit</li> </ul>	70%

4. Does any portion of the services, works or goods offered have any imported content?

(Tick applicable box)

YES		NO	
-----	--	----	--

- 4.1 If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.5 of the general conditions must be the rate(s) published by SARB for the specific currency at 12:00 on the date of advertisement of the bid.

The relevant rates of exchange information is accessible on [www.reservebank.co.za](http://www.reservebank.co.za).

Indicate the rate(s) of exchange against the appropriate currency in the table below (refer to Annex A of SATS 1286:2011):

Currency	Rates of exchange
US Dollar	
Pound Sterling	
Euro	
Yen	
Other	

NB: Bidders must submit proof of the SARB rate (s) of exchange used.

5. Were the Local Content Declaration Templates (Annex C, D and E) audited and certified as correct?

(Tick applicable box)

YES		NO	
-----	--	----	--

5.1. If yes, provide the following particulars:

(a) Full name of auditor: .....

(b) Practice number: .....

(c) Telephone and cell number: .....

(d) Email address: .....

(Documentary proof regarding the declaration will, when required, be submitted to the satisfaction of the Accounting Officer / Accounting Authority)

6. Where, after the award of a bid, challenges are experienced in meeting the stipulated minimum threshold for local content the dti must be informed accordingly in order for the dti to verify and in consultation with the AO/AA provide directives in this regard.

**LOCAL CONTENT DECLARATION**  
**(REFER TO ANNEX B OF SATS 1286:2011)**

**LOCAL CONTENT DECLARATION BY CHIEF FINANCIAL OFFICER OR OTHER LEGALLY RESPONSIBLE PERSON NOMINATED IN WRITING BY THE CHIEF EXECUTIVE OR SENIOR MEMBER/PERSON WITH MANAGEMENT RESPONSIBILITY (CLOSE CORPORATION, PARTNERSHIP OR INDIVIDUAL)**

**IN RESPECT OF BID NO.** .....

**ISSUED BY:** .....

(Procurement Authority / Name of Institution)

**NB:**

- 1 The obligation to complete, duly sign and submit this declaration cannot be transferred to an external authorized representative, auditor or any other third party acting on behalf of the bidder.
- 2 Guidance on the Calculation of Local Content together with Local Content Declaration Templates (Annex C, D and E) is accessible on <http://www.thdti.gov.za/industrialdevelopment/ip.jsp>. Bidders should first complete Declaration D. After completing Declaration D, bidders should complete Declaration E and then consolidate the information on Declaration C. **Declaration C should be submitted with the bid documentation at the closing date and time of the bid in order to substantiate the declaration made in paragraph (c) below.** Declarations D and E should be kept by the bidders for verification purposes for a period of at least 5 years. The successful bidder is required to continuously update Declarations C, D and E with the actual values for the duration of the contract.

I, the undersigned, ..... (full names),

do hereby declare, in my capacity as .....

of .....(name of bidder entity),  
the following:

- a) The facts contained herein are within my own personal knowledge.
- b) I have satisfied myself that:
  - (i) the goods/services/works to be delivered in terms of the above-specified bid comply with the minimum local content requirements as specified in the bid, and as measured in terms of SATS 1286:2011; and
  - (ii) the declaration templates have been audited and certified to be correct.
- c) The local content percentage (%) indicated below has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E which has been consolidated in Declaration C:

Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_



Bid price, excluding VAT (y)	R
Imported content (x), as calculated in terms of SATS 1286:2011	R
Stipulated minimum threshold for local content (paragraph 3 above)	
Local content %, as calculated in terms of SATS 1286:2011	

**If the bid is for more than one product, the local content percentages for each product contained in Declaration C shall be used instead of the table above.**

**The local content percentages for each product has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E.**

d) I accept that the Procurement Authority / Institution has the right to request that the local content be verified in terms of the requirements of SATS 1286:2011.

e) I understand that the awarding of the bid is dependent on the accuracy of the information furnished in this application. I also understand that the submission of incorrect data, or data that are not verifiable as described in SATS 1286:2011, may result in the Procurement Authority / Institution imposing any or all of the remedies as provided for in Regulation 13 of the Preferential Procurement Regulations, 2011 promulgated under the Preferential Policy Framework Act (PPPFA), 2000 (Act No. 5 of 2000).

**SIGNATURE:** \_\_\_\_\_

**WITNESS No. 1** \_\_\_\_\_

**WITNESS No. 2** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

## **C3.7: SMME SPECIFICATION**

## C3.7: SMME Specifications



**CONTRACT NO: ASP/YANFENG/EXT/11/09/Z1A**

**EXTENSIONS TO YANFENG MANUFACTURING FACILITY IN ZONE  
1A OF THE ELIDZ**

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

## 1 PREFERENTIAL PROCUREMENT PROCEDURES

Tenders will be evaluated in terms of the ELIDZ Supply Chain Management Policy.

## 2 DEFINITIONS

SMME: Small Micro and Medium Enterprise

The ELIDZ defines an SMME as a company with at least 51% black ownership, a turnover of less than R50 million and from the BCMM area.

## 3 SUBCONTRACTING

### 3.1 Scope of Mandatory Subcontract Works

A major objective of the targeted procurement procedure is to extend **ECONOMIC** and **DEVELOPMENTAL** opportunities to SMMEs in the execution of the project.

It is an express condition of this Contract, that the ELIDZ enforce that a minimum of **30%** of the contract amount, be subcontracted to SMMEs, registered in the appropriate CIDB Contractor grading designation, for the appropriate type and value of the subcontracted works.

Notwithstanding the normal requirements of Government for an enterprise to be acknowledged and categorised as a SMME, the ELIDZ further require the Tenderer to ensure that the SMMEs he intends subcontracting with complies with the following criteria:

- Must have a valid Tax Clearance Certificate;
- Must have a valid CIDB registration in the appropriate category and value range for the anticipated scope of work;
- Must be registered on the Central Supplier Database (CSD);
- Must be 51% Black owned;
- Must have a turnover of less than R50 million;
- Must be from the Buffalo City Metropolitan Municipality area; and
- Must have a B-BBEE Certificate from a SANAS accredited institution or a Micro Enterprise Affidavit (as issued by the Department of Trade and Industry).

The scope of the work to be subcontracted to SMMEs is the prerogative of the Tenderer (referred to in this specification as the Principal Contractor).

The contractual relationship between the Principal Contractor and any of the Subcontractors / SMMEs shall be the same as if the Principal Contractor had appointed these subcontractors. The Principal Contractor shall take full responsibility for these Subcontractors.

### 3.2 SMME Subcontractors

This section provides the specifications that relate to the Principal Contractor's implementation of the policies and initiatives of the Government, community participation, and employment of SMMEs. These specifications should be read in conjunction with the various statutes and legislation that relate to small businesses and Broad-Based Black Economic Empowerment.

In this regard all tenders will be considered with specific reference to applicable legislation in force from time to time and which are specifically applicable to organs of state for example the following:

- (i) The Constitution of the Republic of South Africa, 1993;

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Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

- (ii) Public Finance Management Act, 1999 (Act No 1 of 1999);
- (iii) Preferential Procurement Policy Framework Act, 2000 (Act No 5 of 2000);
- (iv) Broad-Based Black Economic Empowerment Act, 2003 (Act No 53 of 2003);
- (v) Construction Industry Development Board Act, 2000 (Act No 38 of 2000) and Regulations; and
- (vi) National Small Business Amendment Act, 2003 (Act No 26 of 2003).

**It should be noted that** only one work package may be subcontracted to one specific subcontractor unless the subcontractor is able to demonstrate that he / she has the necessary capacity, ability, infrastructure and financial means to simultaneously undertake and execute more than one package of work.

### 3.3 SMME Subcontractor Selection Process

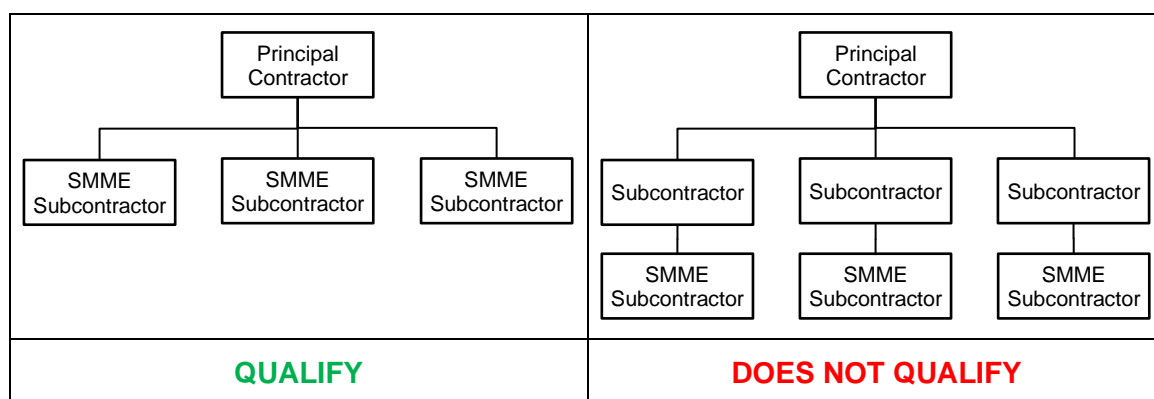
SMMEs on the ELIDZ SMME database are to be approached first. If these SMMEs are not suitable or adequate then SMMEs who are not on the database may be selected.

### 3.4 Preferred subcontractors / suppliers

To be confirmed.

### 3.5 Subcontracting Structures

All Subcontractors (SMMEs) shall be directly appointed by the Principal Contractor and the contents and requirements for subcontracting as contained in the JBCC shall apply in full. SMME Subcontractors of Subcontractors do not qualify as SMMEs.



### 3.6 Subcontracting Conditions

It must be noted, that the Subcontractor (SMME) must be registered with the Construction Industry Development Board, in the appropriate category, according to the estimated value of the work package.

The **Tender Data and Contract Date**, as applicable to the Contractor, shall apply where relevant, to the subcontracts (SMMEs).

The Subcontract Agreement shall also specify:

- (i) the terms and conditions relating to the recruitment, employment and remuneration of workers engaged on the subcontract works; and
- (ii) details of any training to be provided to the temporary workforce.

The Principal Contractor shall at all times remain responsible for providing the subcontracted portion of the Works as if the work had not been subcontracted.

### 3.7 30% SMME Allocation

The tenderer is to note that the 30% SMME allocation split is to be applied as follows:

Tenderer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_ Employer \_\_\_\_\_ Witness 1 \_\_\_\_\_ Witness 2 \_\_\_\_\_

- **30%** of **provisional sum items**;
- **30%** of **building works** excluding provisional sums; and
- **30%** of **total spending** (including disbursements, P&G's, VO's) is to be allocated to SMME's.

### 3.8 Attendance on Subcontractors (SMMEs)

The Principal Contractor shall be responsible for ensuring that the Subcontractors (SMMEs) fully comprehend the following:

- Implications of the liabilities and responsibilities inherent in the subcontract into which the tenderer proposes entering;
- Implications of the tendered rates; and
- Scope and extent of the Works included in the Subcontract.

The Principal Contractor shall closely manage, mentor, supervise, guide and assist each Subcontractor (SMMEs) in all aspects of management, planning, execution and the completion of each Subcontract.

The above shall include inter alia, but is not limited to, the following:

- (i) Planning and programming of the Works;
- (ii) The sourcing, ordering, purchasing, hiring all the necessary Construction Equipment, Materials, tools and accidentals necessary and required for the successful execution and completion of the Permanent as well as the Temporary Works;
- (iii) Labour relations and employment;
- (iv) Monthly measurements, costing and invoicing;
- (v) General safety, occupational health and safety matters;
- (vi) Functions of civil engineering infrastructure, structures, services and systems;
- (vii) Interpreting and understanding the contract and subcontract;
- (viii) Construction and maintenance methods and procedures;
- (ix) Communication;
- (x) Cash-flow control, submitting invoices and payment certificates;
- (xi) Planning, programming, scheduling, critical path control and acceleration;
- (xii) Maintenance planning;
- (xiii) Material procurement and control;
- (xiv) Risk limitation and management;
- (xv) Quality assurance and procedures;
- (xvi) Compliances with all applicable laws, regulations, statutory provisions and agreements;
- (xvii) General Conditions of Contract and Contract Data; and
- (xviii) Contractual claims, if situations arise that entitle a contractor to claims in terms of the Conditions of Contract.

The extent and level of management, mentorship, supervision, guidance and assistance to be provided by the Principal Contractor shall be in **commensuration with the expertise** of the **relevant subcontractor (SMME)** and should be so directed

as to enable the subcontractors to achieve the successful execution and completion of the respective Subcontracts (SMMEs).

### **3.9 Quality of work and performance of the Subcontractor (SMME)**

The Contractor shall closely monitor and supervise all Subcontractors (SMMEs) and shall guide and assist each subcontractor in all aspects of management, execution and completion of his subcontract. This shall typically include assistance with planning of the works, sourcing and ordering of materials, labour relations, monthly measurements and invoicing procedures. The extent and level of such guidance and assistance, to be provided by the Contractor shall be commensurate with the basic level of subcontract applicable and shall be directed at enabling the subcontractor to achieve the successful execution and completion of his subcontract.

The Contractor shall give reasonable warning to the subcontractors when any contravention of the terms and conditions of the subcontract has occurred or appears likely to occur. The Contractor shall, when required, give the subcontractor reasonable opportunity to make good any such contravention or to avoid such contravention and shall render all reasonable assistance to the subcontractor in this regard.

### **3.10 Works to be undertaken by SMMEs**

It is the Principal Contractor's responsibility to identify SMME work packages. It shall remain the Principal Contractor's responsibility to ensure that the target percentage of works to be subcontracted to SMMEs as contained in this specification, is attained.

The rates tendered by the Principal Contractor for work undertaken by Micro Enterprises shall include full compensation for all guidance, supervision, mentoring, setting out and monitoring activities that may be deemed necessary to ensure the works carried out by the SMMEs are in accordance with the drawings, technical and OHS specifications, and within the agreed timeframes. The Principal Contractor's tendered rates for SMME works shall further include full compensation for such administration, management and company overhead charges, finance costs, risk, profit and all other requirements contained in this specification.

### **3.11 Penalty Calculation for Failure Achieve Targeted Percentage**

Should the contractor fail to meet the minimum requirement of subletting at least **30%** of the Contract value to SMMEs, a penalty of **25%** x the value of the amount to be sublet, minus the actual value sublet, will be implemented. This amount will be deducted from the Principal Contractor's payment certificate.

The Principal Contractor is to indicate to the ELIDZ via a report certified by their Auditors confirming that at least **30%** of the Contract value has been paid to SMMEs at the end of the Contract before the Final Completion Certificate is issued.

**C4: SITE INFORMATION**



## C4: SITE INFORMATION

### C4.1 Site information

The project is scheduled for construction on an existing plot in the East London Industrial Development (ELIDZ), Zone 1A. Access is to be through the main entrance gate of the East London IDZ zone 1A and all incoming traffic should adhere to the ELIDZ security protocols. Construction access will be via a separate entrance gate located along the southern boundary of the ELIDZ along Prince Georges Circuit Drive.

Existing infrastructure exists and services should be reinstated to the conditions established before the use there of.

The Contractor must ensure that the road around the site remains operational with the minimum disruption. The Contractor must ensure noise and dust pollution is minimised during the course of the project.

Current services existing on site include water, electrical, telecom, sewer and stormwater reticulation networks. The Contractor must determine the locality of these services in proximity to the works areas and exercise due caution not to damage or disrupt any of these services. The Contractor will be held accountable for any damages to the services for which they are responsible.

The Tenderer must visit the site as per the compulsory briefing or Site Clarification Meeting with representatives of the Employer.

The Tenderer must also assess the access road to site (route to be indicated on the attached existing services plan and pointed out at the site inspection), and in his tender must allow for the delivery of materials on site. No claims will be entertained for the double handling of materials if required. The Tenderer will also be responsible for maintaining the access road for the duration of the contract, and reinstating the access road to the original conditions upon completion of the works.

### C4.2 Site Photos

Photo 1: Area where Foam cell enclosure will be construction



Photo 2: Mezzanine  
platform area

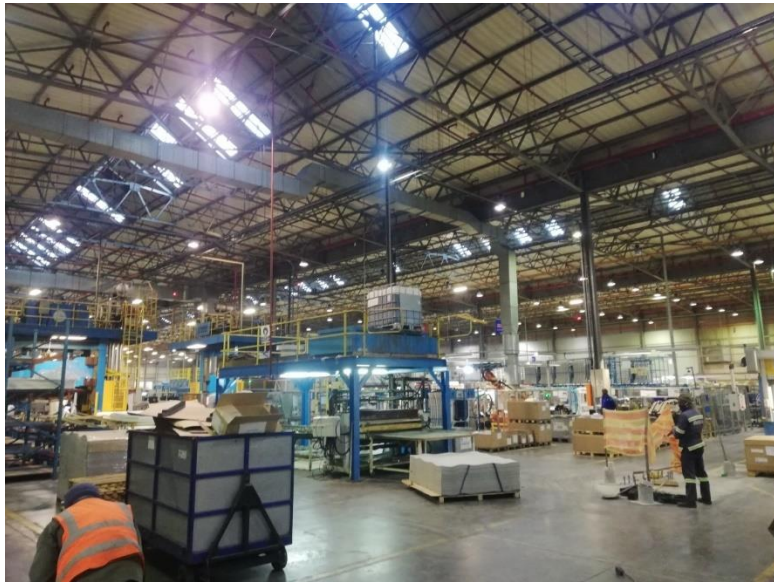


Photo 3: Existing Export  
dispatch area



Photo 4:  
Dispatch/Receiving area



Photo 5: Existing access  
door



**PART D1: DRAWINGS AND DOCUMENTS**  
**(See soft copies attached)**

## D1: DRAWING AND DOCUMENT REGISTER

The following concept design drawings are included in the tender documents:

Drawing Number		Drawing Name	
<b>Discipline:</b>	<b>Architecture</b>	<b>Issued:</b>	<b>Osmond Lange Architects</b>
1439-YAN-AR-100-REV B		CUN Dispatch Area Details	
1439-YAN-AR-101-REV C		W206 Dispatch Area Details	
1439-YAN-AR-102-REV C		Tugger Route Roller Shutter Door Details	
1439-YAN-AR-103-REV B		Foaming Cell Enclosure Details	
1439-YAN-AR-107-REV A		Site Plan- Scope of Works	
<b>Discipline:</b>	<b>Civil</b>	<b>Issued:</b>	<b>BVi</b>
N/A			
<b>Discipline:</b>	<b>Structural</b>	<b>Issued:</b>	<b>BVi</b>
885-1-1		Column Layout	
885-1-2		Girder Arrangement	
885-1-3		Timber Support Beams	
885-1-4		Timber Board Layout	
885-1-5		AGV Platform Details	
<b>Discipline:</b>	<b>Electrical and Mechanical</b>	<b>Issued:</b>	<b>Evans Consulting</b>
2019-348-CE2-12-001		Fire Protection	
2019-348-CE2-12-002		Fire Protection	
2019-348-CE2-12-003		Fire Protection	
2019-348-CE2-12-004		Fire Protection	
2019-348-CE2-12-005		Fire Protection	
2019-348-CE2-12-006		Fire Protection	