public works & infrastructure
Department:
Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

# BILLS OF QUANTITIES

# FOR

## THOHOYANDOU CORRECTIONAL CENTRE: MEDIUM B

## KITCHEN UPGRADING,REPLACEMENT OF KITCHEN EQUIPMENTS

## VOLUME 1 OF 3


**PRINCIPAL AGENT & MECHANICAL ENGINEER**
Tsepa Consulting
308 Rentmeester Building
58 Schoeman Street
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0699
Cel: 062 646 6077
Fax: 015-291 5205
E-mail: amonmasanganise@live.co.za

**ARCHITECTS**
Nxumalo De Jager Architects
P.O. Box 632
23 Peace Street
Tzaneen
0850
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Fax: 086 602 6830
Email: reception@ndj.co.za

**QUANTITY SURVEYOR**
Phahlana Hunadi Quantity Surveyors
P.O. Box 632
Lebokgomo
0737
Tel: 015-633 6535/012 493 0854
Fax: 015-633 6477
E-mail: Info@phqs.net

**ELECTRICAL ENGINEERS**
Mogalemole Consulting
42 Hog Street
Polokwane
0700
Tel: 015-297 3556
Fax: 015- 297 2096
Email: info@mogalemole.co.za

**DEPARTMENT OF PUBLIC WORKS**
77 Hans van Rensburg Street
POLOKWANE
0700
Tel: 015-291 6000
Fax: 015-297 3314


**NAME OF TENDERER**: .....

**TENDER SUM**: .....


public works & infrastructure
Department:
Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA


EXPANDED PUBLIC WORKS PROGRAMME

# REPUBLIC OF SOUTH AFRICA

## DEPARTMENT OF PUBLIC WORKS & INFRASTRUCTURE

**THOHOYANDOU CORRECTIONAL CENTRE: KITCHEN UPGRADING, REPLACEMENT OF KITCHEN EQUIPMENTS AS WELL AS TEMPORARY KITCHEN: MEDIUM B**

**PLK 23/05**

# VOLUME 1

# TENDERING PROCEEDURES

# T1.1

# Tender Notice and Invitation to Tender

**YOU ARE HEREBY INVITED TO TENDER TO THE GOVERNMENT OF THE REPUBLIC OF SOUTH AFRICA**

**PLEASE TAKE NOTE** **BID NUMBER: PLK23/05**
**CLOSING TIME: 11H00** **CLOSING DATE: 18/07/2023**

***TENDERS RECEIVED AFTER THE CLOSING TIME AND DATE ARE LATE AND WILL AS A RULE NOT BE ACCEPTED FOR CONSIDERATION***

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The **Tax Clearance Certificate for Tender Purposes** from the Receiver of Revenue and the **Tender Form** must be completed and signed in the original that is in ink. Forms with photocopied signatures or other such reproduction of signatures may be rejected.

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**TENDER DOCUMENTS MAY BE POSTED TO**

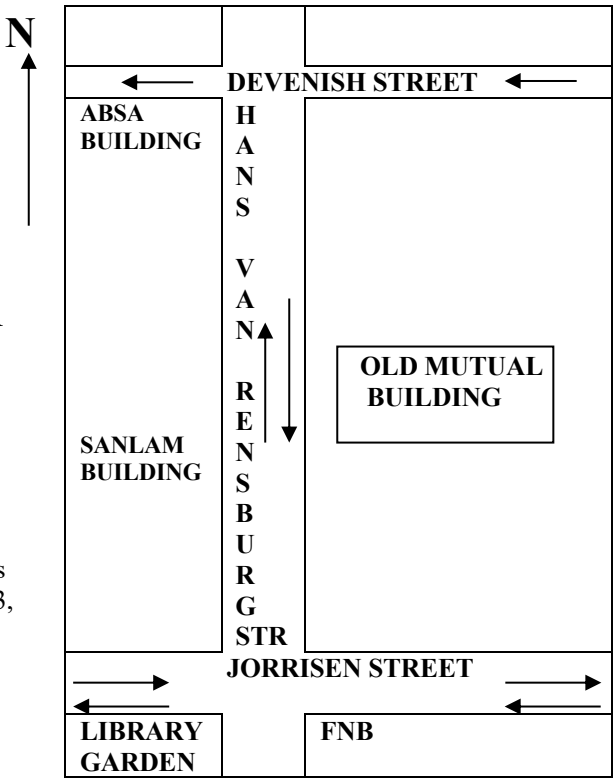
REGIONAL MANAGER
Department of Public Works
Private Bag X 9469
POLOKWANE
0700

ATTENTION: TENDER SECTION: ROOM 03, GROUND FLOOR

Tender documents that are posted must reach the Department of Public Works before the closing date of the tender.

**OR**

The tender documents may be deposited in the tender box which is identified as the tender box of the Department of Public Works which is located at 78 Hans van Rensburg Street, Old Mutual Building, Room 03, Ground Floor.




The tender box at the Regional Office: Department of Public Works: POLOKWANE is open **(Mondays to Fridays 07:30 – 12:15 / 13:00 – 16:00.)** However, if the tender is late, it will as a rule not be accepted for consideration.

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*Tenderers should ensure that tenders are delivered timeously to the correct address.*

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**SUBMIT ALL TENDERS ON THE OFFICIAL FORMS - DO NOT RETYPE.**
*Tenders by telegram, facsimile or other similar apparatus will not be accepted for consideration.*

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**SUBMIT EACH TENDER IN A SEPARATE SEALED ENVELOPE.**

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The Government Tender Bulletin is available on the Internet on the following web sites:

1. http://www.treasury.gov.za
2. http://www.gov.za/tenders/

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# PA-04 (EC): NOTICE AND INVITATION TO TENDER

**THE DEPARTMENT OF PUBLIC WORKS AND INFRASTRUCTURE INVITES TENDERS FOR:**

| | |
|---|---|
| **Project title:** | Kitchen Upgrading, Replacement of Kichen Equipments as well as temporary Kitchen: Thohoyandou Correctional centre: Medium B |

| | | | |
|---|---|---|---|
| **Tender no:** | PLK23/05 | **Reference no:** | 6054/0011 |
| **Advertising date:** | 23/06/2023 | **Closing date:** | 18/07/2023 |
| **Closing time:** | 11:00 | **Validity period:** | 84 Calendar days |

## 1. REQUIRED CIDB GRADING

It is estimated that tenderers should have a CIDB contractor grading designation of ***6 ME*** *or* ***6 ME**** or higher.
** Delete "or select tender value range select class of construction works" where only one class of construction works is applicable*

It is estimated that potentially emerging enterprises should have a CIDB contractor grading designation of ***Not applicable select class of construction works*** **PE** *or* ***Not applicable Not applicable*** **PE*** or higher.
** Delete "or select tender value range select class of construction works PE" where only one class of construction works is applicable*

## 2. RESPONSIVENESS CRITERIA

### 2.1 Substantive responsiveness criteria

Only tenderers who are responsive to the following substantive responsiveness criteria are eligible to submit tenders. Failure to comply with the criteria stated hereunder shall result in the tender offer being disqualified from further consideration:

| | | |
|---|---|---|
| 1 | ☒ | Only those tenderers who satisfy the eligibility criteria stated in the Tender Data may submit tenders. |
| 2 | ☒ | Tender offer must be properly received on the tender closing date and time specified on the invitation, fully completed either electronically (if issued in electronic format), or by writing legibly in non-erasable ink. (All as per Standard Conditions of Tender). |
| 3 | ☒ | Use of correction fluid is prohibited. |
| 4 | ☒ | Registration on National Treasury's Central Supplier Database. |
| 5 | ☒ | Submission of (DPW-07 EC): Form of Offer and Acceptance. |
| 6 | ☒ | Submission of DPW-09 (EC): Particulars of Tenderer's Projects. |
| 7 | ☐ | Submission of DPW-16 (EC): Site Inspection Meeting Certificate |
| 8 | ☐ | Submission of record of attending compulsory virtual bid clarification / site inspection meeting. |
| 9 | ☒ | Submission of DPW-21 (EC): Record of Addenda to tender documents |
| 10 | ☒ | The tenderer shall submit his fully priced Bills of Quantities / Lump Sum Document (complete document inclusive of all parts) together with his tender. |

**Tender no:** PLK23/05

| | | |
|---|---|---|
| 11 | ☒ | The tenderer shall submit his fully priced and completed sectional summary- and final summary pages with the tender. |
| 12 | ☒ | All parts of tender documents submitted must be fully completed in ink and signed where required |
| 13 | ☒ | Submission of registration as a Construction Health and Safety Officer (CHSO) or Construction Health and Safety Manager (CHSM) or Pr. Construction Health and Safety Agent (CHSA) with SACPCMP and a Construction Manager based on the Construction Regulation 2014, Regulation 8 (1) & (5) and Regulation 7.<br><br>Submission of registration with the Department of Labour & Employment for accredited person as an installation electrician and that is accredited to issue certificate of compliance (COC) ranging from 0 to 380 Voltage.<br><br>The tenderer is registered with the Unemployment Insurance Fund (UIF) with the department of Labour. The tenderer is registered with the Workmen's Compensation for Occupational Injuries and Diseases (COID) with the department of Labour.<br><br>Submission of registration as a gas practitioner Category B for the installation and commissioning of air conditioning and refrigeration gas with the South African Qualification & Certification Committee for the Fire Industry (SAQCC), based on the Guidance Notes to the Pressure Equipment Regulations 17, July 2009 of the Department of Labour for Occupational Health and Safety Act, Act 85 of 1993, Revision 1 of 2015 and must able to issue a certificates of conformity (COC) in terms of regulation 17(3) of the pressure equipment regulations, 2009.<br><br>The tenderer is registered with the Unemployment Insurance Fund (UIF) with the department of Labour. The tenderer is registered with the Workmen's Compensation for Occupational Injuries and Diseases (COID) with the department of Labour. The tenderer or any of its directors has not been listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act, 2004 (Act No. 12 of 2004) as a person prohibited from doing business with the public sector.<br><br>The tenderer has not abused the Employer's Supply Chain Management System; or the tenderer has failed to perform on any previous contract and has been given a written notice to this effect.<br><br>All individuals that are not born in South Africa and that are working or are employees or are directors / trustees / shareholders / members of a business in Republic of South Africa must submit the permanent residence certificate or relevant permit that are as follows ( In terms of Section 15, Section 19, Section 23 and Section 25 of Immigration Act No: 13 of 2002 as amended and must abide by the terms and conditions of Section 43 of Immigration Act No: 13 of 2002 as amended) or they must submit the relevant permit ( In terms of Section 22 permit or Section 24 permit or "Certification" or Section 27 of Refugee Act No: 130 of 1998 as amended) or they must submit Neutralisation Certificate ( In terms of section 5 of the South African Citizenship Act no: 88 of 1995 as amended). The concerned bidder must also submit a signed original stamped letter from the Immigration Section of the Department of Home Affairs Offices that will confirm that the above mentioned documents (permits or certificates) in terms of the above mentioned acts are authentic. No assessment of Section 43 of Immigration Act No: 13 of 2002 as amended will be performed on this tender in the absence of requested information/ relevant permit or certificate and will therefore render the tender as unacceptable and excluded from any and all further consideration. |

## 2.2 Administrative responsiveness criteria

The Employer reserves the right to request further information regarding the undermentioned criteria. Failing to submit further clarification and/or documentation within seven (7) calendar days from request or as specifically indicated, will disqualify the tender offer from further consideration.

| | | |
|---|---|---|
| 1 | ☒ | Any correction to be initialled by the person authorised to sign the tender documentation as per PA 15.1 or PA 15.2 resolution of board/s of directors / or PA15.3 Special Resolution of Consortia or JV's . |
| 2 | ☒ | Submission of applicable (PA-15.1, PA-15.2, PA-15.3): Resolution by the legal entity, or consortium / joint venture, authorising a dedicated person(s) to sign documents on behalf of the firm / consortium / joint venture. |
| 3 | ☐ | Submission of (PA-09 (EC)): List of Returnable Documents |
| 4 | ☒ | Submission of (PA-11): Bidder's disclosure. |
| 5 | ☒ | Submission of (PA-16): Preference Points Claim Form in terms of the Preferential Procurement Regulations 2022 |
| 6 | ☒ | Submission of (PA 40): Declaration of Designated Groups for Preferential Procurement. |
| 7 | ☒ | Submission of proof of Registration on National Treasury's Central Supplier Database (CSD). |
| 8 | ☒ | Submission of DPW-15 (EC): Schedule of proposed sub-contractors |
| 9 | ☐ | The tenderer shall submit his fully priced Bills of Quantities (complete document inclusive of all parts) within 14 days from request. |
| 10 | ☒ | Upon request, submission of fingerprints obtainable from local SAPS including any other additional documentation and information required for vetting purposes. |
| 11 | ☒ | Upon request, submission of a fully completed security clearance application form with supporting documentation and information as required. The security clearance form will be provided by the Employer for projects requiring a security clearance. |
| 12 | ☒ | Submission of (PA-29): Certificate of Independent Bid Determination.<br>A non-compulsory site clarification/briefing/inspection meeting will be held. |

### 3. Method to be used to calculate points for specific goals

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**For procurement transaction with rand value greater than R2 000, 00 and up to R1 Million (Inclusive of all applicable taxes) the specific goals listed below are applicable.**

| Serial No | Specific Goals | Preference Points Allocated out of 20 | Documentation to be submitted by bidders to validate their claim |
|---|---|---|---|
| 1. | An EME or QSE which is at least 51% owned by black people. | 10 | ID Copy.<br>or<br>SANAS Accredited BBBEE Certificate/ Sworn Affidavit.<br>or<br>CSD Report.<br>or<br>CIPC (Company registration) |
| 2. | Located in a specific Local Municipality or District Municipality or Metro or Province area for work to be done or services to be rendered in that area. | 2 | Office Municipal Rates Statement.<br>or<br>Permission to occupy from local chief in case of rural areas (PTO).<br>or<br>Lease Agreement |
| 3. | An EME or QSE which is at least 51% owned by women | 4 | ID Copy<br>or<br>CSD Report<br>or<br>CIPC (Company Registrations) |

| | | | | |
|---|---|---|---|---|
| | | | | South African Social Security Agency (SASSA) Registration<br>or<br>National Council for Persons with Physical Disability in South Africa registration (NCPPDSA) |
| | 5. | An EME or QSE which is at least 51% owned by youth. | 2 | ID Copy<br>or<br>CSD Report<br>Or<br>CIPC |

☒

**For procurement transaction with rand value greater than R1 Million and up to R50 Million (Inclusive of all applicable taxes) the specific goals listed below are applicable.**

| Serial No | Specific Goals | Preference Points Allocated out of 20 | Documentation to be submitted by bidders to validate their claim |
|---|---|---|---|
| 1. | An EME or QSE which is at least 51% owned by black people. | 10 | ID Copy.<br>or<br>SANAS Accredited BBBEE Certificate/ Sworn Affidavit.<br>or<br>CSD Report.<br>or<br>CIPC (Company registration) |
| 2. | Located in a specific Local Municipality or District Municipality or Metro or Province area for work to be done or services to be rendered in that area. | 2 | Office Municipal Rates Statement.<br>or<br>Permission to occupy from local chief in case of rural areas (PTO).<br>or<br>Lease Agreement |
| 3. | An EME or QSE which is at least 51% owned by women | 4 | ID Copy<br>or<br>CSD Report<br>or<br>CIPC (Company Registrations) |
| 4. | An EME or QSE which is at least 51% owned by people with disability. | 2 | Medical Certificate<br>or<br>South African Social Security Agency (SASSA) Registration<br>or<br>National Council for Persons with Physical Disability in South Africa registration (NCPPDSA) |
| 5. | An EME or QSE which is at least 51% owned by youth (Mandatory) | 2 | ID Copy<br>or<br>CSD Report<br>Or<br>CIPC |

**For procurement transaction with rand value greater than R50 Million (Inclusive of all applicable taxes) the specific goals listed below are applicable.**

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| Serial No | Specific Goals | Preference Points Allocated out of 10 | Documentation to be submitted by bidders to validate their claim |
|---|---|---|---|
| 1. | An EME or QSE which is at least 51% owned by black people. | 4 | ID Copy.<br>or<br>SANAS Accredited BBBEE Certificate/ Sworn Affidavit.<br>or<br>CSD Report.<br>or<br>CIPC (Company registration) |
| 2. | Located in a specific Local Municipality or District Municipality or Metro or Province area for work to be done or services to be rendered in that area. | 2 | Office Municipal Rates Statement.<br>or<br>Permission to occupy from local chief in case of rural areas (PTO).<br>or<br>Lease Agreement |
| 3. | An EME or QSE which is at least 51% owned by women | 2 | ID Copy<br>or<br>CSD Report<br>or<br>CIPC (Company Registrations) |
| 4. ☐ | An EME or QSE which is at least 51% owned by people with disability (Mandatory)<br><br>**OR** | 2 | Medical Certificate<br>or<br>South African Social Security Agency (SASSA) Registration<br>or<br>National Council for Persons with Physical Disability in South Africa registration (NCPPDSA) |
| 5. ☐ | An EME or QSE which is at least 51% owned by youth (Mandatory<br><br>**NB. (The use of this goal is mandatory however the BSC must select either one of the two and not both)** | 2 | ID Copy<br>or<br>CSD Report<br>Or<br>CIPC |

**4. Functionality criteria:**

***Note:*** *All bids involving the acquisition of engineering and construction works from cidb Grade 3 and above are subjected to functionality.*

***Note:*** *Functionality will be applied as a prequalification criterion. Such criteria are used to establish minimum requirements where after bids will be evaluated solely on the basis of price and preference.*

| **Functionality criteria:** | **Weighting factor:** |
|---|---|

| | |
|---|---|
| 1. Work force<br><br>Contractor to provide proof of work force or ability to provide work force to execute the project. (Trade test certificates of all required qualified artisans that are stated below, Company Organogram, CV and copy of ID of employed artisans as Electricians, Tillers, Painters, Plumbers and Carpenters) All four required documents must be submitted for evaluation purposes and for the bidder to score points.<br><br>Electritians (Artisan)<br>5 above = 5 = 10 points<br>4 = 4 = 8 points<br>3 = 3 = 6 points<br>2 = 2 = 4 points<br>1 = 1 = 2 points<br><br>Tillers (Artisan)<br>5 above = 5 = 5 points<br>4 = 4 = 4 points<br>3 = 3 = 3 points<br>2 = 2 = 2 points<br>1 = 1 = 1 point<br><br>Painters (Artisan)<br>5 above = 5 = 5 points<br>4 = 4 = 4 points<br>3 = 3 = 3 points<br>2 = 2 = 2 points<br>1 = 1 = 1 point<br><br>Plumbers (Artisan)<br>5 above = 5 = 5 points<br>4 = 4 = 4 points<br>3 = 3 = 3 points<br>2 = 2 = 2 points<br>1 = 1 = 1 point<br><br>Carpenters (Artisan)<br>5 above = 5 = 5 points<br>4 = 4 = 4 points<br>3 = 3 = 3 points<br>2 = 2 = 2 points<br>1 = 1 = 1 point | 10<br><br>5<br><br>5<br><br>5<br><br>5 |
| 2. Management 1<br><br>Contractor to provide appointment letter and certificate of final completion/certificate of final approval as per approved CIDB forms of contract for all previous projects that are similar and completed successfully within the past 10 years<br><br>5 projects and above = 5 = 25 Points<br>4 projects = 4 = 20 Points<br>3 projects = 3 = 15 Points<br>2 projects = 2 = 10 Points<br>1 project = 1 = 5 Points | 25 |

| | |
|---|---|
| 3. Management 2<br><br>Bidders must provide this three requirements: a copy of Company Registration, copy of ID and a CV indicating years of experience of the Company Director within the Construction Sector if the experience of the Company Director is going to be used to claim the points. To claim points using employed staff: Bidders must provide a copy of a three year built environment qualification evaluated by SAQA, copy of ID of employed staff and a CV indicating years of experience within the Construction Sector. The above three requirements must be submitted with the tender document for evaluation purposes and for the bidder to score points, all three requirements must be submitted to claim the points.<br><br>5 years experience and above = 5 = 25 points<br>4 years experience = 4 = 20 points<br>3 years experience = 3 = 15 points<br>2 years experience = 2 = 10 points<br>1 year experience = 1 = 5 points | 25 |
| 4. Equipment & Plant<br><br>Contractor to provide evidence (Certificates of ownership) of utility vehicles retained by the Company Director or by the Company to execute the project<br><br>3 Certificates of ownership and above = 5 = 10 points<br>2 Certificates of ownership = 4 = 8 points<br>1 Certificate of ownership = 3 = 6 points | 10 |
| 5. Debt Income<br>Provide proof of debt to income from a Banking Institute to Justify credit risk<br>Sub criteria<br><br>Debt to income ratio of greater than 1 = 5 = 10 points<br>Debt to income of equals to 1 = 4 = 8 points<br>Debt to income of less than 1 = 3 = 6 points | 10 |
| | |
| | |
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| | |
| **Total** | **100 Points** |

*(Weights for functionality must add up to 100. Weightings will be multiplied by the scores allocated during the evaluation process to arrive at the total functionality points)*

| | |
|---|---|
| **Minimum functionality score to qualify for further evaluation:** | 50 |

*(Total minimum qualifying score for functionality is 50 Percent, any deviation below or above the 50 Percent, provide motivation below)*

## 5. BID EVALUATION METHOD

This bid will be evaluated according to the preferential procurement model in the PPPFA: (Tick applicable preference point scoring system)

| | | |
|---|---|---|
| ☒ **80/20**<br>Preference points scoring system | ☐ **90/10**<br>Preference points scoring system | ☐ **Either 80/20 or 90/10**<br>Preference points scoring system |

## 6. ELIGIBILITY IN RESPECT OF RISK TO THE EMPLOYER:

**Standard risk management assessment criteria in respect of tenders received for routine projects in the engineering and construction works environments:**

Tender offers will be evaluated by an Evaluation Committee based on the technical and commercial risk criteria listed hereunder. Each criterion carries the same weight / importance and will be evaluated individually based on reports presented to the Bid Evaluation Committee by the Professional Team appointed on the project. A tender offer will be declared non-responsive and removed from any further evaluation if any one criterion is found to present an unacceptable risk to the Employer.

In order for the evaluation reports to be prepared by the Professional Team, the Tenderer is obliged to provide comprehensive information on form DPW-09 (EC). Failure to complete the said form will cause the tender to be declared non-responsive and removed from any further consideration. The Employer reserves the right to request additional information over and above that which is provided by the Tenderer on said form. The information must be provided by the Tenderer within the stipulated time as determined by the Bid Evaluation Committee, failing which the tender offer will *mutatis mutandis* be declared non-responsive.

### 6.1 Technical risks:

**Criterion 1: Experience on comparable projects during the past 10 years.**

The tendering Service Provider's experience on comparable projects during the past 10 years. The number of current and previous comparable projects performed by the Tenderer as per the evaluation report prepared by the Consultant Team, based on its research and inspection of a representative sample of the Tenderer's current and previous work as reflected on form DPW-09 (EC), as well as, if necessary, of any additional work executed by the Tenderer, not reflected on form DPW-09 (EC). Failing to provide contactable references will result in the tender offer will be *mutatis mutandis* declared non-responsive.

Aspects to be regarded as "comparable" includes (but may be extended according to circumstances): size of projects (measured against monetary value or other project quantifying parameters), nature of projects (building, engineering, high/low rise, etc.), locality/area of execution (site-specific influences, knowledge of local conditions, etc.), complexity of project, projects for similar client department irrespective of end purpose of buildings/facilities created or in progress of being created and time scales of projects (normal, fast track, etc.) and stage of its/their development.

**Criterion 2: Contractual commitment and quality of performance on comparable projects during the past 10 years.**

Adherence to contractual commitments and quality of performance of comparable current and previous projects performed by the Tenderer during the past 10 years as per the evaluation report prepared by the Consultant Team, based on its research and inspection of a representative sample of the Tenderer's current and previous work as reflected on form DPW-09 (EC), as well as, if necessary, of any additional work executed by the Tenderer, not reflected on form DPW-09 (EC). Failing to provide contactable references will result in the tender offer be *mutatis mutandis* declared non-responsive.

Aspects to be considered include, but are not limited to the following:

1. The level of progress on current projects in relation to the project programme or, if such is not available/applicable, to the contractual construction period in general;
2. The degree to which previous projects have been completed within the contractual completion periods and/or extensions thereto, and the extend of penalties imposed;
3. Project performance: time management & programming of works, timeous ordering of materials and appointment of subcontractors;
4. Financial management: payment to suppliers and cash flow problems;
5. Quality of workmanship: extent of reworks and timeous attention to remedial works;
6. Personnel resources: suitably qualified and experienced, turnover in site staff and labour force, specifically site manager and foreman;
7. Personnel management: extent of labour disputes and ability to resolving labour disputes amicably;

8. Sub-contractors: extent of turnover in subcontractors, general liaison and payment problems experienced;
9. Contract administration: contractual aspects such as complying to laws and regulations, insurances, security, submission of required documentation timeously, reaction to written contract instructions, appointments of subcontractors, etc. as can generally be expected in standard/normal conditions of contract.
10. Health & Safety: adherence to regulations and compliance, and number of transgressions & serious incidents.
11. Plant & equipment: sufficient resources on site and in time.
12. Delays: extent of causing delays, submission of claims timeously, and abuse of or exaggerated delay claims.
13. Final account: extent to which the contractor assisted in finalising the final account.

**Criterion 3: Suitably qualified and appropriately experienced human resources**

Allocation of suitably qualified and appropriately experienced human resources, both in respect of principals and/or other staff (contract manager, site agent, site foreman including other professional, technical and/or administrative) of the tendering Service Provider to the project, as proof that the tendering Service Provider will be able to react/respond appropriately to the Services required herein. The Company Organogram with CV's and certified ID's of all principals and employed workforce as well as proof of Professional Registration will be verified. Current and future workload of the tenderer in relation to capacity and capability will also be considered. The tenderer should demonstrate that he or she possesses the necessary professional and technical qualifications and -competence in relation to the scope of work and work to be undertaken.

**Criterion 4: Attendance of compulsory bid clarification meeting, if applicable**

If applicable, submission of confirmation of DPW-16.1 (PSB) attendance of compulsory bid clarification meeting or proof of attending the compulsory virtual meeting by a suitably qualified and experienced representative of the tenderer in terms of PA-04 (EC): Notice and Invitation to Tender.

**6.2 Commercial risks:**

The financial viability assessment evaluates the risk over the life of the construction period, as to whether the tenderer will be able to deliver the goods and services which are specified in the contract and / or be able to fulfil guarantees or warranties provided for in the contract in order to complete the project successfully for the amount tendered.

Aspects to be considered include but are not limited to, the respective rates tendered, bank rating, financial capability and capacity whether the tenderer has or has access to sufficient financial resources to deliver the goods or services described in the tender documentation (including fulfilling any guarantees or warranty claims), whether the tenderer is not subject to any current or impending legal action (either formal proceedings or notification of legal action) which could impact on the financial standing of the tenderer or the delivery of the goods or services, financial report from auditors as proof of current liquidity, and company or any parent company or investor guarantee/s and financial statements.

## 7. CONTRACT PARTICIPATION GOAL TARGETS AND CIDB B.U.I.L.D. PROGRAMME

The contractor shall achieve in the performance of the contract the following Contract Participation Goals (CPGs) as described in PG-01.2 (EC): Scope of Work and PG-02.2 (EC): Pricing Assumptions and in accordance with the feasibility study, which forms part of the specifications in the CPG Section of the Specification of this contract.

| | | |
|---|---|---|
| (a) | Minimum Targeted Local Manufacturers of Material Contract Participation Goal, in accordance with the cidb Standard for Contract Participation Goals for Targeting Enterprises and Labour through Construction Works Contracts as published in the Government Gazette Notice No. 41237 of 10 November 2017, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract. | **Not applicable** |

| | | |
|---|---|---|
| (b) | Minimum Targeted Local Building Material Suppliers Contract Participation Goal in accordance with the cidb Standard for Contract Participation Goals for Targeting Enterprises and Labour through Construction Works Contracts as published in the Government Gazette Notice No. 41237 of 10 November 2017, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract. | **Not applicable** |
| (c) | Minimum Targeted Local Labour Skills Development Contract Participation Goal in accordance with the cidb Standard for Contract Participation Goals for Targeting Enterprises and Labour through Construction Works Contracts as published in the Government Gazette Notice No. 41237 of 10 November 2017, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract. | **Not applicable** |
| (d) | **cidb BUILD Programme**: Minimum Targeted Enterprise Development Contract Participation Goal in accordance with the cidb Standard for Indirect Targeting for Enterprise Development through Construction Works Contracts, No 36190 Government Gazette, 25 February 2013, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract. | **Not applicable** |
| (e) | **cidb BUILD Programme:** Minimum Targeted Contract Skills Development Goal in accordance with the cidb Standard for Developing Skills through Infrastructure Contracts as published in the Government Gazette Notice No. 43495 of 3 July 2020, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract. | **Not applicable** |



| | | |
|---|---|---|
| (f) | DPWI National Youth Service training and development programme (NYS) – Condition of Contract. | **Not applicable** |
| (g) | Labour Intensive Works – Condition of Contract. | **Applicable** |
| (h) | | **Not applicable** |
| (i) | | **Not applicable** |

## 8. COLLECTION OF TENDER DOCUMENTS

☒ Bid documents are available for free download on e-Tender portal www.etenders.gov.za

☒ Alternatively; Bid documents may be collected during working hours at the following address 77 Hans van Rensburg Street, Polokwane, 0700. A non-refundable bid deposit of **R** 500.00 is payable (cash only) on collection of the bid documents.

## 9. SITE INSPECTION MEETING

A pre-tender site inspection meeting will **be** held in respect of this tender.
Attendance of said pre- tender site inspection meeting is **not compulsory**

The particulars for said pre- tender site inspection meeting or virtual bid clarification / site inspection meeting. are:

| | | | |
|---|---|---|---|
| **Venue:** | Thohoyandou Correctional centre | | |
| **Virtual meeting link:** | N/A | | |
| **Date:** | 10/07/2023 | **Starting time:** | 11:00 |

10. **ENQUIRIES**

Enquiries related to tender documents may be addressed to:

| | | | |
|---|---|---|---|
| **DPWI Project Manager:** | Mr Mashilo Raganya | **Telephone no:** | 015 291 6300/6433 |
| **Cellular phone no:** | 082 568 3912 | **Fax no:** | 086 7343 744 |
| **E-mail:** | mashilo.raganya@dpw.gov.za | | |

## 11. DEPOSIT / RETURN OF TENDER DOCUMENTS

Telegraphic, telephonic, telex, facsimile, electronic and / or late tenders will not be accepted.

Requirements for sealing, addressing, delivery, opening and assessment of tenders are stated in the Tender Data.

All tenders must be completed in non-erasable ink and submitted on the official forms – (forms not to be re-typed).

| **Tender documents may be posted to:** | | **Deposited in the tender box at:** |
|---|---|---|
| The Director-General<br>Department of Public Works and Infrastructure<br>Private Bag X 9469<br>Polokwane<br>0700<br><br>**Attention:**<br>**Procurement section:** Room 10 | **OR** | 77 Hans van Rensburg<br>Polokwane<br>0700<br>Office no:10 |

## 12. COMPILED BY:

| | | |
|---|---|---|
| Mashilo Raganya | | 21/06/2023 |
| Name of Project Manager | Signature | Date |

# T1.2

# Tender Data

# BILLS OF QUANTITIES

# FOR

## THOHOYANDOU CORRECTIONAL CENTRE: MEDIUM B

## KITCHEN UPGRADING,REPLACEMENT OF KITCHEN EQUIPMENTS

## VOLUME 2 OF 3


**PRINCIPAL AGENT & MECHANICAL ENGINEER**
Tsepa Consulting
308 Rentmeester Building
58 Schoeman Street
Polokwane
0699
Cel: 062 646 6077
Fax: 015-291 5205
E-mail: amonmasanganise@live.co.za

**ARCHITECTS**
Nxumalo De Jager Architects
P.O. Box 632
23 Peace Street
Tzaneen
0850
Tel: 087 086 9484/5
Fax: 086 602 6830
Email: reception@ndj.co.za

**QUANTITY SURVEYOR**
Phahlana Hunadi Quantity Surveyors
P.O. Box 632
Lebokgomo
0737
Tel: 015-633 6535/012 493 0854
Fax: 015-633 6477
E-mail: Info@phqs.net

**ELECTRICAL ENGINEERS**
Mogalemole Consulting
42 Hog Street
Polokwane
0700
Tel: 015-297 3556
Fax: 015- 297 2096
Email: info@mogalemole.co.za

**DEPARTMENT OF PUBLIC WORKS**
77 Hans van Rensburg Street
POLOKWANE
0700
Tel: 015-291 6000
Fax: 015-297 3314


**NAME OF TENDERER**: .....

**TENDER SUM**: .....

EXPANDED PUBLIC WORKS PROGRAMME

# REPUBLIC OF SOUTH AFRICA

## DEPARTMENT OF PUBLIC WORKS & INFRASTRUCTURE

**THOHOYANDOU CORRECTIONAL CENTRE: KITCHEN UPGRADING, REPLACEMENT OF KITCHEN EQUIPMENTS AS WELL AS TEMPORARY KITCHEN: MEDIUM B**

**PLK 23/05**

# VOLUME 2

# RETURNABLE DOCUMENTS

# T2.1

# List of Returnable Documents

# DPW-03 (EC): TENDER DATA

| | |
|---|---|
| **Project title:** | ***Kitchen Upgrading, Replacement of Kichen Equipments as well as temporary Kitchen: Thohoyandou Correctional centre: Medium B*** |
| **Reference no:** | *6054/0011* |

| | | | |
|---|---|---|---|
| **Tender / Quotation no:** | PLK23/05 | **Closing date:** | *18/07/2023* |
| **Closing time:** | ***11:00*** | **Validity period:** | ***12 Weeks (84 Calender days)*** |

| **Clause number:** | |
|---|---|
| | The conditions of tender are the Standard Conditions of Tender as contained in Annex C of the CIDB Standard for Uniformity in Construction Procurement as per Government Notice No. 423 published in Government Gazette No. 42622 of 8 August 2019 and as amended from time to time. (see www.cidb.org.za).<br><br>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.<br><br>Each item of data given below is cross-referenced to the clause marked "C" in the above mentioned Standard Conditions of Tender. |
| **C.1.1** | The employer is the Government of the Republic of South Africa in its Department of Public Works and Infrastructure. |
| **C.1.2** | For this contract the three volume approach is adopted.<br><br>This procurement document has been formatted and compiled under the headings as contained in the CIDB's "Standard for Uniformity in Construction Procurement."<br><br>The three volume procurement document issued by the employer comprises the following:<br><br>Volume 1: Tendering procedures<br>T1.1 - Notice and invitation to tender (PA-04 EC)<br>T1.2 - Tender data (DPW-03 EC)<br><br>Volume 2: Returnable documents<br>T2.1 - List of returnable documents (PA-09 EC)<br>C1.1 - Form of offer and acceptance (DPW-07 EC)<br>C1.2 – Contract Data<br>T2.2 - Returnable schedules<br><br>Volume 3: Contract<br>Part C1: Agreement and contract data<br>C1.2 - Contract data (Part 1: Data provided by employer) (DPW-04 EC or DPW-05 EC)<br>C1.3 - Form of guarantee (DPW-10.1 EC / DPW-10.3EC or DPW-10.2 EC/DPW-10.4 EC)<br><br>Part C2: Pricing data<br>C2.1 - Pricing Assumptions (PG-02.2 EC or PG-02.1EC)<br>C2.2 - Bills of Quantities / Lump sum document (if not a returnable document)<br><br>Part C3: Scope of work<br>C3 - Scope of work (PG-01.2 EC or PG-01.1EC)<br><br>Part C4: Site information<br>C4 - Site information (PG-03.2 EC or PG03.1EC) |

**Tender no:** PLK23/05

| | | |
|---|---|---|
| **C.1.4** | The Employer's agent is: | |
| | Name: | ***Tsepa Consulting Engineers*** |
| | Capacity: | ***Private Project Manager*** |
| | Address: | ***308 Rentmaster Building, 58 Schoeman Street, Polokwane 0699*** |
| | Tel: | ***015 291 4216 /076 691 9850*** |
| | Fax: | ***015 291 5205*** |
| | E-mail: | ***amonmasanganise@live.co.za*** |
| **C.2.1**<br>**C.3.11** | **A. <u>ELIGIBILITY IN RESPECT OF CIDB REGISTRATION</u>:**<br><br>The following tenderers who are registered with the CIDB, or are *capable of being so registered prior to the evaluation of submissions, are eligible to have their tenders evaluated (* tenderers who are capable of being so registered, or who have applied for registration but have not yet received confirmation of such registration, must provide, <u>with this tender</u>, acceptable documentary proof thereof):<br><br>a) contractors who have a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25 (7A) of the Construction Industry Development Regulations, for a ***6 ME*** or ***6 ME**** class of construction work; and<br><br>b) contractors registered as potentially emerging enterprises with the CIDB who are registered in one contractor grading designation lower than that required in terms of a) above: ***Not applicable***<br><br>Joint ventures are eligible to submit tenders provided that:<br><br>1. every member of the joint venture is registered with the CIDB;<br><br>2. the lead partner has a contractor grading designation in the ***6 ME*** or ***6 ME**** class of construction work; and<br><br>3. the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25 (7A) of the Construction Industry Development Regulations for a ***6 ME*** or ***6 ME**** class of construction work<br>** *Delete "or select tender value range select class of construction works" where only one class of construction works is applicable* | |
| | A contract will be entered into with a tenderer who has in his employ management and supervisory staff satisfying the requirements of the scope of work for labour intensive competencies for supervisory and management staff: ***Applicable*** | |

**Tender no:** PLK23/05

**B. ELIGIBILITY IN TERMS OF PRE-QUALIFICATION CRITERIA FOR PREFERENTIAL PROCURMENT:**

| | |
|---|---|
| ☐ | A tenderer having stipulated minimum B-BBEE status level of contributor:<br>☐ Level 1 or ☐ Level 2 or ☐ Level 3 |
| ☐ | ☐ An EME or ☐ A QSE or ☐ An EME or QSE |

**C. INDICATE THE FUNCTIONALITY WEIGHTING APPLICABLE TO THIS BID:**

***Note:*** *All bids involving the acquisition of engineering and construction works from cidb Grade 4 and above are subjected to functionality.*

***Note:*** *Functionality will only be applied as a prequalification criterion. Such criteria are used to establish minimum requirements where after bids will be evaluated solely on the basis of price and preference.*

| ***Functionality Criteria*** | ***Weighting Factor*** |
|---|---|
| 1. Work force<br><br>Contractor to provide proof of work force or ability to provide work force to execute the project. (Trade test certificates of all required qualified artisans that are stated below, Company Organogram, CV and copy of ID of employed artisans as Electricians, Tillers, Painters, Plumbers and Carpenters) All four required documents must be submitted for evaluation purposes and for the bidder to score points. | |
| Electritians (Artisan)<br>5 above = 5 = 10 points<br>4 = 4 = 8 points<br>3 = 3 = 6 points<br>2 = 2 = 4 points<br>1 = 1 = 2 points | 10 |
| Tillers (Artisan)<br>5 above = 5 = 5 points<br>4 = 4 = 4 points<br>3 = 3 = 3 points<br>2 = 2 = 2 points<br>1 = 1 = 1 point | 5 |
| Painters (Artisan)<br>5 above = 5 = 5 points<br>4 = 4 = 4 points<br>3 = 3 = 3 points<br>2 = 2 = 2 points<br>1 = 1 = 1 point | 5 |
| Plumbers (Artisan)<br>5 above = 5 = 5 points<br>4 = 4 = 4 points<br>3 = 3 = 3 points<br>2 = 2 = 2 points<br>1 = 1 = 1 point | 5 |

| | |
|---|---|
| Carpenters (Artisan)<br>5 above = 5 = 5 points<br>4 = 4 = 4 points<br>3 = 3 = 3 points<br>2 = 2 = 2 points<br>1 = 1 = 1 point | 5 |
| 2. Management 1<br><br>Contractor to provide appointment letter and certificate of final completion/certificate of final approval as per approved CIDB forms of contract for all previous projects that are similar and completed successfully within the past 10 years<br><br>5 projects and above = 5 = 25 Points<br>4 projects = 4 = 20 Points<br>3 projects = 3 = 15 Points<br>2 projects = 2 = 10 Points<br>1 project = 1 = 5 Points | 25 |
| 3. Management 2<br><br>Bidders must provide this three requirements: a copy of Company Registration, copy of ID and a CV indicating years of experience of the Company Director within the Construction Sector if the experience of the Company Director is going to be used to claim the points. To claim points using employed staff: Bidders must provide a copy of a three year built environment qualification evaluated by SAQA, copy of ID of employed staff and a CV indicating years of experience within the Construction Sector. The above three requirements must be submitted with the tender document for evaluation purposes and for the bidder to score points, all three requirements must be submitted to claim the points.<br><br>5 years experience and above = 5 = 25 points<br>4 years experience = 4 = 20 points<br>3 years experience = 3 = 15 points<br>2 years experience = 2 = 10 points<br>1 year experience = 1 = 5 points | 25 |
| 4. Equipment & Plant<br><br>Contractor to provide evidence (Certificates of ownership) of utility vehicles retained by the Company Director or by the Company to execute the project<br><br>3 Certificates of ownership and above = 5 = 10 points<br>2 Certificates of ownership = 4 = 8 points<br>1 Certificate of ownership = 3 = 6 points | 10 |
| 5. Debt Income<br>Provide proof of debt to income from a Banking Institute to Justify credit risk<br>Sub criteria<br><br>Debt to income ratio of greater than 1 = 5 = 10 points<br>Debt to income of equals to 1 = 4 = 8 points<br>Debt to income of less than 1 = 3 = 6 points | 10 |
| | |
| | |
| | |
| | |
| | |
| **Total** | **100 Points** |

*(Weightings will be multiplied by the scores allocated during the evaluation process to arrive at the total functionality points)*

| | |
|---|---|
| **Minimum functionality score to qualify for further evaluation:** | **50** |

## D. ELIGIBILITY IN RESPECT OF RISK TO EMPLOYER:

**Standard risk management assessment criteria in respect of tenders received for routine projects in the engineering and construction works environments:**

Tender offers will be evaluated by an Evaluation Committee based on the technical and commercial risk criteria listed hereunder. Each criterion carries the same weight / importance and will be evaluated individually based on reports presented to the Bid Evaluation Committee by the Professional Team appointed on the project. A tender offer will be declared non-responsive and removed from any further evaluation if any one criterion is found to present an unacceptable risk to the Employer.

In order for the evaluation reports to be prepared by the Professional Team, the Tenderer is obliged to provide comprehensive information on form DPW-09 (EC). Failure to complete the said form will cause the tender to be declared non-responsive and removed from any further consideration. The Employer reserves the right to request additional information over and above that which is provided by the Tenderer on said form. The information must be provided by the Tenderer within the stipulated time as determined by the Bid Evaluation Committee, failing which the tender offer will *mutatis mutandis* be declared non-responsive.

### D.1 Technical risks:

**Criterion 1: Experience on comparable projects during the past 10 years.**

The tendering Service Provider's experience on comparable projects during the past 10 years. The number of current and previous comparable projects performed by the Tenderer as per the evaluation report prepared by the Consultant Team, based on its research and inspection of a representative sample of the Tenderer's current and previous work as reflected on form DPW-09 (EC), as well as, if necessary, of any additional work executed by the Tenderer, not reflected on form DPW-09 (EC). Failing to provide contactable references will result in the tender offer will be *mutatis mutandis* declared non-responsive.

Aspects to be regarded as "comparable" includes (but may be extended according to circumstances): size of projects (measured against monetary value or other project quantifying parameters), nature of projects (building, engineering, high/low rise, etc.), locality/area of execution (site-specific influences, knowledge of local conditions, etc.), complexity of project, projects for similar client department irrespective of end purpose of buildings/facilities created or in progress of being created and time scales of projects (normal, fast track, etc.) and stage of its/their development.

**Criterion 2: Contractual commitment and quality of performance on comparable projects during the past 10 years.**

Adherence to contractual commitments and quality of performance of comparable current and previous projects performed by the Tenderer on comparable projects during the past 10 years as per the evaluation report prepared by the Consultant Team, based on its research and inspection of a representative sample of the Tenderer's current and previous work as reflected on form DPW-09 (EC), as well as, if necessary, of any additional work executed by the Tenderer, not reflected on form DPW-09 (EC). Failing to provide contactable references will result in the tender offer be *mutatis mutandis* declared non-responsive.

Aspects to be considered include, but are not limited to the following:

1. The level of progress on current projects in relation to the project programme or, if such is not available/applicable, to the contractual construction period in general;
2. The degree to which previous projects have been completed within the contractual completion periods and/or extensions thereto, and the extend of penalties imposed;

| | |
|---|---|
| | 3. Project performance: time management & programming of works, timeous ordering of materials and appointment of subcontractors;<br>4. Financial management: payment to suppliers and cash flow problems;<br>5. Quality of workmanship: extent of reworks and timeous attention to remedial works;<br>6. Personnel resources: suitably qualified and experienced, turnover in site staff and labour force, specifically site manager and foreman;<br>7. Personnel management: extent of labour disputes and ability to resolving labour disputes amicably;<br>8. Sub-contractors: extent of turnover in subcontractors, general liaison and payment problems experienced;<br>9. Contract administration: contractual aspects such as complying to laws and regulations, insurances, security, submission of required documentation timeously, reaction to written contract instructions, appointments of subcontractors, etc. as can generally be expected in standard/normal conditions of contract.<br>10. Health & Safety: adherence to regulations and compliance, and number of transgressions & serious incidents.<br>11. Plant & equipment: sufficient resources on site and in time.<br>12. Delays: extent of causing delays, submission of claims timeously, and abuse of or exaggerated delay claims.<br>13. Final account: extent to which the contractor assisted in finalising the final account.<br><br>**Criterion 3: Suitably qualified and appropriately experienced human resources**<br><br>Allocation of suitably qualified and appropriately experienced human resources, both in respect of principals and/or other staff (contract manager, site agent, site foreman including other professional, technical and/or administrative) of the tendering Service Provider to the project, as proof that the tendering Service Provider will be able to react/respond appropriately to the Services required herein. The Company Organogram with CV's and certified ID's of all principals and employed workforce as well as proof of Professional Registration will be verified. Current and future workload of the tenderer in relation to capacity and capability will also be considered. The tenderer should demonstrate that he or she possesses the necessary professional and technical qualifications and -competence in relation to the scope of work and work to be undertaken.<br><br>**Criterion 4: Attendance of compulsory bid clarification meeting, if applicable**<br><br>If applicable, submission of confirmation of DPW-16.1 (PSB) attendance of compulsory bid clarification meeting or proof of attending the compulsory virtual meeting by a suitably qualified and experienced representative of the tenderer in terms of PA-04 (EC): Notice and Invitation to Tender.<br><br>**D.2 Commercial risks:**<br><br>The financial viability assessment evaluates the risk over the life of the construction period, as to whether the tenderer will be able to deliver the goods and services which are specified in the contract and / or be able to fulfil guarantees or warranties provided for in the contract in order to complete the project successfully for the amount tendered.<br><br>Aspects to be considered include but are not limited to, the respective rates tendered, bank rating, financial capability and capacity whether the tenderer has or has access to sufficient financial resources to deliver the goods or services described in the tender documentation (including fulfilling any guarantees or warranty claims), whether the tenderer is not subject to any current or impending legal action (either formal proceedings or notification of legal action) which could impact on the financial standing of the tenderer or the delivery of the goods or services, financial report from auditors as proof of current liquidity, and company or any parent company or investor guarantee/s and financial statements. |
| **C.2.7** | For particulars regarding a pre-tender site inspection meeting, see Notice and Invitation to Tender T1.1 |

| | |
|---|---|
| **C.2.12** | If a tenderer wishes to submit an alternative tender offer, the only criteria permitted for such alternative tender offer is that it demonstrably satisfies the Employer's standards and requirements. A tenderer may submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted. Provided that the tenderer's main tender offer is according to specification and would under normal circumstances be recommended for acceptance, his alternative tender offer may also be considered for the purpose of the award of the contract.<br><br>Calculations, drawings and all other pertinent technical information and characteristics as well as modified or proposed Pricing Data must be submitted with the alternative tender offer to enable the Employer to evaluate the efficacy of the alternative and its principal elements, to take a view on the degree to which the alternative complies with the Employer's standards and requirements and to evaluate the acceptability of the pricing proposals. Calculations must be set out in a clear and logical sequence and must clearly reflect all design assumptions. Pricing Data must reflect all assumptions in the development of the pricing proposal.<br><br>Acceptance of an alternative tender offer will mean acceptance in principle of the offer. It will be an obligation of the contract for the tenderer, in the event that the alternative is accepted, to accept full responsibility and liability that the alternative offer complies in all respects with the Employer's standards and requirements.<br><br>The modified Pricing Data must include an amount equal to 5% of the amount tendered for the alternative offer to cover the Employer's costs of confirming the acceptability of the detailed design before it is constructed.<br><br>Alternative tender offer permitted: **Yes** ☐ **No** ☒ |
| **C.2.13.2** | The list of Returnable Documents identifies which of the documents a tenderer must complete when submitting a tender offer. The tenderer must submit his tender offer by completing the Returnable Documents, signing the "Offer" section in the "Form of Offer and Acceptance" and delivering the Returnable Documents back to the Department. |
| **C.2.13.5** | The Employer's address for delivery of tender offers and identification details to be shown on each tender offer package are as per Notice and Invitation to Tender T1.1. |
| **C.2.13.6**<br>**C.3.5** | A two-envelope procedure will not be followed. |
| **C.2.15** | The closing time for submission of tender offers is as per Notice and Invitation to Tender T1.1. |
| **C.2.16** | The tender offer validity period is as per Notice and Invitation to Tender T1.1. |
| **C2.16.3** | Omit the wording of the last sentence for those projects which are subject to CPAP |
| **C.2.18** | The tenderer will be required to submit his fully priced Bills of Quantities / Lump Sum Document (complete document inclusive of all parts):<br><br>☒ Together with his tender;<br>or<br>☐ The tenderer shall submit his fully priced and completed sectional summary- and final summary pages with the tender and thereafter submit the fully completed Bills of Quantities within fourteen (14) calendar days of the date requested to do so prior to the award of the contract. |
| **C.2.19** | Access shall be provided for inspections, tests and analysis as may be required by the Employer. |
| **C.3.4.1**<br>**C.3.4.2** | The location for opening of the tender offers, immediately after the closing time thereof shall be at:<br>***Department of National Public Works, 78 Hans Van Rensburg Street, Polokwane, 0700*** |
| **C.3.8** | The words "responsive tender" and "acceptable tender" shall be construed to have the same meaning. |

**Tender no:** PLK23/05

| | |
|---|---|
| **C.3.9.3** | Omit the wording and replace with the following:<br>"Notify the tenderer of all errors, omissions and/or rate imbalances that are identified in the tender offer and request the tenderer to, within a stipulated time, accept the total of prices as corrected in accordance with C.3.9.4." |
| **C.3.9.4** | Omit the wording of the first sentence and replace with the following:<br>"In cases where tender offers contain errors, omissions and/or rate imbalances, these are to be corrected as follows:" |
| **C.3.9.4** | Add sub paragraph c) to C.3.9.4, as follows:<br>"c) If the tenderer does not accept the corrected tender offer, or cannot reach consensus with the Employer on a corrected tender offer, the tender is to be classified as not acceptable/non responsive and removed from further contention." |
| **C.3.11.1** | The procedure for the evaluation of responsive tenders is Method 2: Financial Offer and Preference. |
| **C.3.13** | Add the following to sub paragraph a), as follows:<br><br>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, 2004 (Act No. 12 of 2004) as a person prohibited from doing business with the public sector; |
| **C.3.17** | Provide to the successful tenderer one copy of the signed contract document. |

# PA-09 (EC): LIST OF RETURNABLE DOCUMENTS

| | | | |
|---|---|---|---|
| **Project title:** | ***Thohoyandou Correctional Centre: Kitchen Upgrading, Replacement of Kitchen Equipment as Well as Temporary Kitchen: Medium B*** | | |
| **Tender / Quote no:** | PLK 23/05 | **Reference no:** | 6054/0011 |
| **Receipt Number:** | | | |

## 1. RETURNABLE DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

**Note: Failure to submit the applicable documents will result in the tender offer being disqualified from further consideration.**

| Tender document name | Number of pages issued | Returnable document |
|---|---|---|
| Form of Offer and Acceptance (DPW-07 EC) | 4 Pages | Yes |
| Declaration of Interest and Tenderer's Past Supply Chain Management Practices (PA-11) | 4 Pages | Yes |
| Submission of (PA-29): Certificate of Independent Bid Determination | 4 Pages | Yes |
| Resolution of Board of Directors (PA-15.1) *(if applicable)* | 1 Page | Yes |
| Resolution of Board of Directors to enter into Consortia or JV's (PA-15.2) *(if applicable)* | 2 Pages | Yes |
| Special Resolution of Consortia or JV's (PA-15.3) *(if applicable)* | 3 Pages | Yes |
| Site Inspection Meeting Certificate (DPW-16 EC) *(if applicable)* | 1 Page | Yes |
| Particulars of Tenderer's Projects (DPW-09 EC) | | |
| | | |
| | | |
| | | |

## 2. ADDITIONAL RETURNABLE DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

**Note: Failure to submit the applicable documents will result in the Tenderer having to submit same upon request within a stipulated time and if not complied with, will result in the tender offer being disqualified from further consideration. [See also F.2.18 of the Standard Conditions of Tender]**

| Tender document name | Number of pages issued | Returnable document |
|---|---|---|
| Any additional information required to complete a risk assessment *(if applicable)* | - | Yes |

## 3. RETURNABLE DOCUMENTS THAT WILL BE INCORPORATED INTO THE CONTRACT

**Note: Failure to submit the applicable documents will result in the Tenderer having to submit same upon request within a stipulated time and if not complied with, will result in the tender offer being disqualified from further consideration. [See also F.2.18 of the Standard Conditions of Tender]**

| Tender document name | Number of pages issued | Returnable document |
|---|---|---|
| Record of Addenda to tender documents (DPW-21 EC) *(if applicable)* | 1 Page | Yes |
| Schedule of proposed sub-contractors (DPW-15 EC) *(if applicable)* | 1 Page | Yes |
| Particulars of Electrical Contractor (DPW-22 EC) *(if applicable)* | 1 Page | Yes |

| | | |
|---|---|---|
| Mechanical / Electrical / Security Work material and equipment schedules *(if applicable)* | Pages | Yes |
| Schedule for Imported Materials and Equipment (DPW-23 EC) *(if applicable)* | 1 Page | Yes |

## 4. OTHER DOCUMENTS THAT WILL BE INCORPORATED INTO THE CONTRACT

*(Insert a tick in the "Returnable document" column to indicate which documents must be returned with the tender)*

**Note: Failure to submit the applicable documents will result in the tender offer being disqualified from further consideration.**

| Tender document name | Number of pages issued | Returnable document |
|---|---|---|
| Priced Bills of Quantities / Lump Sum Document (complete document inclusive of all parts) | 93 Pages | ☒Yes ☐No |
| Drawings & Specifications | 162 Pages | ☒Yes ☐No |
| ***insert document name*** | Pages | ☐Yes ☐No |
| ***insert document name*** | Pages | ☐Yes ☐No |
| ***insert document name*** | Pages | ☐Yes ☐No |

## 5. ADDITIONAL INFORMATION THAT MAY BE REQUIRED FOR TENDER EVALUATION PURPOSES

| **Legal Status of Tendering Entity:**<br><br>**If the Tendering Entity is:** | **Documentation to be submitted with the tender, or which may be required during the tender evaluation:** |
|---|---|
| a. A close corporation, incorporated prior to 1 May 2011 under the Close Corporations Act, 1984 (Act 69 of 1984, as amended) | Copies of the Founding Statement – CK1 |
| b. A profit company duly registered as a private company.<br><br>[including a profit company that meets the criteria for a private company, whose Memorandum of Incorporation states that the company is a personal liability company in terms of Section 8(2)(c) of the Companies Act, 2008 (Act 71 of 2008, as amended)]. | Copies of:<br>i. Certificate of Incorporation – CM1;<br>ii. Shareholding Certificates of all Shareholders of the company, plus a signed statement of the company's Auditor, certifying each Shareholder's ownership / shareholding percentage relative to the total; and/or<br>iii. Memorandum of Incorporation in the case of a personal liability company. |
| c. A profit company duly registered as a private company in which any, or all, shares are held by one or more other close corporation(s) or company(ies) duly registered as profit or non-profit company(ies). | Copies of documents referred to in a. and/or b. above in respect of all such close corporation(s) and/or company(ies). |
| d. A profit company duly registered as a public company. | Copy of Certificate of Incorporation – CM1, and a signed statement of the company's Secretary or Auditor confirming that the company is a public company. |

4.5 BENDING

Conduit of nominal size up to and including 25mm may be cold bent by hand provided that the radius of the bend is greater than six times the nominal size of the conduit, and that the external angle of the bend does not exceed 90°. The procedure (which involves the use of a bending spring) should be as follows:

(a) Determine the angle through which the conduit is to be bent.

(b) Warm the cold conduit over the length to be bent by rubbing with hands.

(c) Select a bending spring which matches the conduit size and insert in to the conduit at the point where the bend is required.

(d) Bend the conduit slowly with one motion (either with the hands alone approximately 1 m apart, or across the knee) to double the required angle, release the conduit and, when its position is stable, withdraw the bending spring (turning it in an anti-clockwise direction to reduce its diameter) and gently correct the angle.

(e) Install and secure the conduit immediately following bending.

4.6 ADHESIVE JOINTS

All adhesive joints must be made in a clean dry area. The surfaces of all components to be bonded must be dry and clean.

The insertion depth should be marked on the conduit end and the adhesive applied (by means of a soft clean brush) as quickly as possible to the surfaces to be bonded by brushing lengthwise along the conduit, ensuring that a thin coating of uniform thickness is formed. The joint must be made immediately after the application of the adhesive by pushing the prepared parts squarely together with a twisting motion to the full insertion depth. Care must be taken to avoid squeezing adhesive into the cableway and all excess adhesive must be wiped off.

NOTE: Solvent adhesives contain highly volatile liquids and their containers should not be left open.

4.7 Cutting

A fine-tooth hacksaw should be used to cut conduit to the required length. Each cut end should be square and free from swarf, burrs and loose material. When determining the length of conduit to be cut, allowance must be made for the length of couplings or accessories attached to the conduit. Incorrect determination will cause bulging of the conduit or insufficient joint length.

## 5. FLEXIBLE CONDUIT

5.1 In installations where the equipment has to be moved frequently to enable adjustment during normal operation, for the connection of motors or any other vibrating equipment, for the connection of thermostats and sensors on equipment, for stove connections and where otherwise required by the Department, flexible conduit shall be used for the final connection to the equipment.

5.2 The installation shall comply with SANS 10142.

5.3 Flexible conduit shall preferably be connected to the remainder of the installation by means of a draw-box. The flexible conduit may be connected directly to the end of a conduit if an existing draw-box is available within 2 m of the junction and if the flexible conduit can easily be rewired.

5.4 Flexible conduit shall consist of metal-reinforced plastic conduit or PVC-covered metal conduit with an internal diameter of at least 15mm, unless approved to the contrary. In false ceiling voids, flexible conduit of galvanised steel construction may be used. Connectors for coupling to the flexible conduit shall be of the gland or screw-in type, manufactured of either brass or mild steel plated with either zinc or cadmium.

| | |
|---|---|
| e. A non-profit company, incorporated in terms of Section 10 and Schedule 1 of the Companies Act, 2008 (Act 71 of 2008, as amended). | Copies of:<br>i the Founding Statement – CK1; and<br>ii the Memorandum of Incorporation setting out the object of the company, indicating the public benefit, cultural or social activity, or communal or group interest. |
| f. A natural person, sole proprietor or a Partnership | Copy(ies) of the Identity Document(s) of:<br>i. such natural person/ sole proprietor, or<br>each of the Partners to the Partnership. |
| g. A Trust | Deed of Trust duly indicating names of the Trustee(s) and Beneficiary (ies) as well as the purpose of the Trust and the mandate of the Trustees. |

**Signed by the Tenderer**

| | | |
|---|---|---|
| | | |
| **Name of representative** | **Signature** | **Date** |

# C1.1

# Form of Offer and Acceptance

public works & infrastructure
Department:
Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

# DPW-07 (EC): FORM OF OFFER AND ACCEPTANCE

| | | | |
|---|---|---|---|
| **Project title:** | ***Thohoyandou Correctional Centre: Kitchen Upgrading, Replacement of Kitchen Equipment as Well as Temporary Kitchen: Medium B*** | | |
| **Tender / Quotation no:** | PLK 23/05 | **Reference no:** | *6054/0011* |

## OFFER

The Employer, identified in the acceptance signature block, has solicited offers to enter into a contract for the procurement of:
***Kitchen Upgrading, Replacement of Kitchen Equipment as Well as Temporary Kitchen***

The Tenderer, identified in the offer signature block, has examined the documents listed in the tender data and addenda thereto as listed in the returnable schedules, and by submitting this offer has accepted the conditions of tender.

By the representative of the Tenderer, deemed to be duly authorized, signing this part of this form of offer and acceptance, the Tenderer offers to perform all of the obligations and liabilities of the Contractor under the contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the conditions of contract identified in the contract data.

**THE TOTAL OFFER INCLUSIVE OF ALL APPLICABLE TAXES (All applicable taxes" includes value- added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies) IS:**

| | |
|---|---|
| **Rand (in words):** | ……<br>……<br>…… |
| **Rand in figures:** | **R** …… |

The amount in words takes precedence over the amount in figures. The award of the tender may be subjected to further price negotiation with the preferred tenderer(s). The negotiated and agreed price will be considered for acceptance as ***a firm and final offer***.

This offer may be accepted by the Employer by signing the acceptance part of this form of offer and acceptance and returning one copy of this document to the Tenderer before the end of the period of validity stated in the tender data, whereupon the Tenderer becomes the party named as the Contractor in the conditions of contract identified in the contract data.

**THIS OFFER IS MADE BY THE FOLLOWING LEGAL ENTITY**: (cross out block which is not applicable)

| | | |
|---|---|---|
| Company or Close Corporation:<br>……<br>……<br>And: Whose Registration Number is:<br>……..<br>And: Whose Income Tax Reference Number is:<br>……<br>CSD supplier number:…….... | **OR** | Natural Person or Partnership:<br>……..<br>…….....<br>Whose Identity Number(s) is/are:<br>……...<br>Whose Income Tax Reference Number is/are:<br>……...<br>CSD supplier number:……... |

*Any reference to words "Bid" or "Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".
**Any reference to the words "payment reduction" herein shall be construed to have the same meaning as the word "retention"

**Tender / Quotation no:** PLK 23/05

| **AND WHO IS** (if applicable)**:** | |
|---|---|
| Trading under the name and style of: …… | |
| **AND WHO IS:** | |
| Represented herein, and who is duly authorised to do so, by:<br><br>Mr/Mrs/Ms:<br>……...<br>In his/her capacity as:<br>…… | **Note:**<br><br>**A Resolution / Power of Attorney, signed by all the Directors / Members / Partners of the Legal Entity must accompany this Offer, authorising the Representative to make this offer.** |

**SIGNED FOR THE TENDERER:**

| | | |
|---|---|---|
| | | |
| Name of representative | Signature | Date |

**WITNESSED BY:**

| | | |
|---|---|---|
| | | |
| Name of witness | Signature | Date |

This Offer is in respect of: (Please indicate with an "X" in the appropriate block)
The official documents …… ☐
The official alternative …… ☐
Own alternative (only if documentation makes provision therefore) …… ☐

**(N.B.: Separate Offer and Acceptance forms are to be completed for the main and for each alternative offer)**

**SECURITY OFFERED:**

(a) the Tenderer accepts that in respect of contracts up to R1 million, a payment reduction** of 5% of the contact value (excluding VAT) will be applicable and will be deducted by the Employer in terms of the applicable conditions of contract

(b) in respect of contracts above R1 million, the Tenderer offers to provide security as indicated below:

(1) cash deposit of 10 % of the Contract Sum (excluding VAT) **Yes** ☐ **No** ☐

(2) variable construction guarantee of 10 % of the Contract Sum (excluding VAT) **Yes** ☐ **No** ☐

(3) payment reduction of 10% of the value certified in the payment certificate (excluding VAT) **Yes** ☐ **No** ☐

(4) cash deposit of 5% of the Contract Sum (excluding VAT) and a payment reduction of 5% of the value certified in the payment certificate (excluding VAT) **Yes** ☐ **No** ☐

(5) fixed construction guarantee of 5% of the Contract Sum (excluding VAT) and a payment reduction of 5% of the value certified in the payment certificate (excluding VAT) **Yes** ☐ **No** ☐

NB. Guarantees submitted must be issued by either an insurance company duly registered in terms of the Insurance Act [Long-Term Insurance Act, 1998 (Act 52 of 1998) or Short-Term Insurance Act, 1998 (Act 35 of 1998)] or by a bank duly registered in terms of the Banks Act, 1990 (Act 94 of 1990) on the pro-forma referred to above. No alterations or amendments of the wording of the pro-forma will be accepted.

*Any reference to words "Bid" or "Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".
**Any reference to the words "payment reduction" herein shall be construed to have the same meaning as the word "retention"

**Tender / Quotation no:** PLK 23/05

The Tenderer elects as its *domicilium citandi et executandi* in the Republic of South Africa, where any and all legal notices may be served, as (physical address):

……

……

**Other Contact Details of the Tenderer are:**

Telephone No……. Cellular Phone No. ……

Fax No ……..

Postal address ……

Banker …… Branch……..

Registration No of Tenderer at Department of Labour …..……

CIDB Registration Number: ……...

## ACCEPTANCE

By signing this part of this form of offer and acceptance, the Employer identified below accepts the Tenderer's offer. In consideration thereof, the Employer shall pay the Contractor the amount due in accordance with the conditions of contract identified in the contract data. Acceptance of the Tenderer's offer shall form an agreement between the Employer and the Tenderer upon the terms and conditions contained in this agreement and in the contract that is the subject of this agreement.

**The terms of the contract are contained in:**

Part C1 Agreement and contract data, (which includes this agreement)
Part C2 Pricing data
Part C3 Scope of work
Part C4 Site information and drawings and documents or parts thereof, which may be incorporated by reference into the above listed Parts.

Deviations from and amendments to the documents listed in the tender data and any addenda thereto as listed in the tender schedules as well as any changes to the terms of the offer agreed by the Tenderer and the Employer during this process of offer and acceptance, are contained in the schedule of deviations attached to and forming part of this agreement. No amendments to or deviations from said documents are valid unless contained in this schedule.

The Tenderer shall within two weeks after receiving a completed copy of this agreement, including the schedule of deviations (if any), contact the Employer's agent (whose details are given in the contract data) to arrange the delivery of any securities, bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the conditions of contract identified in the contract data. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this agreement.

Notwithstanding anything contained herein, this agreement comes into effect on the date when the tenderer receives one fully completed original copy of this document, including the schedule of deviations (if any). Unless the tenderer (now contractor) within five (5) working days of the date of such receipt notifies the employer in writing of any reason why he/she cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the parties.

**For the Employer:**

| | | |
|---|---|---|
| | | |
| Name of signatory | Signature | Date |

*Any reference to words "Bid" or "Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".
**Any reference to the words "payment reduction" herein shall be construed to have the same meaning as the word "retention"

**Tender / Quotation no:** PLK 23/05

| | |
|---|---|
| **Name of Organisation:** | Department of Public Works and Infrastructure |
| **Address of Organisation:** | ***77 Hans Van Rensburg Street, Polokwane*** |

**WITNESSED BY:**

| | | |
|---|---|---|
| | | |
| Name of witness | Signature | Date |

**Schedule of Deviations**

| |
|---|
| **1.1.1. Subject:** |
| **Detail:** |

| |
|---|
| **1.1.2. Subject:** |
| **Detail:** |

| |
|---|
| **1.1.3. Subject:** |
| **Detail:** |

| |
|---|
| **1.1.4. Subject:** |
| **Detail:** |

| |
|---|
| **1.1.5. Subject:** |
| **Detail:** |

| |
|---|
| **1.1.6. Subject:** |
| **Detail:** |

By the duly authorised representatives signing this agreement, the Employer and the Tenderer agree to and accept the foregoing schedule of deviations as the only deviations from and amendments to the documents listed in the tender data and addenda thereto as listed in the tender schedules, as well as any confirmation, clarification or changes to the terms of the offer agreed by the Tenderer and the Employer during this process of offer and acceptance.

It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the tender documents and the receipt by the Tenderer of a completed signed copy of this Agreement shall have any meaning or effect in the contract between the parties arising from this agreement.

*Any reference to words “Bid” or “Bidder” herein and/or in any other documentation shall be construed to have the same meaning as the words “Tender” or “Tenderer”.
**Any reference to the words “payment reduction” herein shall be construed to have the same meaning as the word “retention”

# C2.2

# Bills of Quantities

# SECTION NO. 1

# Preliminaries and Generals

| ITEM NO | PAYMENT REFER | DESCRIPTION | UNIT | QTY | RATE | AMOUNT R |
|---|---|---|---|---|---|---|
| | | **SCHEDULE NO 1 : GENERAL** | | | | |
| | SABS 1200 A | **PRELIMINARY AND GENERAL** | | | | |
| 1.1 | 8.3 | **Fixed Charge items** | | | | |
| 1.1.1 | 8.3.1 | Contractual Requirements | Sum | 1 | | |
| | 8.3.2 | **Establish facilities on the site:** | | | | |
| | | Facilities for Engineer for duration of construction (SABS 1200 AB) | | | | |
| 1.1.7 | PSAB 3.1 | a) Standard Project name boards | Sum | 1 | | |
| | | Facilities for Contractor | | | | |
| 1.1.8 | | Offices and storage sheds | Sum | 1 | | |
| 1.1.9 | | Living accommodation | Sum | 1 | | |
| 1.1.10 | | Ablution and latrine facilities | Sum | 1 | | |
| 1.1.11 | | Tools and equipment | Sum | 1 | | |
| 1.1.12 | | Water supplies, electric power and communication | Sum | 1 | | |
| 1.1.13 | | Access (sub clause 5.8) | Sum | 1 | | |
| 1.1.15 | 8.3.4 | Removal of contractor's site establishment on completion | Sum | 1 | | |
| 1.2 | 8.4 | **Time Related Items** | | | | |
| 1.2.1 | 8.4.1 | Contractual Requirements | Sum | 1 | | |
| | 8.4.2 | **Operate and maintain facilities on the site:** | | | | |
| | 8.4.2.2 | Facilities for Contractor for duration of construction, except where otherwise stated | | | | |
| 1.2.7 | | Offices and storage sheds | Sum | 1 | | |
| 1.2.8 | | Living accommodation | Sum | 1 | | |
| 1.2.9 | | Ablution and latrine facilities | Sum | 1 | | |
| 1.2.10 | | Tools and equipment | Sum | 1 | | |
| 1.2.11 | | Water supplies, electric power and communications | Sum | 1 | | |
| 1.2.12 | | Access | Sum | 1 | | |
| 1.2.13 | 8.4.3 | Supervision | Sum | 1 | | |
| | | **TOTAL CARRIED FORWARD** | | | | |

| ITEM NO | PAYMENT REFER | DESCRIPTION | UNIT | QTY | RATE | AMOUNT R |
|---|---|---|---|---|---|---|
| | | **PRELIMINARY AND GENERAL** | | | | |
| | | **TOTAL BROUGHT FORWARD** | | | | |
| 1.2.14 | 8.4.4 | Company and head office overhead costs | Sum | 1 | | |
| 1.3 | 8.5 | **SUM STATED PROVISIONALLY BY ENGINEER** | | | | |
| 1.3.2 | | Testing - Control tests by independent laboratory | Sum | 1 | | |
| 1.4 | | **HIV/AIDS AWARENESS** | | | | |
| | | It is required of the Contractor to thoroughly study the HIV/AIDS Specification (PW 1544) of the Department that must be read together with and is deemed to be incorporated under this Section of the Bills of Quantities. Provision for pricing of HIV/AIDS awareness is made here. It is explicitly pointed out that all requirements of the aforementioned specification are deemed to be priced hereunder, as the said items represent the only method of measurement and no additional items or extras to the contract in this regard shall be entertained. The Contractor must take note that compliance with the HIV/AIDS Specification is compulsory. In the event of partial or total non-compliance, the Representative/Agent, notwithstanding the provisions of Clause 52 of the General Conditions of Contract for Works of Civil Engineering Construction or any other clause to the contrary, reserves the right to delay issuing any progress payment certificate until the Contractor provides satisfactory proof of compliance. The Contractor shall not be entitled to any compensation of whatsoever nature, including interest, due to such delay of payment | | | | |
| 1.4.1 | | **AWARENESS CHAMPION** | | | | |
| | | Selection, appointment, briefing and making available of an Awareness Champion including provision of all relevant services, all in accordance with the HIV/AIDS Specification | Sum | 1 | | |
| 1.4.2 | | **AWARENESS WORKSHOPS** | | | | |
| | | Selection and appointment of a competent Service Provider approved by the **principal agent**, provision of a Service Provider Workshop Plan and a suitable venue, conducting of awareness workshops by means of traditional and/or modern multi-media techniques, including follow-up courses, making available all tuition material and performing assessment procedures, all in accordance with the HIV/AIDS Specification | Sum | 1 | | |
| 1.4.3 | | **POSTERS, BOOKLETS, VIDEOS, ETC.** | | | | |
| | | Provision, displaying, maintaining and replacing when necessary of four plastic laminated posters, booklets and educational videos, etc. for the duration of the **construction period**, all in accordance with the HIV/AIDS Specification | Sum | 1 | | |
| | | **TOTAL CARRIED FORWARD** | | | | |

| ITEM NO | PAYMENT REFER | DESCRIPTION | UNIT | QTY | RATE | AMOUNT R |
|---|---|---|---|---|---|---|
| | | **SCHEDULE NO 1 : GENERAL** | | | | |
| | | **PRELIMINARY AND GENERAL** | | | | |
| | | **TOTAL BROUGHT FORWARD** | | | | |
| 1.4.4 | | **ACCESS TO CONDOMS** | | | | |
| | | Provision and maintenance of condom dispensers fixed in position, including male and female condoms, replenishing male and female condoms on a daily basis as required for the duration of the **construction period**, all in accordance with the HIV/AIDS Specification | Sum | 1 | | |
| 1.4.5 | | **MONITORING** | | | | |
| | | Monitoring HIV/AIDS awareness of workers, providing the **principal agent** with access to information including making available all reports, thoroughly completed and reflecting the correct information, for the duration of the **construction period** and close out, all in accordance with the HIV/AIDS Specification | Sum | 1 | | |
| 1.5 | | **IMPLEMENTATION OF LABOUR-INTENSIVE INFRASTRUCTURE PROJECTS UNDER THE EXPANDED PUBLIC WORKS PROGRAMME (EPWP)** | | | | |
| 1.5.1 | | The contractor shall comply with all the requirements of the "Code of Good Practice for Employment and Conditions of Work for Special Public Works Programmes" issued in terms of the "Basic Conditions of Employment Act, 1997 (Act No 75 of 1997)" and the related "Ministerial Determination", for the employment of locally employed temporary workers on a labour-intensive infrastructure project under Exapanded Public Works Programme (EPWP)" | Sum | 1 | | |
| 1.5.2 | | The contractor shall maintain daily records with regard to the workers employed and shall, on a monthly basis, submit a report to the principal agent in the prescribed format. Compulsory indicators such as the project budged, actual project expenditure, number of job opportunities created, demographic characteristics of workers employed, minimum daily wage rate, number person-days of employment created and number of training person-days, shall be included in said report, all as defined in the "Guidelines for the Implementation of Labour Intensive Infrastructure Projects under the Expanded Public Works Programme (EPWP)" | Sum | 1 | | |
| 1.5.3 | | Provision for pricing of compliance with the aformentioned is made under this clause and it is explicitly pointed out that all requirements in respect of aformentioned are deemed to be priced hereunder and no additional claims in this regard shall be entertained | Sum | 1 | | |
| | | **TOTAL CARRIED FORWARD** | | | | |

| ITEM NO | PAYMENT REFER | DESCRIPTION | UNIT | QTY | RATE | AMOUNT R |
|---|---|---|---|---|---|---|
| | | **SCHEDULE NO 1 : GENERAL** | | | | |
| | | **PRELIMINARY AND GENERAL** | | | | |
| | | **TOTAL BROUGHT FORWARD** | | | | |
| 1.6 | | **OCCUPATIONAL HEALTH AND SAFETY ACT** | | | | |
| | | The **contractor** shall comply with all the requirements as set out in the Construction Regulations, 2014 issued under the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) | | | | |
| | | It is required of the **contractor** to thoroughly study the Health and Safety Specification that must be read together with and is deemed to be incorporated under this Section of the **bills of quantities / lump sum document** | | | | |
| | | The **contractor** must take note that compliance with the Occupational Health and Safety Act, Construction Regulations and Health and Safety Specification is compulsory. In the event of partial or total non-compliance, the **principal agent,** notwithstanding the provisions of clause A31.0 of Section A or any other clause to the contrary, reserves the right to delay issuing any progress **payment certificate** until the **contractor** provides satisfactory proof of compliance. The **contractor** shall not be entitled to any compensation of whatsoever nature, including interest, due to such delay of payment | | | | |
| 1.6.1 | | Provision for pricing of the Occupational Health and Safety Act, Construction Regulations and Health and Safety Specification is made under this clause and it is explicitly pointed out that all requirements of the aforementioned are deemed to be priced hereunder and no additional claims in this regard shall be entertained | Sum | 1 | | |
| 1.6.2 | | General provision for Occupational Health and Safety (Personal Protective Equipments) | Sum | 1 | | |
| 1.6.3 | | Contractor's time obligation in respect of OHS and contract regulation | Sum | 1 | | |
| 1.6.4 | | Submission of Health and Safety Files | Sum | 1 | | |
| 1.6.5 | | Training of safety officer | Sum | 1 | | |
| | | **TOTAL CARRIED FORWARD TO SUMMARY** | | | | |

# SECTION NO. 2

# Alterations

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **SECTION NO. 2**<br>**Alterations**<br>**BILL NO. 1**<br>**ALTERATIONS** | | | | |
| | **PREAMBLES**<br>The document "Construction Works: Specifications: General Specification (PW371-A) Edition 2.0" is obtainable on the Department's website (http://www.publicworks.gov.za/ under "Consultants Guidelines"), and shall be read in conjunction with the bills of quantities and be referred to for the full descriptions of work to be done and materials to be used.<br>The document "Construction Works: Specifications: Particular Specification (PW371-B) Edition 2.0" is issued together with the drawings and shall be read in conjunction with the drawings and the bills of quantities. | | | | |
| | **SUPPLEMENTARY PREAMBLES**<br>The contractor shall carry out the whole of the works with as little mess and noise as possible and with a minimum of disturbance to tenants in the buildings. Provide proper protection and provide , erect and remove when directed , any temporary tarpaulins that may be necessary during the progress of the works, all to the satisfaction of the principal agent<br>The contractor shall refer, price and complete credit of materials schedule as per attached these Bills of Quantities marked Part B | | | | |
| | **GENERAL** | | | | |
| 1 | The tenderer shall visit the site after carefully studying the drawings, and make himself thoroughly acquainted with the nature and extent of the work to be done.No claim for extras arising from his failure to do so will be entertained. | Item | | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| 2 | In taking down and removing existing work, the utmost care is to be taken to avoid any structural or other damage to the remaining portions of the building. Supply and erect suitable and substantial shoring, needling, struting, barricading, etc, that may be necessary whilst carrying out any portion of the alterations to ensure the stability of the structures during alterations, all to the satisfaction of the Architect and remove when directed. The contractor must also protect all work not removed such as walls, floors, doors, windows, joinery, loose and fixed fittings, electrical appliances, etc from damage during the progress of the work and provide all necessary materials for so doing. | Item | | | |
| 3 | The contractor is to allow for carting away rubble to a distance approximately 5km from the site. | Item | | | |
| 4 | The contractor is required to allow for storage of materials removed from existing structure to be taken to National Public Works Polokwane Stores at a later stage during construction period. | Item | | | |
| | **REMOVAL OF EXISTING WORK (LI)** | | | | |
| | **Breaking up and removing mass concrete (LI):** | | | | |
| 5 | Concrete in ramps. | m³ | 1 | | |
| 6 | Concrete in floor drains. | m³ | 5 | | |
| | **Taking out and removing doors, windows, etc from brickwork (LI):** | | | | |
| 7 | Timber single door size 813 x 2032mm high from steel door frames | No | 11 | | |
| 8 | Steel double door size 1670 x 2200mm high fromone brick wall | No | 1 | | |
| 9 | Steel double door size 1860 x 2200mm high overall from one brick wall | No | 1 | | |
| 10 | Steel frame backed with mesh size 1700 x 1050mm high | No | 1 | | |
| 11 | Steel cell door size 1000 x 2032mm high overall from one brick wall | No | 2 | | |
| | **Taking down and removing roofs, floors, panelling, ceilings, partitions, etc (LI):** | | | | |
| 12 | Ceilings including cornices, timber brandering, etc. | m² | 258 | | |
| 13 | Cornices only from ceilings | m | 138 | | |
| 14 | Fascia boards including joint strips | m | 23 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **Taking out and removing steel shelves (LI):** | | | | |
| 15 | Size 2000 x 800 x 750mm high | No | 6 | | |
| 16 | Size 2520 x 470 x 1880mm high | No | 4 | | |
| 17 | Free standing steel lockers | No | 3 | | |
| | **Empty water from tank stands, move from existing position and install on a new position(no excavation required) 10m away to create way for temporary kitchen (LI)** | | | | |
| 18 | 5000 litre Jojo tanks with steel tank stands | No | 2 | | |
| | **Hacking up/off and removing floor tiles and wall finishes including removing mortar bed or backing and preparing concrete or brick surfaces for new screed, plaster or tile finishes(LI):** | | | | |
| 19 | Ceramic floor tiles. | m² | 320 | | |
| 20 | Glazed wall tiles. | m² | 381 | | |
| | **Taking out and removing ironmongery (LI):** | | | | |
| 21 | Chromium plated basin tap | No | 2 | | |
| 22 | Chromium plated sink tap | No | 4 | | |
| | **Taking out and removing piping, sanitary fittings, etc including disconnecting piping from fittings and making good floor and wall finishes (making good tiling and paintwork elsewhere) (LI):** | | | | |
| 23 | 100 x 100mm Galvanised steel piping including fittings and brackets. | m | 23 | | |
| 24 | 15mm Copper piping including fittings and brackets. | m | 22 | | |
| 25 | 22mm Copper piping including fittings and brackets. | m | 12 | | |
| 26 | Vitreous china wash hand basin | No | 2 | | |
| 27 | Stainless steel insert sink | No | 1 | | |
| 28 | Stainless steel single compartment wash trough | No | 1 | | |
| 29 | Vitreous china WC and cistern | No | 3 | | |
| 30 | Stainless steel WC and flushmaster | No | 3 | | |
| 31 | 250 Litre geyser from wall | No | 1 | | |
| 32 | Take out and remove rusted manhole cover and frame | No | 2 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **Take out, remove, store for later re-use (LI)** | | | | |
| 33 | Take out and remove, store aside for later re-use cover and frame | No | 3 | | |
| | **Unblocking of existing service lines** | | | | |
| | **Allow for checking, unblocking including cleaning blockages by using either steel roding rods or hydro blasting machine, etc. (LI)** | | | | |
| 34 | To existing soil, waste and ventillation reticulation pipework including manholes (per location) | No | 10 | | |
| 35 | Sewer pipe camera inspectiosn with reports (per location) | No | 10 | | |
| 36 | Unblocking existing sewer drainage pipe | m | 120 | | |
| 37 | To existing foul sewer reticulation pipework including manholes (per location) | No | 10 | | |
| 38 | To existing stormwater drainage reticulation pipework including manholes (per location) | No | 10 | | |
| | **Repairs to water supply pipes** | | | | |
| 39 | Investigate as necessary to identify location and extent of leaks in plastered wall finish | No | 15 | | |
| 40 | Hack into existing plastered wall finish to allow for repair, including temporarily blanking off branch and reinstating, all to match existing (pipe repair elsewhere measured) | No | 15 | | |
| 41 | Cut into existing copper pipe not exceeding 30mm diameter to remove damaged portion and reinstate, including testing (cutting into plaster and making good elsewhere measured) | No | 15 | | |
| | **Repairs to soil waste and vent pipes:** | | | | |
| 42 | Investigate as necessary to identify location and extent of leak in plastered wall finish | No | 12 | | |
| 43 | Hack into existing plastered wall finish to allow for repair, including temporarily blanking off waste branch and reinstating, all to match existing (pipe repair elsewhere measured) | No | 12 | | |
| 44 | Cut into existing uPVC pipe not exceeding 50mm diameter to remove damaged portion and reinstate, including testing (cutting into plaster and making good elsewhere measured) | No | 12 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **Repairs to existing water mains:** | | | | |
| 45 | Investigate as necessary to identify location and extent of underground leak | No | 10 | | |
| 46 | Excavate not exceeding 2m deep to expose existing leaking watermain to allow for repair, including temporarily shutting down main, all necessary excavation, backfilling and reinstating, all to match existing (pipe repair elsewhere measured) | No | 10 | | |
| 47 | Extra over for breaking through existing concrete slab and reinstating on completion, all to match existing (pipe repair elsewhere measured) | No | 10 | | |
| 48 | Cut through 150mm thick concrete surface bed to expose existing leaking watermain to allow for repair, including temporarily shutting down main, all necessary excavation, backfilling and reinstating of surface bed and making good, all to match existing | No | 15 | | |
| 49 | Cut into existing copper pipe not exceeding 50mm diameter to remove damaged portion and reinstate, including testing (excavations and making good elsewhere measured) | No | 10 | | |
| 50 | Cut into existing pvc pipe exceeding 50 and not exceeding 100mm diameter to remove damaged portion and reinstate, including testing (excavations and making good elsewhere measured) | No | 10 | | |
| | **Repairs to existing foul sewers:** | | | | |
| 51 | Investigate as necessary to identify location and extent of damaged or leaking pipe | No | 10 | | |
| 52 | Excavate to expose existing damaged foul sewer pipe to allow for repair, including temporarily blanking off main, all necessary excavation, backfilling and reinstating, all to match existing (pipe repair elsewhere measured) | No | 10 | | |
| 53 | Excavate through existing concrete paving to expose existing damaged foul sewer pipe to allow for repair, including temporarily blanking off main, all necessary excavation, backfilling and reinstating of surface finish, all to match existing (pipe repair elsewhere measured) | No | 10 | | |
| 54 | Cut into existing pvc sewer pipe exceeding 110 and not exceeding 160mm diameter to remove damaged portion, make good in uPVC, including any necessary adapters and reinstate, including testing (excavations and making good elsewhere measured) | No | 10 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **Repairs to existing stormwater drains:** | | | | |
| 55 | Investigate as necessary to identify location and extent of damaged or leaking pipe. | No | 8 | | |
| 56 | Excavate to expose damaged stormwater main to allow for repair, including temporarily blanking off main, all necessary excavation, backfilling and reinstating, all to match existing (pipe repair elsewhere measured) | No | 8 | | |
| 57 | Excavate through existing concrete paving to expose existing damaged stormwater main to allow for repair, including temporarily blanking off main, all necessary excavation, backfilling and reinstating of surface finish, all to match existing (pipe repair elsewhere measured) | No | 8 | | |
| 58 | Cut into existing concrete stormwater pipe exceeding 450 and exceeding 600mm diameter to remove damaged portion and reinstate, including testing (excavations and making good elsewhere measured) | No | 8 | | |
| 59 | Inspect, remove damaged and replace concrete, clean, repair ispection chambers 1500 x 1500 x 1000mm deep and leave in good working order (grating elsewhere measured) | No | 5 | | |
| | **Connections** | | | | |
| 60 | Allow for the connections of new pipes to existing water supply network including all fittings and making good of walls, floors, etc (per location) | No | 10 | | |
| 61 | Allow for the connections of new waste pipes to existing drainage network including all fittings and making good of walls, floors, etc (per location) | No | 10 | | |
| | **Taking out and removing glass and mirrors(LI):** | | | | |
| 62 | Glass from steel windows including cleaning out rebates and preparing for new glass. | m² | 7 | | |
| | **Taking down and removing roofs, floors, panelling, ceilings, partitions, etc (LI)** | | | | |
| 63 | Drywall partitions 2975mm high, including doors, glazed borrowed lights, etc | m | 19 | | |
| | **Hacking up/off and removing granolithic, screeds, plaster, etc from concrete or brickwork and preparing surfaces for new screed, plaster, tile finishes, etc (LI)** | | | | |
| 64 | 50mm Screed from floors | m² | 83 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **Taking out and removing loose furniture , store in a storeroom located by the End User and return after completion of the works (LI)** | | | | |
| 65 | Single beds | No | 14 | | |
| | **Scrap walls to receive paint (LI)** | | | | |
| 66 | Scrap existing walls and make good to receive paint | m² | 208 | | |
| 67 | Scrap existing concrete ceilings and make good to receive paint | m² | 111 | | |
| | **Sundries (LI)** | | | | |
| | **Clean down existing clay face brick wall with Marmoclean to Manufacturer's specifications, minor cracks in walls to be repaired by filling in with mortar to match existing and seal all structural cracks with Marmoran Aquastop or equally approved** | | | | |
| 68 | External face bricks | m² | 820 | | |
| | **BRICK CRACK REPAIR(LI)** | | | | |
| | **Brick crack repair (LI)** | | | | |
| 69 | Chisel out crack to a depth of 300mm and brick up with matching brick. | m² | 8 | | |
| 70 | Blow out crack with high jet and let dry. | m | 54 | | |
| 71 | 200mm thick reinforced concrete surface beds for 110mm diamter pipes and making good concrete. | m² | 21 | | |
| 72 | 230mm thick brick wall for toothing to receive new 230mm thick brick wall | m² | 6 | | |
| | **MAKING GOOD OF FINISHES, ETC(LI):** | | | | |
| | **Making good internal cement plaster (LI)** | | | | |
| 73 | Floors in patches. | m² | 381 | | |
| 74 | Walls in patches. | m² | 446 | | |
| 75 | Make good to walls where partitions have been removed | m | 9 | | |
| 76 | Make good to floors where partitions have been removed | m | 19 | | |
| | **The following in open area (Courtyard) (LI)** | | | | |
| 77 | Break, remove, cart away damaged and cracked concrete slab (100mm thick) | m² | 102 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| 78 | Prepare existing concrete slab by roughening the surfce, remove exposed aggregates, oil, water, dust, loose concrete by through flushing using high presure steam water | m² | 255 | | |
| | **Concrete slab to open areas (LI)** | | | | |
| 79 | 150mm thick, 40Mpa concrete slab to falls finished with wood float cast on surfaces with and including epoxy additive to bond new and existing concrete | m³ | 38 | | |
| 80 | 20mm diameter high tensile steel (Y20) x 400mm long dowels inserted in existing concrete, bend on top and tied up with the mesh reinforcement placed in the new concrete | No | 250 | | |
| 81 | Type 245 fabric reinforcement in concrete surface beds, etc | m² | 255 | | |
| 82 | Formwork sides not exceeding 300mm high | m | 26 | | |
| | **Two-part grey polysulphide sealing compound including backing cord, bond breaker, primer, etc (LI)** | | | | |
| 83 | 20 x 30mm in expansion joints in floors | m | 160 | | |
| | **Repairs and servicing of existing (LI)** | | | | |
| 84 | Minor repairs and servicing of existing stainless steel urinal including checking for water leaks, flashing system and leave in good working order | No | 1 | | |
| 85 | Inspect, de-rust, minor repairs to cell gate including servicing the lock and leave in good working order | No | 1 | | |
| 86 | Inspect, de-rust, minor repairs to steel gate size 3000 x 4000mm high including servicing the lock and leave in good working order | No | 1 | | |
| 87 | Inspect, de-rust, service steel door frames size 813 x 2032mm high and leave in good working order | No | 4 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **Servicing of existing steel windows including thoroughly cleaning down of all dirt, scale and general contamination from all surfaces, pulleys, handles, rods, openners, catches, etc and servicing and lubricating all moving parts, carefully removing all paint from and polishing all brassware and replacing of damaged or missing screws, nuts, etc (replacement of ironmongery, removal of glass, etc elsewhere measured)** | | | | |
| 88 | Servicing, easing and minor repairs to steel window size 1200 x 800mm high | No | 14 | | |
| 89 | Ditto but size 1200 x 1200mm high overall | No | 9 | | |
| 90 | Ditto but size 500 x 800mm high overall | No | 7 | | |
| 91 | Ditto but size 800 x 1000mm high overall | No | 2 | | |
| 92 | Ditto but size 2000 x 600mm high overall | No | 6 | | |
| | **OPENINGS THROUGH EXISTING WALLS ETC (LI)** | | | | |
| | **Breaking out for and forming openings through brick walls for new doors and frames, including prestressed concrete lintels, making good cement plaster on both sides and into reveals and with 20 MPa concrete thresholds with steel trowelled finish (new doors and frames and making good paintwork elsewhere) (LI)** | | | | |
| 93 | Opening for door with timber frame 813 x 2032mm high overall through half brick wall | No | 1 | | |
| 94 | Opening for door with timber frame 813 x 2032mm high overall through one brick wall | No | 1 | | |
| | Carried to Collection | | | **R** | |

| | | | Amount |
|---|---|---|---|
| **BILL NO. 1**<br>**ALTERATIONS**<br>**COLLECTION** | | | |
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| | Carried To Section Summary | **R** | |

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| | **SECTION NO. 2** | | |
| | **Alterations** | | |
| | **SECTION SUMMARY** | | |
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Section No. 2
SECTION SUMMARY

# SECTION NO. 3

# Building Works

| | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|
| **SECTION NO. 3**<br>**Building Works**<br>**BILL NO. 1** | | | | |
| **PREAMBLES**<br>The document "Construction Works: Specifications: General Specification (PW371-A) Edition 2.0" is obtainable on the Department's website (http://www.publicworks.gov.za/ under "Consultants Guidelines"), and shall be read in conjunction with the bills of quantities and be referred to for the full descriptions of work to be done and materials to be used.<br>The document "Construction Works: Specifications: Particular Specification (PW371-B) Edition 2.0" is issued together with the drawings and shall be read in conjunction with the drawings and the bills of quantities. | | | | |
| **SUPPLEMENTARY PREAMBLES**<br>**Nature of ground:**<br>The nature of the ground is assumed to be loose sandy material, therefore earth, but possibly interspersed with hard rock or soft rock. | | | | |
| **Carting away of excavated material:**<br>Descriptions of carting away of excavated material shall be deemed to include loading excavated material onto trucks directly from the excavations or, alternatively, from stock piles situated on the building site. | | | | |
| Carried To Section Summary | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **SECTION NO. 3** | | | | |
| | **Building Works** | | | | |
| | **BILL NO. 2** | | | | |
| | **EARTHWORKS** | | | | |
| | **DEOMOLITIONS, ETC** | | | | |
| | **Breaking up and removing (LI)** | | | | |
| 1 | 150mm thick mesh reinforced concrete surface beds, paving, etc | m² | 8 | | |
| | **EXCAVATION ETC** | | | | |
| | **Excavation in earth not exceeding 2m deep** | | | | |
| 2 | Trenches | m³ | 6 | | |
| | **Extra over all excavations for carting away** | | | | |
| 3 | Surplus material from excavations and/or stock piles on site, to a dumping site to be located by the contractor | m³ | 4 | | |
| | **Risk of collapse of excavations** | | | | |
| 4 | Sides of trenches excavations exceeding 1,5m deep | m² | 16 | | |
| | **Keeping excavations free of water (LI)** | | | | |
| 5 | Keeping excavations free of all water other than subterranean water | Item | | | |
| | **FILLING ETC OTHER THAN BULK (LI)** | | | | |
| | **Earth filling supplied by the contractor** | | | | |
| 6 | Under floors, steps, pavings, etc. | m³ | 1 | | |
| | **Earth filling obtained from excavations and/or prescribed stock piles on site stabilised with 3% cement per volume, compacted to (3% Mod AASHTO density (LI)** | | | | |
| 7 | Under floors, steps, pavings, etc. | m³ | 1 | | |
| 8 | Backfilling to trenches, holes etc. | m³ | 3 | | |
| | **Coarse river sand filling supplied by the contractor** | | | | |
| 9 | Under floors etc. | m³ | 1 | | |
| | **Compaction of surfaces** | | | | |
| 10 | Compaction of ground surface under floors etc. including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 93% Mod AASHTO density | m² | 8 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **Prescribed density tests on filling** | | | | |
| 11 | Modified AASHTO Density test | No | 2 | | |
| | **SOIL POISONING** | | | | |
| | **Soil insecticide in accordance with SANS 5859** | | | | |
| 12 | Under floors etc. including forming and poisoning shallow furrows against foundation walls etc., filling in furrows and ramming | m² | 8 | | |
| 13 | To bottoms and sides of trenches etc. | m² | 18 | | |
| | Carried to Collection | | | **R** | |

| | | | Amount |
|---|---|---|---|
| **BILL NO. 2**<br>**EARTHWORKS**<br>**COLLECTION** | | | |
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| | | Unit | Quantity | Rate | Amount |
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| | **SECTION NO. 3** | | | | |
| | **Building Works** | | | | |
| | **BILL NO. 3** | | | | |
| | **CONCRETE, FORMWORK AND REINFORCEMENT** | | | | |
| | **PREAMBLES** | | | | |
| | The document "Construction Works: Specifications: General Specification (PW371-A) Edition 2.0" is obtainable on the Department's website (http://www.publicworks.gov.za/ under "Consultants Guidelines"), and shall be read in conjunction with the bills of quantities and be referred to for the full descriptions of work to be done and materials to be used. | | | | |
| | The document "Construction Works: Specifications: Particular Specification (PW371-B) Edition 2.0" is issued together with the drawings and shall be read in conjunction with the drawings and the bills of quantities. | | | | |
| | **UNREINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES (LI)** | | | | |
| | **25MPa/19mm concrete** | | | | |
| 1 | Strip footings. | m³ | 2 | | |
| 2 | Ramps | m³ | 8 | | |
| | **REINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES (LI)** | | | | |
| | **30MPa/19mm concrete** | | | | |
| 3 | Surface beds cast in panels on waterproofing. | m³ | 1 | | |
| 4 | Floor drains | m³ | 5 | | |
| | **Test cubes (LI)** | | | | |
| 5 | Making and testing 150 x 150 x 150mm concrete strength test cube (Provisional). | No | 6 | | |
| | **SMOOTH FORMWORK (LI)** | | | | |
| | **Smooth formwork to sides** | | | | |
| 6 | Ramps | m | 61 | | |
| | **REINFORCEMENT** | | | | |
| | **Fabric reinforcement (LI)** | | | | |
| 7 | Type 245 fabric reinforcement in concrete surface beds, etc. | m² | 8 | | |
| | Carried To Section Summary | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **SECTION NO. 3** | | | | |
| | **Building Works** | | | | |
| | **BILL NO. 4** | | | | |
| | **MASONRY** | | | | |
| | **PREAMBLES** | | | | |
| | The document "Construction Works: Specifications: General Specification (PW371-A) Edition 2.0" is obtainable on the Department's website (http://www.publicworks.gov.za/ under "Consultants Guidelines"), and shall be read in conjunction with the bills of quantities and be referred to for the full descriptions of work to be done and materials to be used. | | | | |
| | The document "Construction Works: Specifications: Particular Specification (PW371-B) Edition 2.0" is issued together with the drawings and shall be read in conjunction with the drawings and the bills of quantities. | | | | |
| | **BRICKWORK** | | | | |
| | **Sizes in descriptions:** | | | | |
| | Where sizes in descriptions are given in brick units, 'one brick' shall represent the length and 'half brick' the width of a brick. | | | | |
| | **Face bricks:** | | | | |
| | Bricks shall be ordered timeously to obtain uniformity in size and colour. | | | | |
| | **Pointing:** | | | | |
| | Descriptions of recessed pointing to fair face brickwork and face brickwork shall be deemed to include square recessed, hollow recessed, weathered pointing, etc. | | | | |
| | **Face bricks** | | | | |
| | Bricks shall be ordered timeously to obtain uniformity in size and colour | | | | |
| | **BRICKWORK IN FOUNDATIONS (PROVISIONAL)** | | | | |
| | **Brickwork of NFXP 20 nominal compressive strength bricks in class II mortar(LI)** | | | | |
| 1 | One brick walls. | m² | 3 | | |
| | **BRICKWORK IN SUPERSTRUCTURE(LI)** | | | | |
| | **Brickwork of NFP bricks in class II mortar** | | | | |
| 2 | Half brick walls. | m² | 69 | | |
| 3 | One brick walls. | m² | 47 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **BRICKWORK SUNDRIES** | | | | |
| | **2,5mm Brickwork reinforcement** | | | | |
| 4 | 75mm Wide reinforcement built in horizontally. | m | 5 | | |
| 5 | 150mm Wide reinforcement built in horizontally. | m | 141 | | |
| | **Turning pieces to lintels etc** | | | | |
| 6 | 220mm Wide turning pieces. | m | 1 | | |
| | **FACE BRICKWORK** | | | | |
| | **"Wolkberg Rose' or equal approved face bricks in stretcher bond pointed with recessed horizontal and vertical joints:** | | | | |
| 7 | Extra over brickwork for face brickwork. | m² | 153 | | |
| | **Brick-on-edge header course copings, sills, etc of "Wolkberg Rose' or equal approved face bricks pointed with recessed joints on all exposed faces:** | | | | |
| 8 | Extra over brickwork for brick-on-edge header course lintels course, pointed on face and 110mm soffit. | m | 44 | | |
| | **Brick-on-edge header course copings, sills, etc of "Wolkberg Rose' or equal approved face bricks pointed with recessed joints on all exposed faces:** | | | | |
| 9 | 220mm Wide sills set level and slightly projecting. | m | 8 | | |
| | Carried to Collection | | | **R** | |

| | | | Amount |
|---|---|---|---|
| **BILL NO. 4**<br>**MASONRY**<br>**COLLECTION** | | | |
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| | | Unit | Quantity | Rate | Amount |
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| | **SECTION NO. 3** | | | | |
| | **Building Works** | | | | |
| | **BILL NO. 5** | | | | |
| | **WATERPROOFING** | | | | |
| | **PREAMBLES** | | | | |
| | The document "Construction Works: Specifications: General Specification (PW371-A) Edition 2.0" is obtainable on the Department's website (http://www.publicworks.gov.za/ under "Consultants Guidelines"), and shall be read in conjunction with the bills of quantities and be referred to for the full descriptions of work to be done and materials to be used. | | | | |
| | The document "Construction Works: Specifications: Particular Specification (PW371-B) Edition 2.0" is issued together with the drawings and shall be read in conjunction with the drawings and the bills of quantities. | | | | |
| | **DAMPPROOFING OF WALLS AND FLOORS(LI)** | | | | |
| | **One layer 375 micron embossed polyethene dampproof course (SANS 952-1985 type B)** | | | | |
| 1 | In walls. | m² | 3 | | |
| | **One layer 250 micron green polyethene waterproof sheeting (SANS 952-1985 type C) sealed at laps with PVC self-adhesive tape** | | | | |
| 2 | Under surface beds. | m² | 8 | | |
| | **WATERPROOFING TO PLASTERED WALLS** | | | | |
| | **Apply Cemflex or equal approved primer to walls, lay SBP polyproplyene membrane, saturate in two coats aplication and including allowing to cure** | | | | |
| 3 | To walls | m² | 10 | | |
| | **Approved cementitious waterproofing to manufacturers recommendations, prepared and ready to receive ceramic floor tiles (elsewhere)** | | | | |
| 4 | To shower floors | m² | 2 | | |
| | **SEALING STRIPS, JOINT SEALANTS, ETC(LI)** | | | | |
| | **Two-part grey polysulphide sealing compound including backing cord, bond breaker, primer, etc** | | | | |
| 5 | 6 x 10mm in expansion joints in floors | m | 87 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **Jointex filler with tear off strip seal with 10 x 10 SIKAFLEX-PRO 2HP or equal approved, etc** | | | | |
| 6 | 10mm In isolation joints in floors | m | 300 | | |
| | **Clear silicone sealing compound including backing cord, bond breaker, primer, etc** | | | | |
| 7 | 6 x 10mm in saw cut joints in floors. | m | 8 | | |
| 8 | 10 x 10mm in vertical expansion joints in tiled walls, etc. | m | 56 | | |
| 9 | Between timber fittings and tiled walls. | m | 25 | | |
| 10 | Between sanitary fittings and tiled walls. | m | 30 | | |
| 11 | In joints sealing and pointing all around external window and door frames. | m | 50 | | |
| | Carried to Collection | | | **R** | |

| | | | Amount |
|---|---|---|---|
| **BILL NO. 5**<br>**WATERPROOFING**<br>**COLLECTION** | | | |
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| | **SECTION NO. 3** | | | | |
| | **Building Works** | | | | |
| | **BILL NO. 6** | | | | |
| | **ROOF COVERINGS** | | | | |
| | **PREAMBLES** | | | | |
| | The document "Construction Works: Specifications: General Specification (PW371-A) Edition 2.0" is obtainable on the Department's website (http://www.publicworks.gov.za/ under "Consultants Guidelines"), and shall be read in conjunction with the bills of quantities and be referred to for the full descriptions of work to be done and materials to be used. | | | | |
| | The document "Construction Works: Specifications: Particular Specification (PW371-B) Edition 2.0" is issued together with the drawings and shall be read in conjunction with the drawings and the bills of quantities. | | | | |
| | **PROFILED METAL SHEETING AND ACCESSORIES** | | | | |
| | **0,58mm thick Global roofing Klip-tite roof sheeting finish on one side in single lengths and accessories, fixed to timber purlins** | | | | |
| 1 | Roof covering with pitches not exceeding 25 degrees. | m² | 153 | | |
| | **ROOF AND WALL INSULATION(LI)** | | | | |
| | **50mm Thick aluminium foil faced fibreglass blanket** | | | | |
| 2 | Insulation blanket laid taut over purlins and fixed concurrent with roof covering with stapled longitudinal flap joints, including fixing at top and bottom edges to purlins with and including hoop iron straps | m² | 145 | | |
| | **SEALING OF EXISTING ROOF** | | | | |
| | **Sealing of existing roof (LI)** | | | | |
| 3 | Carefully examine existing entire roof area, locate leaks with particular attention given to roof leaks where marks are visible on walls and ceilings, locate holes, solder, replace defective screws using longer screws where necessary. | m² | 826 | | |
| | Carried To Section Summary | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **SECTION NO. 3** | | | | |
| | **Building Works** | | | | |
| | **BILL NO. 7** | | | | |
| | **CARPENTRY AND JOINERY** | | | | |
| | **PREAMBLES** | | | | |
| | The document "Construction Works: Specifications: General Specification (PW371-A) Edition 2.0" is obtainable on the Department's website (http://www.publicworks.gov.za/ under "Consultants Guidelines"), and shall be read in conjunction with the bills of quantities and be referred to for the full descriptions of work to be done and materials to be used. | | | | |
| | The document "Construction Works: Specifications: Particular Specification (PW371-B) Edition 2.0" is issued together with the drawings and shall be read in conjunction with the drawings and the bills of quantities. | | | | |
| | **SUPPLEMENTARY PREAMBLES** | | | | |
| | **Particle board:** | | | | |
| | Particle board shall comply with the following specifications: a) SABS 1300 Particle board: exterior and flooring type b) SABS 1301 Particle board: interior type. | | | | |
| | **Joinery:** | | | | |
| | Descriptions of frames shall be deemed to include frames, transoms, mullions, rails, etc. | | | | |
| | **Fixing:** | | | | |
| | Items described as nailed shall be deemed to be fixed with hardened steel nails or shot pins to brickwork or concrete. | | | | |
| | **Decorative laminate finish:** | | | | |
| | Laminate finish shall be glued under pressure. Edge strips shall be butt jointed at junctions with adjacent similar finish. | | | | |
| | Note: Tenderers are referred to the drawings for doors that are only referenced and attached to these bills of quantities for pricing purposes | | | | |
| | **PREFABRICATED ROOF TRUSSES, ETC.** | | | | |
| | **Plate nailed timber roof truss construction:** | | | | |
| | The following is applicable in respect of roof trusses: | | | | |
| | **Sawn softwood(LI)** | | | | |
| 1 | 38 x 114mm timber for bracing. | m | 526 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| 2 | 38 x 50mm timber supports and bracing to existing roof | m | 795 | | |
| 3 | 50 x 76mm timber support. | m | 876 | | |
| 4 | 76 x 114mm timber complete with steel plate bolted to concrete | m | 14 | | |
| 5 | 76 x 114mm supports and beam | m | 84 | | |
| 6 | 70 x 300mm laminated beam | m | 119 | | |
| | **ROOF SUNDRIES(LI)** | | | | |
| | **Sundries** | | | | |
| 7 | Two coats creosote on sawn timber. | m² | 186 | | |
| | **EAVES, VERGES, ETC(LI)** | | | | |
| | **Everite FC77 pressed fibre-cement:** | | | | |
| 8 | 15 x 225mm Fascias and barge boards including galvanised steel H-profile jointing strips. | m | 46 | | |
| | **FRAMED DOORS, ETC(LI)** | | | | |
| | **Wrought meranti doors hung to steel frames:** | | | | |
| 9 | 44mm Framed batten door size 813 x 2032mm high with 3mm plywood backing and 76 x 32mm weather bar. | No | 1 | | |
| | **Solid core masonite doors** | | | | |
| | **Solid core masonite timber door with 3.2mm tempered hardwood facings and hardwood edges suitable for painting hung from rail** | | | | |
| 10 | 40mm Door size 813 x 2032mm high | No | 10 | | |
| | **FRAMED FRAMES, ETC** | | | | |
| | **Wrought meranti(LI)** | | | | |
| 11 | Replace 50 x 90mm timber to frames fixed to walls including installing new glazing to timber frame (elsewher measured) | m | 30 | | |
| | **FIRE RETARDANT FRAMED CANVAS (LI)** | | | | |
| | **Fire retardant UV Stabilised Canvas or equal approved** | | | | |
| 12 | Waterproof PVC cover fire retardant Canvas or equal approved fixed to timber frames complete with hooks for openning and closing, installation by specilist to manufacturer's instructions and specifications | m² | 54 | | |
| | Carried to Collection | | | **R** | |

| | | | Amount |
|---|---|---|---|
| **BILL NO. 7**<br>**CARPENTRY AND JOINERY**<br>**COLLECTION** | | | |
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| | Carried To Section Summary | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **SECTION NO. 3** | | | | |
| | **Building Works** | | | | |
| | **BILL NO. 8** | | | | |
| | **CEILINGS PARTITIONS AND ACCESS FLOORING** | | | | |
| | **PREAMBLES** | | | | |
| | The document "Construction Works: Specifications: General Specification (PW371-A) Edition 2.0" is obtainable on the Department's website (http://www.publicworks.gov.za/ under "Consultants Guidelines"), and shall be read in conjunction with the bills of quantities and be referred to for the full descriptions of work to be done and materials to be used. | | | | |
| | The document "Construction Works: Specifications: Particular Specification (PW371-B) Edition 2.0" is issued together with the drawings and shall be read in conjunction with the drawings and the bills of quantities. | | | | |
| | **SUPPLEMENTARY PREAMBLES** | | | | |
| | **Descriptions:** | | | | |
| | Items described as nailed shall be deemed to be fixed with hardened steel nails or pins or shot pinned to brickwork or concrete. | | | | |
| | Items described as plugged shall be deemed to include screwing to fibre, plastic or metal plugs at not exceeding 600mm centres, and where described as bolted the bolts have been given. | | | | |
| | **SUSPENDED CEILINGS** | | | | |
| | **Ceiling system consisting of 2 layers of Gyproc FireStop (60min fire rating) or equal approved, panel size 600 x 1200 x 15mm fixed to a secondary framework of consisting of Donn UltraSteel or equal approved 51mm suspended using galvanised steel angle 25mm x 25mm, square edge and white painted finish laid onto exposed tee grid system, main tees suspended by means of 25 x 25mm GMS strap hangers at 1200mm centres** | | | | |
| 1 | Ceilings suspended exceeding 1m but not 1.6m below trusses at 1200mm centres | m² | 230 | | |
| 2 | Extra over ceiling for opening for 150mm diameter downlighter | No | 20 | | |
| 3 | Extra over ceiling for opening for 600 x 1200mm light fitting | No | 50 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **Cornices, perimeter trims, etc to suspended ceilings** | | | | |
| 4 | 47 x 35mm aluminium shadow line cornice plugged | m | 328 | | |
| | **NAILED UP AND SCREW UP CEILINGS** | | | | |
| | **6mm Everite Nutec fibre-cement boards or equal approved with standard H-type pressed steel jointing strips(LI)** | | | | |
| 5 | Repairs to existing ceiling including replacing damaged ceiling boards leaving in good order. | m² | 450 | | |
| 6 | Extra over ceiling for opening for hinged trap door size 600 x 600mm | No | 2 | | |
| | **Cornices,** | | | | |
| 7 | 20 x 40mm SA pine timber cornice fixed vertically flat to walls | m | 138 | | |
| | **Aerolite or equal approved insulation(LI)** | | | | |
| 8 | Insulation in blanket form closely fitted and laid on top of brandering between roof timbers, etc | m² | 320 | | |
| | Carried to Collection | | | **R** | |

| | | Amount |
|---|---|---|
| **BILL NO. 8**<br>**CEILINGS PARTITIONS AND ACCESS FLOORING**<br>**COLLECTION** | | |
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| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **SECTION NO. 3** | | | | |
| | **Building Works** | | | | |
| | **BILL NO. 9** | | | | |
| | **FLOOR COVERINGS** | | | | |
| | **PREAMBLES** | | | | |
| | The document "Construction Works: Specifications: General Specification (PW371-A) Edition 2.0" is obtainable on the Department's website (http://www.publicworks.gov.za/ under "Consultants Guidelines"), and shall be read in conjunction with the bills of quantities and be referred to for the full descriptions of work to be done and materials to be used. | | | | |
| | The document "Construction Works: Specifications: Particular Specification (PW371-B) Edition 2.0" is issued together with the drawings and shall be read in conjunction with the drawings and the bills of quantities. | | | | |
| | **SUPPLEMENTARY PREAMBLES** | | | | |
| | Vinyl tiles, sheeting, wall linings, carpets, etc are to be supplied and laid complete on a cement screed (elsewhere) under guarantee by an approved firm of specialists | | | | |
| | Prices for vinyl products are to include for cleaning off tiles on completion and apply three coats waterproof floor dressing in accordance with the manufacturer's specification | | | | |
| | Note: The tenderers is required to allow for provision of samples of floor coverings for approval prior to undertaking the works. | | | | |
| | **SELF LEVELLING TEXTURED FLOORING(LI)** | | | | |
| | **Prepare and apply 6mm thick heavy duty coloured polyurethane floor screed (Method 6.1 of EN 1504-9)** | | | | |
| 1 | On floors | m² | 339 | | |
| | **Skirtings, etc.** | | | | |
| 2 | 100mm high skirting | m | 378 | | |
| | **Prepare and apply 3mm thick commercial grade self levelling screed and moisture barrier in accordance with the manufacturer's specifications** | | | | |
| 3 | On floors. | m² | 339 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **POLISH, SEALERS, ETC(LI)** | | | | |
| | **Polish, sealers, etc:** | | | | |
| 4 | Two coats wax polish on polyurethane floor | m² | 339 | | |
| | **VINYL TILES(LI)** | | | | |
| | **300 x 300 x 2.5mm heavy duty vinyl tiles laid in and inlcuding acrylic adhesive spread with a trowel to manufacturer's specifications** | | | | |
| 5 | On floors | m² | 450 | | |
| 6 | 100mm thick high vinyl tile skirting | m | 138 | | |
| | **POLISH, SEALERS, ETC(LI)** | | | | |
| | **Polish** | | | | |
| 7 | One coats wax polish on vinyl tile flooring | m² | 450 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **POLISH, SEALERS, ETC(LI)** | | | | |
| | **Polish, sealers, etc:** | | | | |
| 4 | Two coats wax polish on polyurethane floor | m² | 339 | | |
| | **VINYL TILES(LI)** | | | | |
| | **300 x 300 x 2.5mm heavy duty vinyl tiles laid in and including acrylic adhesive spread with a trowel to manufacturer's specifications** | | | | |
| 5 | On floors | m² | 450 | | |
| 6 | 100mm thick high vinyl tile skirting | m | 138 | | |
| | **POLISH, SEALERS, ETC(LI)** | | | | |
| | **Polish** | | | | |
| 7 | One coats wax polish on vinyl tile flooring | m² | 450 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **SECTION NO. 3** | | | | |
| | **Building Works** | | | | |
| | **BILL NO. 10** | | | | |
| | **IRONMONGERY** | | | | |
| | **PREAMBLES** | | | | |
| | The document "Construction Works: Specifications: General Specification (PW371-A) Edition 2.0" is obtainable on the Department's website (http://www.publicworks.gov.za/ under "Consultants Guidelines"), and shall be read in conjunction with the bills of quantities and be referred to for the full descriptions of work to be done and materials to be used. | | | | |
| | The document "Construction Works: Specifications: Particular Specification (PW371-B) Edition 2.0" is issued together with the drawings and shall be read in conjunction with the drawings and the bills of quantities. | | | | |
| | **SUPPLEMENTARY PREAMBLES** | | | | |
| | Note: Tenderers are referred to ironmongery schedule attached to these bills of quantities for pricing | | | | |
| | **The following locks per door type** | | | | |
| | **Stainless steel (LI):** | | | | |
| | **The following for door type D1** | | | | |
| 1 | 100mm stainless steel butt hinges | Pairs | 1 | | |
| 2 | One cylinder upright lock | No | 1 | | |
| 3 | One cylinder profile MKD | No | 1 | | |
| 4 | One rebate conversion set to inactive leaf | No | 1 | | |
| 5 | Set of flush bolt AL8208-AS 150 x 20mm to inactive leaf | No | 1 | | |
| 6 | Set of union AL6C63-05AS handles on 152 x 76 x 3mm back plate or equal approved | Pairs | 1 | | |
| | **The following for door type D2** | | | | |
| 7 | 100mm stainless steel butt hinges | Pairs | 5 | | |
| 8 | 2226-78SS W/S indicator lock | No | 5 | | |
| 9 | AL6D21TR-73AS furniture with indicator | No | 5 | | |
| 10 | AI8722AS hat and coat hook plugged | No | 5 | | |
| 11 | TS71 door closer plugged | No | 5 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **The following for door type D3** | | | | |
| 12 | 100mm stainless steel butt hinges | Pairs | 2 | | |
| 13 | 584-05A S escutheons | Pairs | 1 | | |
| 14 | Uero lock case L-22315-76SS with stainless steel forent Euro profile double cylinder 2 x 18SC 66mm long | No | 1 | | |
| 15 | Set of stainless steel orion handles plugged | Pairs | 1 | | |
| 16 | 150mm long barrel bolts plugged | No | 2 | | |
| | **The following for door type D4** | | | | |
| 17 | 100mm stainless steel butt hinges | Pairs | 5 | | |
| 18 | 584-05A S escutheons | Pairs | 5 | | |
| 19 | Uero lock case L-22315-76SS with stainless steel forent Euro profile double cylinder 2 x 18SC 66mm long | No | 5 | | |
| 20 | Code 079/160E/F s/steel P/PL 160x160x1.2mm Toilet | No | 5 | | |
| 21 | Set of stainless steel orion handles plugged | Pairs | 5 | | |
| | **The following for door type D7** | | | | |
| 22 | 100mm stainless steel butt hinges | Pairs | 1 | | |
| 23 | One cylinder upright lock | No | 1 | | |
| 24 | One cylinder profile MKD | No | 1 | | |
| 25 | One rebate conversion set to inactive leaf | No | 1 | | |
| 26 | Set of flush bolt Al8208-AS 150 x 20mm to inactive leaf | No | 1 | | |
| 27 | Set of union AL6C63-05AS handles on 152 x 76 x 3mm back plate or equal approved | Pairs | 1 | | |
| | **Stainless steel (LI):** | | | | |
| 28 | 200 x 100 x 5mm Thick stainless steel plate with 100mm high engraved and painted letters or numerals fixed to walls or doors | No | 12 | | |
| | **SUNDRIES** | | | | |
| | **Mild steel window frame fittings (LI)** | | | | |
| | **Stainless steel** | | | | |
| 29 | Window handles | No | 19 | | |
| 30 | Window sliding stays | No | 16 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **BATHROOM FITTINGS (LI)** | | | | |
| | **Stainless steel** | | | | |
| 31 | 1200mm bulk fill soap dispenser plugged to wall | No | 5 | | |
| 32 | Code SA426125 or equal approved hand towel dispenser size 315 x 260 x 365mm high plugged | No | 5 | | |
| 33 | 13 litre robust model or equal approved wall mounted rectangular bin with lid size 320 x 280 x 150mm | No | 5 | | |
| 34 | SE2 or equal approved lockable two roll toilet dispenser code 405597 size 120 x 380 x 130mm deep plugged. | No | 3 | | |
| | **Refuse bin** | | | | |
| 35 | 738 x 595 x 1015mm mobile (wheel bin) plastic dust bin, Virgin hi or equal approved density polythylene (HDPE) 120l capacity (black) | No | 3 | | |
| 36 | 738 x 595 x 1015mm mobile (wheel bin) plastic dust bin, Virgin hi or equal approved density polythylene (HDPE) 120l capacity (white) | No | 3 | | |
| | **STEEL LOCKERS** | | | | |
| | **Greenfield steel lockers with standard baked enamel finish:** | | | | |
| 37 | Bank of 2 x G23 lockable lockers each 305 x 457 x 1752mm high bolted together complete with 4No. 60mm padlocks | No | 9 | | |
| | **PINNING BOARDS, WRITING BOARDS, PROJECTION SCREENS, ETC.** | | | | |
| | **Vitrex or equal approved (LI):** | | | | |
| 38 | 2400 x 1200mm high alumnium framed carpeted bulletin board lugged | No | 3 | | |
| 39 | White magnetic writing board 2400 x 1200mm high with anodised aluminium frame, plugged | No | 3 | | |
| | Carried to Collection | | | **R** | |

| | | | Amount |
|---|---|---|---|
| **BILL NO. 10**<br>**IRONMONGERY**<br>**COLLECTION** | | | |
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| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **SECTION NO. 3** | | | | |
| | **Building Works** | | | | |
| | **BILL NO. 11** | | | | |
| | **METALWORK** | | | | |
| | **PREAMBLES** | | | | |
| | The document "Construction Works: Specifications: General Specification (PW371-A) Edition 2.0" is obtainable on the Department's website (http://www.publicworks.gov.za/ under "Consultants Guidelines"), and shall be read in conjunction with the bills of quantities and be referred to for the full descriptions of work to be done and materials to be used. | | | | |
| | The document "Construction Works: Specifications: Particular Specification (PW371-B) Edition 2.0" is issued together with the drawings and shall be read in conjunction with the drawings and the bills of quantities. | | | | |
| | **SUPPLEMENTARY PREAMBLES** | | | | |
| | **Descriptions:** | | | | |
| | All steel is to receive one coat metal primer before leaving works of the manufacturer | | | | |
| | Welded brackets to seating with epoxy powder coated finish of approved colour: | | | | |
| | Note: Tenderers are referred to the drawings for doors and windows that are only referenced and attached to these bills of quantities for pricing purposes | | | | |
| | Note: The tenderers is required to allow for provision of samples of cell doors, gates and insect screens for approval prior to undertaking the works. | | | | |
| | **GALVANISED STEEL DOOR FRAMES** | | | | |
| | **1.6mm rebated frames suitable for one brick walls (LI):** | | | | |
| 1 | Frame for door size 813 x 2032mm high | No | 2 | | |
| | **STEEL CELL DOORS, GATES AND FRAMES** | | | | |
| | **Purpose made steel doors (LI):** | | | | |
| 2 | Steel door size 813 x 2032mm high with rebated frame suitable for 230mm wall and with purpose made cell lock (D5) | No | 5 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| 3 | Single cell gate 813 x 2032mm high of 25 x 25 x 2mm hollow section frame and 25 x 25 x 2mm hollow section horizontal middle rail, filled in with 12 x 12 x 2mm hollow section vertical bars at 75mm centres and fitted with a pair of suitable hinges welded to frame complete with lock | No | 3 | | |
| 4 | Double steel door size 1670 x 2200mm high with rebated frame suitable for 230mm wall and with purpose made lock including heavy dury 200mm long barrel bolts | No | 1 | | |
| 5 | Double steel door size 1860 x 2200mm high with rebated frame suitable for 230mm wall and with purpose made lock including heavy dury 200mm long barrel bolts | No | 1 | | |
| | **CHROMADEK ROLLER DOOR, ETC** | | | | |
| | **Manually operated roller doors including ironmongery, centre lift lock, guide rails, springs, rubber weather strip to bottom, etc with chromadek finish** | | | | |
| 6 | Heavy duty push up roller door for openning size 1700 x 1050mm high fixed to brickwork | No | 1 | | |
| | **SUNDRY STEELWORK** | | | | |
| | **Galvanised steel grating, etc (LI)** | | | | |
| 7 | 300mm wide galvanised steel grating with frame fixed to concrete | m | 3 | | |
| 8 | 540mm wide galvanised steel grating with frame fixed to concrete | m | 18 | | |
| | **The following in refuse area** | | | | |
| 9 | 100 x 100 x 3mm mild steel posts 2450mm high with 200 x 200 x 8mm base plate boltedd to existing concrete with 16mm thick expansion bolts including necessary 50 x 50 x 2mm mild steel angle welded to posts | m | 30 | | |
| 10 | 100 x 50 x 2mm mild steel beam | m | 16 | | |
| 11 | 75x 50 x 20 x 2mm thick lipped channel purlin | m | 22 | | |
| 12 | Flatex 345/6320k 25/50/10/3 or equl approved panel size 950 x 2450mm high mild steel frame welded to and including 50 x 50 x 2mm mild steel angle | No | 2 | | |
| 13 | Flatex 345/6320k 25/50/10/3 or equl approved panel size 987 x 2450mm high mild steel frame welded to and including 50 x 50 x 2mm mild steel angle | No | 1 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| 14 | Flatex 345/6320k 25/50/10/3 or equl approved panel size 1000 x 2450mm high mild steel frame welded to and including 50 x 50 x 2mm mild steel angle | No | 4 | | |
| 15 | Flatex 345/6320k 25/50/10/3 or equl approved panel size 1050 x 2450mm high mild steel frame welded to and including 50 x 50 x 2mm mild steel angle | No | 2 | | |
| 16 | Flatex 345/6320k 25/50/10/3 or equl approved single gate size 1174 x 2450mm high including lock and heavy duty barrel bolt | No | 1 | | |
| | **0.5mm thick 445mm cover Newlok ZINCAL or equal approved interlocking roof covering fixed to steel purlins at 1500mm centres and end span purlins at 1300mm centres.** | | | | |
| 17 | Roof covering on steel purlins | m² | 15 | | |
| 18 | Head wall flashing 550mm girth | m | 7 | | |
| | **STAINLESS STEEL INSECT SCREENS (LI)** | | | | |
| | **Stainless steel insect screens complete with ironmongery etc. and fixing to brickwork or concrete** | | | | |
| 19 | Standard screen type A, 1200 x 800mm high with two equal leaves | No | 14 | | |
| 20 | Standard screen type B, 1200 x 1200mm high with three equal leaves | No | 9 | | |
| 21 | Standard screen type B, 500 x 800mm high with two equal leaves | No | 7 | | |
| 22 | Standard screen type B, 800 x 1000mm high with three equal leaves | No | 2 | | |
| 23 | Standard screen type B, 2000 x 600mm high with two equal leaves | No | 6 | | |
| 24 | Purpose made screen, 813 x 2064mm high with four equal leaves, panel as per schedule attached to these Bills of Quantities | No | 2 | | |
| 25 | Purpose made screen, 1575 x 2064mm high with two equal leaves, panel as per schedule attached to these Bills of Quantities | No | 2 | | |
| | Carried to Collection | | | **R** | |

| | | | Amount |
|---|---|---|---|
| **BILL NO. 11**<br>**METALWORK**<br>**COLLECTION** | | | |
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| | | Unit | Quantity | Rate | Amount |
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| | **SECTION NO. 3** | | | | |
| | **Building Works** | | | | |
| | **BILL NO. 12** | | | | |
| | **PLASTERING** | | | | |
| | **PREAMBLES** | | | | |
| | The document "Construction Works: Specifications: General Specification (PW371-A) Edition 2.0" is obtainable on the Department's website (http://www.publicworks.gov.za/ under "Consultants Guidelines"), and shall be read in conjunction with the bills of quantities and be referred to for the full descriptions of work to be done and materials to be used. | | | | |
| | The document "Construction Works: Specifications: Particular Specification (PW371-B) Edition 2.0" is issued together with the drawings and shall be read in conjunction with the drawings and the bills of quantities. | | | | |
| | **SCREEDS(LI)** | | | | |
| | **1:4 Cement plaster screeds wood floated finish on concrete:** | | | | |
| 1 | 30mm Thick on floors and landings to receive ceramic floor tiles. | m² | 42 | | |
| | **1:4 Cement plaster screeds iron float finish on concrete:** | | | | |
| 2 | 30mm Thick on floors to receive polyurethane floor. | m² | 109 | | |
| | **Screed with compressive strength of 25Mpa/6.7mm concrete with watertightness enhanced admixture finished with ironfloat** | | | | |
| 3 | 100mm thick n floors to receive polyurathane floor. | m² | 230 | | |
| | **INTERNAL PLASTER(LI)** | | | | |
| | **Cement plaster on brickwork:** | | | | |
| 4 | On walls. | m² | 141 | | |
| 5 | Ditto narrow widths | m² | 1 | | |
| | **CORNER PROTECTORS, DIVIDING STRIPS, ETC(LI)** | | | | |
| | **Dividing strips, etc** | | | | |
| 6 | 5 x 45mm flat section brass dividing strips between different floor finishes. | m | 15 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **Corner protectors, etc** | | | | |
| 7 | 75 x 75 x 4mm Mentex or equal approved angle bead stainless steel corner protectors fixed to brickwork with security screws | m | 53 | | |
| | Carried to Collection | | | **R** | |

| | | | Amount |
|---|---|---|---|
| **BILL NO. 12**<br>**PLASTERING**<br>**COLLECTION** | | | |
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| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **SECTION NO. 3** | | | | |
| | **Building Works** | | | | |
| | **BILL NO. 13** | | | | |
| | **TILING** | | | | |
| | **SUPPLEMENTARY PREAMBLES** | | | | |
| | The document "Construction Works: Specifications: General Specification (PW371-A) Edition 2.0" is obtainable on the Department's website (http://www.publicworks.gov.za/ under "Consultants Guidelines"), and shall be read in conjunction with the bills of quantities and be referred to for the full descriptions of work to be done and materials to be used. | | | | |
| | The document "Construction Works: Specifications: Particular Specification (PW371-B) Edition 2.0" is issued together with the drawings and shall be read in conjunction with the drawings and the bills of quantities. | | | | |
| | **SUPPLEMENTARY PREAMBLES** | | | | |
| | **Descriptions:** | | | | |
| | Unless described as fixed with adhesive to plaster (plaster elsewhere), descriptions of tiling on brick or concrete walls, columns, etc., shall be deemed to include 1:4 cement plaster backing and descriptions of tiling on concrete floors etc. shall be deemed to include 1:3 plaster bedding. | | | | |
| | **CERAMIC WALL TILING(LI)** | | | | |
| | **200 x 200 x 6mm thick Group A1 ceramic tiles fixed to internal walls backing with TAL or equal approved tile adhesive mixed with TAL or equal approved bonding liquid in lieu of water with joints continuous in both directions and grouted with TAL or equal approved tile grout** | | | | |
| 1 | On walls. | m² | 103 | | |
| 2 | On splashbacks, etc. | m² | 3 | | |
| 3 | On narrow widths. | m² | 25 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **FLOOR TILING(LI)** | | | | |
| | **300 x 300 x 10mm thick Group A1 ceramic tiles fixed to floors backing with TAL or equal approved tile adhesive mixed with TAL or equal approved bonding liquid in lieu of water with joints continuous in both directions and grouted with TAL or equal approved tile grout** | | | | |
| 4 | On floors and landings. | m² | 2 | | |
| | Carried to Collection | | | **R** | |

| | | | Amount |
|---|---|---|---|
| **BILL NO. 13**<br>**TILING**<br>**COLLECTION** | | | |
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| | Carried To Section Summary | **R** | |

| | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|
| **SECTION NO. 3**<br>**Building Works**<br>**BILL NO. 14**<br>**PLUMBING AND DRAINAGE** | | | | |
| **PREAMBLES**<br>The document "Construction Works: Specifications: General Specification (PW371-A) Edition 2.0" is obtainable on the Department's website (http://www.publicworks.gov.za/ under "Consultants Guidelines"), and shall be read in conjunction with the bills of quantities and be referred to for the full descriptions of work to be done and materials to be used.<br>The document "Construction Works: Specifications: Particular Specification (PW371-B) Edition 2.0" is issued together with the drawings and shall be read in conjunction with the drawings and the bills of quantities. | | | | |
| **SUPPLEMENTARY PREAMBLES**<br>**uPVC pressure pipes and fittings:**<br>Pipes for water supply shall be of the class stated.<br>Pipes of 40mm diameter and smaller shall be plain ended with solvent welded uPVC loose sockets and fittings.<br>Pipes of 50mm diameter and greater shall have sockets and spigots with push-in type integral rubber ring joints. Bends shall be uPVC and all other fittings shall be cast iron, all with similar push-in type joints. | | | | |
| **Copper pipes:**<br>Pipes shall be hard drawn and half-hard pipes of the class stated. Class 0 (thin walled hard drawn) pipes shall not be bent. Class 1 (thin walled half-hard), class 2 (half-hard) and class 3 (heavy walled half-hard) pipes shall only be bent with benders with inner and outer formers. Fittings to copper waste, vent and anti-syphon pipes, capillary solder fittings and compression fittings shall be 'Cobra Watertech' type. Capillary solder fittings shall comply with ISO 2016. Only compression fittings shall be used in walls or in ground. | | | | |
| Carried to Collection | | | **R** | |

| | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|
| **Reducing fittings:**<br>Where fittings have reducing ends or branches they are described as 'reducing'. In the case of pipes with diameters not exceeding 60mm only the largest end or branch size is given. Should the Contractor wish to use other fittings and bushes or reducers he may do so on the understanding that no claim in this regard will be entertained. In the case of pipes with diameters exceeding 60mm all sizes are given and no claim for extra bushes, reducers, etc will be entertained. | | | | |
| **Wire gratings:**<br>Descriptions of gutter outlets etc shall be deemed to include wire balloon gratings. | | | | |
| **Exposed concrete surfaces:**<br>Exposed surfaces of concrete stormwater channels, cover slabs, inspection eye marker slabs, gulley tops, cleaning eye tops, catchpits, inspection chambers, etc shall be finished smooth with plaster. | | | | |
| **Excavations:**<br>No claim for rock excavation will be entertained unless the Contractor has timeously notified the quantity surveyor thereof prior to backfilling.<br>'Soft rock' and 'hard rock' shall be as defined in 'Earthworks'. | | | | |
| **Laying, backfilling, bedding, etc of pipes:**<br>Pipes shall be laid and bedded and trenches shall be carefully backfilled in accordance with manufacturers' instructions.<br>Where no manufacturers' instructions exist pipes shall be laid in accordance with clauses 5.1 and 5.2 of each of the following: SABS 1200 L : Medium pressure pipelines LD : Sewers LE : Stormwater drainage Pipe trenches etc shall be backfilled in accordance with clause 3, 5.5, 5.6, 5.7 and 7 of SAB. | | | | |
| **Flush pans:**<br>Flush pans shall have straight or side outlets and 'P' or 'S' traps as necessary. | | | | |
| **Waste unions:**<br>Descriptions of waste unions shall be deemed to include rubber or vulcanite plugs and chains fixed to fittings. | | | | |
| Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **RAINWATER DISPOSAL(LI)** | | | | |
| | **0.6mm Galvanised sheet iron with 'Chromadek' finish:** | | | | |
| 1 | 150 x 150 x 0.8mm eaves gutter fixed to falls on and including alumnium gutter brackets spaced not exceeding 0.5m centres. | m | 55 | | |
| 2 | Extra over gutter for stopped end. | No | 4 | | |
| 3 | Extra over gutter for outlet for 80mm pipe. | No | 4 | | |
| 4 | 80mm diameter socketed rainwater pipes fixed to pipe clips at 1000mm centres. | m | 80 | | |
| 5 | Extra over rainwater pipe for bend. | No | 4 | | |
| 6 | Extra over rainwater pipe for shoe. | No | 4 | | |
| | **SANITARY FITTINGS(LI)** | | | | |
| | **Stainless steel** | | | | |
| 7 | Grade 304 or equal approved stainless steel Oval B wall mounted wash hand basin (Code 357454) size 420 x 336 x 330mm deep with a one piece pressed bowl, no tap hole, 30mm spalshback, 30mm radiused apron and 40mm waste outlet, 20mm stainless steel tubing brackets bolted to wall with 4 x 6mm anchor bolts | No | 6 | | |
| 8 | Heavy duty Code 2560006 or equal approved single compartment mounted washtrough size 540 x 430mm on 25.4 x 25.4 square metal tube gallows brackets with front let into brickwork, including bottle trap with 75mm deep re-seal and adjustable telescopic pipe, capnut and tail pipe | No | 1 | | |
| 9 | Heavy duty stainless steel 1.5mm thickness floor mounted WC pan size 360 x 500 x 435mm with rounded edges supplied complete flashing system fixed to brickwork | No | 3 | | |
| 10 | Heavy duty stainless steel curved back urinal size 315 x 733 x 342mm hidden mounted with stainless steel rods through wall supplied complete with standard integral automatic flush tray, drip cock and hinged domical grating | No | 1 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **STAINLESS STEEL KITCHEN PREPARATION AREA EQUIPMENT** | | | | |
| | **1.2mm thick grade 304 (18/10) stainless steel tables (LI)** | | | | |
| 11 | Stainless steel intergrall double bowl sink with pressed bowls, 40mm waste outlet, AISI 304 CR NI or equal approved stainless steel, 150mm high splashback to rear with stainless steel legs, adjustable foot pieces, heavy duty backing sheet with bitumastic sound deadening size 180 x 650 x 910mm high | No | 2 | | |
| | **1.2mm thick grade 304 (18/10) stainless steel preparation and potwash sinks (LI)** | | | | |
| 12 | Stainless steel table size 1050 x 650 x 910mm high (Ref. No. 3044384) with 150mm high intergral spalshback at rear, 65mm turndown and under with 20mm drip fillet to remaining sides, fluted sloping draining boards and 1.6mm thick double centre bowls each with perforation for 40mm waste, the underside of the unit sprayed with vermin proof bituminoustic sound deadening and supported on 1.6mm thick mild steel backing sheet with baked enamel finish welded on, set on four 45mm diameter stainless steel tubular legs with stainless steel corner gusset plates, braces, etc and adjustable die-cast foot pieces. | No | 4 | | |
| | **Vaal Sanitaryware Daisy vitreous china or equal approved** | | | | |
| 13 | 510 x 400mm wall mounted basin with floor mounted pedestal, one tap holeincluding intergrated overflow and chain stay hole, bolted to wall with 2No. 10mm bolts and sealed with silicone sealant where basin metts wall with pillar tap and flanged backnut | No | 3 | | |
| 14 | Vaal Sanitaryware Klip vitreous china low level colour white or equal approved close-coupled WC suite comprising pan with double flap heavy duty plastic seat and matching 9 litre front single flush cistern including lid and fitments | No | 3 | | |
| | **WASTE UNIONS ETC** | | | | |
| | **Cobra Watertech or equal approved** | | | | |
| 15 | 32mm 303 CP basin waste union and 309CP anti-theft plug. | No | 8 | | |
| 16 | 40mm 316 CP sink reseal P trap combination | No | 1 | | |
| 17 | 40 x 50mm Double bowl wash trough reseal P trap | No | 1 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| 18 | 40mm 373 RB shower trap with chromium plated | No | 1 | | |
| | **TRAPS, ETC(LI)** | | | | |
| | **Rubber** | | | | |
| 19 | 32mm rubber P-trap | No | 1 | | |
| 20 | 38mm rubber P or S-trap | No | 1 | | |
| | **TAPS, VALVES, ETC (LI)** | | | | |
| | **Cobra Watertech or equal approved** | | | | |
| 21 | 22mm CP full way gate valve | No | 16 | | |
| 22 | 22mm CP wall mounted star basin taps | No | 16 | | |
| 23 | 22mm CP wall mounted star sink taps | No | 6 | | |
| 24 | 22mm CP wall mounted basin mixer | No | 1 | | |
| 25 | 22mm CP wall mounted sink mixer | No | 1 | | |
| 26 | Inta Intamix 22mm TMV3 or equal approved CP push bautton including thermostatic valve, operation concealed shower valve with adjustable flow times of 3 - 30seconds fixed to brickwalls | No | 1 | | |
| 27 | PA3.132 Masterflo 1 pressure CP control valve with vacuum breaker. | No | 1 | | |
| 28 | 22mm CP wall mounted star shower taps | No | 2 | | |
| 29 | 22mm "Cobra Watertech" KP2-6CP vandalproof shower head | No | 1 | | |
| | **SANITARY PLUMBING (LI)** | | | | |
| | **uPVC soil and vent pipes** | | | | |
| 30 | 50mm pipes encased in brick walls | m | 90 | | |
| 31 | 50mm Pipes encased in concrete | m | 104 | | |
| 32 | 110mm pipes encased in concrete | m | 67 | | |
| | **Extra over uPVC soil and vent pipes for fittings** | | | | |
| 33 | 50mm bend. | No | 27 | | |
| 34 | 110mm Bend. | No | 17 | | |
| 35 | 110mm junction | No | 8 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **110mm uPVC gulley and grating** | | | | |
| 36 | 110mm uPVC gulley trap not exceeding 750mm deep including vertical piping, gulley head and grating, all encased in concrete, concrete rounded hopper size 450 x 450. | No | 8 | | |
| | **Floor drain** | | | | |
| 37 | Grade AISI 304 stainless steel RO NW 100 square or equal approved floor drain with perforated circular grating pattern (Code R0200HNW100SQ), suitable for tiled floor covering size 240 x 210 x 210mm deep with 104mm diameter horizontal waste outlet with mitred bend connected to water pipe | No | 1 | | |
| | **Oil interceptor chamber** | | | | |
| 38 | Manhole chamber size 1500 x 1500 x 2000mm deep to invert having 150mm thick reinforced 25 Mpa concrete, internal plastered, 230mm brick wall including excavations, cart away, backfilling, reinforcement, etc. | No | 1 | | |
| | **Gratings, covers, etc** | | | | |
| 39 | 450 x 450mm x 82kg Type 11A heavy duty cast iron cover and frame. | No | 3 | | |
| 40 | Install only 600 x 600mm heavy duty Stormwater grating and frame set aside for later re-use | No | 3 | | |
| 41 | Lifting-key for manhole cover (handed to employer) | No | 2 | | |
| | **Oil Interceptor** | | | | |
| 42 | Stainless steel oil interceptor size 450 x 580 x 90mm deep x 2mm thick SCR12 seive with 50mm perforations including 800mm long handle and 20 x 8mm thick 3CR12 supports casts into concrete, housing interceptor to manufacturers requirements. | No | 1 | | |
| | **Testing** | | | | |
| 43 | Testing waste pipe system. | Item | | | |
| | **WATER SUPPLIES** | | | | |
| | **Class 10 HDPe type IV pipes** | | | | |
| 44 | 42mm Pipes laid in and including trenches not exceeding 1m deep | m | 30 | | |
| 45 | 50mm Pipes laid in and including trenches not exceeding 1m deep | m | 30 | | |
| 46 | 63mm Pipes laid in and including trenches not exceeding 1m deep | m | 30 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **Extra over Class 10 HDPe type IV pipes for Plascon fittings** | | | | |
| 47 | 42mm bend. | No | 6 | | |
| 48 | 42mm tee. | No | 6 | | |
| 49 | 50mm Bend. | No | 14 | | |
| 50 | 50mm tee. | No | 6 | | |
| 51 | 50mm Threaded adaptor. | No | 12 | | |
| 52 | 63mm bend. | No | 6 | | |
| 53 | 63mm tee. | No | 6 | | |
| | **Class 0 copper pipes with capillary couplings** | | | | |
| 54 | 15mm Pipes chased into brickwalls. | m | 110 | | |
| 55 | 22mm Pipes encased in concrete. | m | 135 | | |
| 56 | 28mm Pipes encased in concrete. | m | 75 | | |
| | **Extra over Class 0 copper pipes for capillary fittings** | | | | |
| 57 | 15mm Fittings. | No | 40 | | |
| 58 | 22mm Fittings. | No | 30 | | |
| 59 | 28mm Reducer. | No | 7 | | |
| 60 | 28mm Elbow. | No | 7 | | |
| 61 | 28mm Tee. | No | 7 | | |
| 62 | 28mm Reducing tee. | No | 4 | | |
| | **Copper service pipes** | | | | |
| 63 | 15mm Service pipe 350mm girth. | No | 1 | | |
| | **Sundries** | | | | |
| 64 | 450 x 450mm Cast iron stopcock box including brick chamber below 750mm deep internally. | No | 1 | | |
| 65 | 50mm double flanged waterworks valve to SABS 664 with non-rising spindle, cap tops and clockwise closing action. | No | 1 | | |
| 66 | 67mm double flanged waterworks valve to SABS 664 with non-rising spindle, cap tops and clockwise closing action. | No | 1 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **ELECTRIC WATER HEATERS** | | | | |
| | **Kwikot or equal approved** | | | | |
| 67 | 250 Litre 600kPa wall electric water heater complete with TP safety valve installed complete, brass pressure reducing/expansion relief valve, 2No. Vacuum breakers and connecting to water supply and outlet pipes, electrical supply and including fixing to brick walls | No | 1 | | |
| | **Testing** | | | | |
| 68 | Testing water pipe system. | Item | | | |
| | **HOLES ETC** | | | | |
| | **Core drilling hole exceeding 100mm and not exceeding 200mm diameter** | | | | |
| 69 | 200mm Thick reinforced concrete slab, beam, wall, etc | No | 5 | | |
| | Carried to Collection | | | **R** | |

| | | Amount |
|---|---|---|
| **BILL NO. 14**<br>**PLUMBING AND DRAINAGE**<br>**COLLECTION** | | |
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| | | Unit | Quantity | Rate | Amount |
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| | **SECTION NO. 3** | | | | |
| | **Building Works** | | | | |
| | **BILL NO. 15** | | | | |
| | **GLAZING** | | | | |
| | **PREAMBLES** | | | | |
| | The document "Construction Works: Specifications: General Specification (PW371-A) Edition 2.0" is obtainable on the Department's website (http://www.publicworks.gov.za/ under "Consultants Guidelines"), and shall be read in conjunction with the bills of quantities and be referred to for the full descriptions of work to be done and materials to be used. | | | | |
| | The document "Construction Works: Specifications: Particular Specification (PW371-B) Edition 2.0" is issued together with the drawings and shall be read in conjunction with the drawings and the bills of quantities. | | | | |
| | **GLAZING TO STEEL WITH PUTTY** | | | | |
| | **4mm clear laaminated glass (LI)** | | | | |
| 1 | Panes not exceeding 0,1m² | m² | 7 | | |
| | **GLAZING TO WOOD WITH PUTTY** | | | | |
| | **4mm clear toughened safety glass (LI)** | | | | |
| 2 | Panes exceeding 0,5m² and not exceeding 2m² | m² | 6 | | |
| | **TOPS, SHELVES, DOORS, MIRRORS, ETC.** | | | | |
| | **6 mm Silvered float glass copper backed mirrors with polished edges holed for and fixed with chromium plated dome capped mirror screws with rubber buffers to plugs in brickwork or concrete:** | | | | |
| 3 | Mirror 450 x 600mm high. | No | 3 | | |
| | Carried To Section Summary | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **SECTION NO. 3** | | | | |
| | **Building Works** | | | | |
| | **BILL NO. 16** | | | | |
| | **PAINTWORK** | | | | |
| | **PREAMBLES** | | | | |
| | The document “Construction Works: Specifications: General Specification (PW371-A) Edition 2.0” is obtainable on the Department’s website (http://www.publicworks.gov.za/ under “Consultants Guidelines”), and shall be read in conjunction with the bills of quantities and be referred to for the full descriptions of work to be done and materials to be used. | | | | |
| | The document “Construction Works: Specifications: Particular Specification (PW371-B) Edition 2.0” is issued together with the drawings and shall be read in conjunction with the drawings and the bills of quantities. | | | | |
| | **SUPPLEMENTARY PREAMBLES** | | | | |
| | Where described as" prepare, etc as specified" the full specification for all painting application, primers, undercoats, preparation, etc are to be strictly in accordance with the relevant Manufacturers's Specification and prices must allow therefor. | | | | |
| | **PREPARATORY WORK TO EXISTING WORK** | | | | |
| | **ON FLOATED INTERNAL PLASTER(LI)** | | | | |
| | **Prepare etc as specified, apply two coats Class 1 backed enamel paint of SABS Specification 757 or equal approved with dry film thickness of at least 0.03mm:** | | | | |
| 1 | On interior walls. | m² | 776 | | |
| | **Prepare etc as specified, apply two coats Class 1 backed enamel paint of SABS Specification 757 or equal approved with dry film thickness of at least 0.03mm:** | | | | |
| 2 | On concrete ceilings | m² | 109 | | |
| | **ON FIBRE-CEMENT, ETC(LI)** | | | | |
| | **Prepare etc as specified, apply two coats of Latex vinyl or equal approved paint:** | | | | |
| 3 | On fascias and barge boards | m² | 27 | | |
| 4 | On ceilings | m² | 450 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **ON METAL(LI)** | | | | |
| | **Prepare, etc as specified and apply two coats of glossl enamel paint :** | | | | |
| 5 | On gates, grilles, burglar screens, ballustrades, etc [both sides measured over the full flat area] | m² | 22 | | |
| 6 | On door frames | m² | 15 | | |
| 7 | On window frames | m² | 183 | | |
| 8 | On steel doors | m² | 24 | | |
| 9 | On cast iron pipes | m | 6 | | |
| 10 | On steel members | m | 36 | | |
| | **Prepare, etc as specified and apply two coats of bitumen based paint inside the gutter:** | | | | |
| 11 | Inside eaves gutter. | m² | 19 | | |
| | **ON WOOD, WOOD BOARD(LI)** | | | | |
| | **Prepare, etc as specified and apply two coats of gloss enamel paint:** | | | | |
| 12 | On doors. | m² | 17 | | |
| | **Prepare,etc as specified and apply three coats of polyurethane suede varnish:** | | | | |
| 13 | On doors. | m² | 3 | | |
| 14 | On exposed roof timbers. | m² | 21 | | |
| | **PAINTWORK, ETC TO NEW WORK** | | | | |
| | **ON FLOATED INTERNAL PLASTER(LI)** | | | | |
| | **Prepare etc as specified, apply one coat undercoat and apply two coats Class 1 backed enamel paint of SABS Specification 757 or equal approved with dry film thickness of at least 0.03mm:** | | | | |
| 15 | On interior walls. | m² | 112 | | |
| | **ON FIBRE-CEMENT, ETC(LI)** | | | | |
| | **Prepare, etc as specified and apply two coats of gloss enamel paint:** | | | | |
| 16 | On fascias and barge boards | m² | 20 | | |
| 17 | On ceilings | m² | 320 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **ON METAL(LI)** | | | | |
| | **Prepare, etc as specified and apply two coats of glossl enamel paint :** | | | | |
| 18 | On door and door frames | m² | 47 | | |
| 19 | On steel members | m² | 64 | | |
| 20 | On gates, grilles, burglar screens, ballustrades, etc [both sides measured over the full flat area] | m² | 43 | | |
| | **Prepare, etc as specified and apply two coats of bitumen based paint inside the gutter:** | | | | |
| 21 | Inside eaves gutter. | m² | 8 | | |
| | **ON WOOD, WOOD BOARD(LI)** | | | | |
| | **Prepare, etc as specified and apply two coats of gloss enamel paint:** | | | | |
| 22 | On doors. | m² | 13 | | |
| | **Prepare,etc as specified and apply three coats of polyurethane suede varnish:** | | | | |
| 23 | On doors. | m² | 7 | | |
| 24 | On exposed roof timbers. | m² | 12 | | |
| 25 | On timber cornices. | m | 138 | | |
| | Carried to Collection | | | **R** | |

| | | | Amount |
|---|---|---|---|
| **BILL NO. 16**<br>**PAINTWORK**<br>**COLLECTION** | | | |
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**SECTION NO. 3**

**Building Works**

**SECTION SUMMARY**


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SECTION SUMMARY

# SECTION NO. 4

# Electrical Installations

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **SECTION NO. 4** | | | | |
| | **Electrical Installations** | | | | |
| | **BILL NO. 1** | | | | |
| | **ELECTRICAL WORK** | | | | |
| | **PREAMBLES** | | | | |
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| | **The following in site works** | | | | |
| | **POWER SUPPLY (LI)** | | | | |
| | **Marking and labelling of (LI)** | | | | |
| 1 | Main distribution board | No | 1 | | |
| 2 | Sub-DBs | No | 4 | | |
| 3 | Complete electrical installations on items above | No | 3 | | |
| | **LV CABLES (LI)** | | | | |
| | **Supply and installation of 600/1000V PVC/SWA/PVC cable with copper conductors** | | | | |
| 4 | 185mm²4 Core Cu conductor | m | 110 | | |
| 5 | 150mm²4 Core Cu conductor | m | 50 | | |
| 6 | 95mm²4 Core Cu conductor | m | 5 | | |
| 7 | 70mm²4 Core Cu conductor | m | 5 | | |
| 8 | 50mm²4 Core Cu conductor | m | 5 | | |
| 9 | 25mm²4 Core Cu conductor | m | 60 | | |
| 10 | 16mm²4 Core Cu conductor | m | 30 | | |
| 11 | 10mm²4 Core Cu conductor | m | 50 | | |
| 12 | 6mm²4 Core Cu conductor | m | 110 | | |
| 13 | 4mm²4 Core Cu conductor | m | 80 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **Supply and install bare copper earth wire (LI)** | | | | |
| 14 | 120mm²BCEW | m | 110 | | |
| 15 | 70mm²BCEW | m | 50 | | |
| 16 | 50mm²BCEW | m | 5 | | |
| 17 | 25mm²BCEW | m | 5 | | |
| 18 | 16mm²BCEW | m | 60 | | |
| 19 | 6mm²BCEW | m | 50 | | |
| 20 | 4mm²BCEW | m | 110 | | |
| 21 | 2.5mm²BCEW | m | 80 | | |
| | **Cable terminations (LI)** | | | | |
| | **Supply and installation of 600/1000V PVC/SWA/PVC cable with copper conductors** | | | | |
| 22 | 185mm² 4Core Cu Conductor | No | 2 | | |
| 23 | 150mm² 4Core Cu Conductor | No | 2 | | |
| 24 | 95mm² 4Core Cu Conductor | No | 5 | | |
| 25 | 70mm² 4Core Cu Conductor | No | 5 | | |
| 26 | 50mm² 4Core Cu Conductor | No | 5 | | |
| 27 | 25mm² 4Core Cu Conductor | No | 2 | | |
| 28 | 16mm² 4Core Cu Conductor | No | 2 | | |
| 29 | 10mm² 4Core Cu Conductor | No | 10 | | |
| 30 | 6mm² 4Core Cu Conductor | No | 8 | | |
| 31 | 4mm² 4Core Cu Conductor | No | 10 | | |
| | **EARTHING (LI)** | | | | |
| 32 | 70mm² BCEW | m | 150 | | |
| 33 | 1.5m earth spikes | No | 16 | | |
| | **CABLE TRAY (LI)** | | | | |
| | **Supply and install cable tray with galvanised cover plate** | | | | |
| 34 | 50mm x 500mm cable tray | m | 20 | | |
| 35 | Cover | m | 20 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| 36 | 90 degree bends | No | 4 | | |
| | **TESTING AND COMMISSIONING (LI)** | | | | |
| 37 | Testing and certification of the earthing and lighting protection system including all test equipment required as well as issuing of an earthing certificate by a qualified person | Item | | | |
| 38 | Testing and commissioning of all equipment required and issuing of a certificate of compliance for the installation | Item | | | |
| 39 | Provide As Build documentation to the Engineer | No | 3 | | |
| | **EXISTING EQUIPMENTS (LI)** | | | | |
| 40 | Remove all existing lights that are not energy efficient and not in good condition | No | 30 | | |
| 41 | Remove all lights switches that are not in a good condition | No | 8 | | |
| 42 | Remove all socket otlets not in a good condition | No | 8 | | |
| | **EXCAVATION (LI)** | | | | |
| | **All prices below includes the excvation of trenches and holes, seperating of stones and soil, rocks, etc levelling of trenches beds, refill, compacting and reparation of all surface to the original finish** | | | | |
| 43 | Excavation in earth not exceeding 2m deep | m³ | 75 | | |
| 44 | Extra over trench excavations in earth for excavation in soft rock | m³ | 45 | | |
| 45 | Extra over trench excavations in earth for excavation in concrete slab | m³ | 75 | | |
| | **STANDBY GENERATOR (LI)** | | | | |
| | **Supply and install 300kVA diesel generator complete with control panel** | | | | |
| 46 | 300kVA diesel generator | No | 1 | | |
| | **The following in Medium B Kitchen Installation** | | | | |
| | **DISTRIBUTION BOARDS (LI)** | | | | |
| | **Distribution boards (LI)** | | | | |
| 47 | Refurbish and make good main distribution panel 2 with new breakers as per drawings | No | 1 | | |
| 48 | Refurbish and relocate DB-1 with new breakers as per drawing | No | 1 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| 49 | Refurbish and make good DB-2 with new breakers as per drawing | No | 1 | | |
| | **LIGHTING INSTALLATION (LI)** | | | | |
| | **Supply and install the following light fittings complete with lamps and control gear** | | | | |
| 50 | Type D: 1500mm ceiling mounted watertight - 55W LED | No | 14 | | |
| 51 | Type DE: 1500mm ceiling mounted watertight - 55W LED (emergency) | No | 11 | | |
| 52 | Type H: Wall mounted watertight bulkhead with 15W LED lamp with alumnium base and open diffuser | No | 9 | | |
| 53 | Type C: Ceiling mounted watertight bulkhead fitted with 15W LED lamps - Die Cast alluminium base with opal diffuser | No | 1 | | |
| 54 | Type AI: Ceiling mounted 53W LED vandal proof light fitting with night light | No | 4 | | |
| 55 | Type CE: Ceiling mounted 53W LED vandal proof light fitting with night light and back up battery | No | 4 | | |
| 56 | Type VP: Vandal proof wall mounted bulkhead fitted with 2 x 15W LED lamps | No | 7 | | |
| | **Supply and install conduit cast into concrete or screed, chased into concrete or brickwork and surface mounted for the lectrical and telephone installation including couplings, bushes, locknuts, cutting, bending, fixing, draw boxes, etc. in accordance with the specification** | | | | |
| 57 | 20mm Diameter | m | 350 | | |
| 58 | 25mm Diameter | m | 250 | | |
| | **PVC WIRES (LI)** | | | | |
| | **Supply and install the following PVC wires with colours as specified into trunking and conduits including termination on both ends** | | | | |
| 59 | 2.5mm2 | m | 650 | | |
| 60 | 4mm2 | m | 550 | | |
| 61 | 6mm2 | m | 300 | | |
| | **Supply and install the following bare copper earth conductor into trunking and conduits including termination on both ends** | | | | |
| 62 | 2.5mm2. | m | 1 200 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| 63 | 4mm2 | m | 300 | | |
| | **Waterproof Occupancy Sensors (LI)** | | | | |
| | **Supply and install the following IP44 waterproof occupancy sensors which can detect both temperatures and motion** | | | | |
| 64 | IP44 waterproof occupancy sensors | No | 2 | | |
| | **Strongroom/storeroom (LI)** | | | | |
| 65 | Supply and instll indicator light | No | 1 | | |
| | **Photo cell (LI)** | | | | |
| 66 | Supply and install photo cell | No | 1 | | |
| | **POWER SKIRTINGS (LI)** | | | | |
| | **Power skirtings (LI)** | | | | |
| 67 | Two tier three compartment power skirtings with powder coated finish, fixed to walls | m | 20 | | |
| | **Extra over for** | | | | |
| 68 | Single, normal socket outlets | No | 6 | | |
| 69 | Single, dedicated socket outlets | No | 2 | | |
| 70 | Telephone points | No | 2 | | |
| 71 | Computer points | No | 2 | | |
| 72 | End cap | No | 4 | | |
| | **LIGHT SWITCHES, SOCKET OUTLETS, ETC (LI)** | | | | |
| | **LIGHT SWITCHES (LI)** | | | | |
| | **Supply and install the following light switch with cover plates** | | | | |
| 73 | 16A single lever switch | No | 6 | | |
| 74 | 16A two way switch | No | 2 | | |
| | **SOCKET OUTLETS (LI)** | | | | |
| | **Supply and install the following socket outlet with cover plates** | | | | |
| 75 | 16A 3-pin single socket | No | 16 | | |
| | **ISOLATORS (LI)** | | | | |
| | **Supply and install waterproof metal box surface mount with padlockable isolator with handles** | | | | |
| 76 | 30A 1-pole | No | 12 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| 77 | 1 x 100A 3ph | No | 1 | | |
| 78 | 3 x 40A 3ph | No | 3 | | |
| 79 | 7 x 30A 3ph | No | 7 | | |
| 80 | 2 x 20A 3ph | No | 2 | | |
| 81 | 1 x 5A 3ph | No | 1 | | |
| | **The following in Temporary Kitchen** | | | | |
| | **POWER SUPPLY (LI)** | | | | |
| 82 | Supply and install DB-TK with new breakers as per drawing | No | 1 | | |
| | **LV Cables (LI)** | | | | |
| | **Supply and installation of 600/1000V PVC/SWA/PVC cable with copper conductors** | | | | |
| 83 | 95mm²4 Core Cu conductor | m | 60 | | |
| 84 | 25mm²4 Core Cu conductor | m | 50 | | |
| 85 | 16mm²4 Core Cu conductor | m | 60 | | |
| 86 | 10mm²4 Core Cu conductor | m | 65 | | |
| 87 | 6mm²4 Core Cu conductor | m | 80 | | |
| 88 | 4mm²4 Core Cu conductor | m | 80 | | |
| | **Supply and install bare copper earth wire** | | | | |
| 89 | 50mm²BCEW | m | 60 | | |
| 90 | 16mm²BCEW | m | 50 | | |
| 91 | 10mm²BCEW | m | 60 | | |
| 92 | 6mm²BCEW | m | 65 | | |
| 93 | 4mm²BCEW | m | 80 | | |
| 94 | 2.5mm²BCEW | m | 80 | | |
| | **Cable termination (LI)** | | | | |
| | **Supply and installation of 600/1000V PVC/SWA/PVC cable with copper conductors** | | | | |
| 95 | 95mm²4 Core Cu conductor | No | 2 | | |
| 96 | 25mm²4 Core Cu conductor | No | 2 | | |
| 97 | 16mm²4 Core Cu conductor | No | 2 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| 98 | 10mm²4 Core Cu conductor | No | 10 | | |
| 99 | 6mm²4 Core Cu conductor | No | 2 | | |
| 100 | 4mm²4 Core Cu conductor | No | 2 | | |
| | **Cable tray (LI)** | | | | |
| | **Supply and install cable tray with galvanised cover plate** | | | | |
| 101 | 50mm x 50mm cable tray | m | 60 | | |
| 102 | Cover | m | 60 | | |
| 103 | 90 degree bends | No | 4 | | |
| | **Earthing of building (LI)** | | | | |
| 104 | 70mm2 BCEW | m | 30 | | |
| 105 | 1.5 earth spikes | No | 4 | | |
| | **Photo cell (LI)** | | | | |
| 106 | Supply and install photo cell | No | 1 | | |
| | **Lighting Installation (LI)** | | | | |
| | **Supply and install the following light fittings complete with lamps and control gear** | | | | |
| 107 | Type D: 1500mm ceiling mounted watertight - 55W LED | No | 6 | | |
| 108 | Type DE: 1500mm ceiling mounted watertight - 55W LED (emergency) | No | 6 | | |
| | **Light switch (LI)** | | | | |
| | **Supply and install the following light switch with cover plates** | | | | |
| 109 | 16A single lever switch | No | 2 | | |
| 110 | 16A two lever switch | No | 2 | | |
| | **Socket outlet (LI)** | | | | |
| | **Supply and install the following socket outlet with cover plate** | | | | |
| 111 | 16A 3-pin single | No | 4 | | |
| | **Isolators (LI)** | | | | |
| | **Supply and install waterproof metal box surface mount with lockabel isolators with cover plates** | | | | |
| 112 | 1 x 160A 3ph | No | 1 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| 113 | 6 x 63A 3ph | No | 6 | | |
| 114 | 1 x 30A 3ph | No | 1 | | |
| 115 | 1 x 30A 2p | No | 1 | | |
| 116 | 1 x 20A 3ph | No | 1 | | |
| | **Supply and install the following PVC wires with colours as specified into trunking and conduits including termination on both ends** | | | | |
| 117 | 2.5mm2 | No | 320 | | |
| 118 | 4mm2 | No | 280 | | |
| 119 | 6mm2 | No | 150 | | |
| | **Conduits (Galvanised steel conduits) (LI)** | | | | |
| | **Supply and install conduit cast into concrete or screed, chased into concrete or brickwork and surface mounted for the lectrical and telephone installation including couplings, bushes, locknuts, cutting, bending, fixing, draw boxes, etc. in accordance with the specification** | | | | |
| 120 | 20mm dia | m | 180 | | |
| 121 | 25mm dia | m | 120 | | |
| | **Testing and commissioning (LI)** | | | | |
| 122 | Testing and certification of the earthing and lighting protection system including all test equipment required as well as issuing of an earthing certificate by a qualified person | Item | | | |
| | **The following in Dinning Hall** | | | | |
| | **Power supply (LI)** | | | | |
| 123 | Refurbish DB-4 with new breakers as per drawing | No | 1 | | |
| | **Lighting Installation (LI)** | | | | |
| | **Supply and install the following light fittings complete with lamps and control gear** | | | | |
| 124 | Type B: 1200mm ceiling mounted 75W LED luminaire fitted with super purity alluminium complete with LED driver (similar to Lighting Innovation Admiral - LED, 3 cell) | No | 10 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| 125 | Type BE: 1200mm ceiling mounted 75W LED luminaire fitted with super purity alluminium louvres complete with LED driver (similar to Lighting Innovation Admiral - LED, 3 cell) (emergency) | No | 9 | | |
| 126 | Type DE: 1500mm ceiling mounted watertight - 55W LED (emergency) | No | 1 | | |
| 127 | Type H: Wall mounted watertight bulkhead with 15W LED lamp with alumnium base and opal diffuser | No | 4 | | |
| 128 | Type C: Ceiling mounted watertight bulkhead with 15W LED lamps - die cast alumnium base and opal diffuser | No | 7 | | |
| | **Photo cell (LI)** | | | | |
| 129 | Supply and install photo cell | No | 1 | | |
| | **Light switch (LI)** | | | | |
| | **Supply and install the following light switch with cover plates** | | | | |
| 130 | 16A single lever switch | No | 5 | | |
| 131 | 16A two lever switch | No | 4 | | |
| | **Socket outlets (LI)** | | | | |
| | **Supply and install the following socket outlet with cover plates** | | | | |
| 132 | 16A 3-pin single socket | No | 5 | | |
| | **Power skirting (LI)** | | | | |
| | **Supply and install the following metal power skirting complete with accessories and covers** | | | | |
| 133 | 2 compartment, 3 tier power skirting as specified | m | 15 | | |
| 134 | Single, normal socket outlets | No | 2 | | |
| 135 | Single, dedicated socket outlet | No | 2 | | |
| 136 | Telephone points | No | 2 | | |
| 137 | Computer points | No | 2 | | |
| 138 | Power skirting end caps | No | 3 | | |
| | **Waterproof Occupancy Sensors (LI)** | | | | |
| | **Supply and install the following IP44 waterproof occupancy sensors which can detect both temperatures and motion** | | | | |
| 139 | IP44 waterproof occupancy sensors | No | 1 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **Supply and install the following PVC wires with colours as specified into trunking and conduits including termination on both ends** | | | | |
| 140 | 2.5mm2 | m | 575 | | |
| 141 | 4mm2 | m | 520 | | |
| | **Supply and install the following bare copper earth conductor into trunking and conduits including termination on both ends** | | | | |
| 142 | 2.5mm2 | m | 800 | | |
| | **Aircon Isolators (LI)** | | | | |
| | **Supply and install the following isolators with cover plates** | | | | |
| 143 | 30A 1-pole | No | 12 | | |
| | **Conduits (Galvanised steel conduits) (LI)** | | | | |
| | **Supply and install conduit cast into concrete or screed, chased into concrete or brickwork and surface mounted for the lectrical and telephone installation including couplings, bushes, locknuts, cutting, bending, fixing, draw boxes, etc. in accordance with the specification** | | | | |
| 144 | 20mm dia | No | 220 | | |
| 145 | 25mm dia | No | 180 | | |
| | **Testing and commissioning (LI)** | | | | |
| 146 | Testing and certification of the earthing and lighting protection system including all test equipment required as well as issuing of an earthing certificate by a qualified person | Item | | | |
| | Carried to Collection | | | **R** | |

| | | | Amount |
|---|---|---|---|
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| | **SECTION NO. 4**<br>**Electrical Installations**<br>**SECTION SUMMARY** | | |
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Section No. 4
SECTION SUMMARY

# SECTION NO. 5

# Mechanical Installations

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **SECTION NO. 5** | | | | |
| | **Mechanical Installations** | | | | |
| | **BILL NO. 1** | | | | |
| | **MECHANICAL WORK** | | | | |
| | **PREAMBLES** | | | | |
| | The document "Construction Works: Specifications: General Specification (PW371-A) Edition 2.0" is obtainable on the Department's website (http://www.publicworks.gov.za/ under "Consultants Guidelines"), and shall be read in conjunction with the bills of quantities and be referred to for the full descriptions of work to be done and materials to be used. | | | | |
| | The document "Construction Works: Specifications: Particular Specification (PW371-B) Edition 2.0" is issued together with the drawings and shall be read in conjunction with the drawings and the bills of quantities. | | | | |
| | **GENERAL** | | | | |
| | **As built information, Operating and Maintenance Mannuals (LI)** | | | | |
| 1 | Compiling and producing up to date 7 sets of as-built information/drawings and Operating & Maintenance mannuals as specified in SB 05.01, FD & FH 04 & handing over to the Engineer | Item | | | |
| | **Training (LI)** | | | | |
| 2 | Development of syllabus for training operators and maintenance personnel (refer item SD 05.01 as per specifications attached to these bills of quantities) | Item | | | |
| 3 | Presenting a training course for maintenance personel & operators (refer item SD 05.01 as per specifications attached to these bills of quantities) | No | 1 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| | **DETAILED WORK (LI)** | | | | |
| | **The contractor shall price to supply, install and commission the kitchen equipment and mechanical ventillation in accordance with the technical specifications, drawings and the relevant SANS standard. The rate shall include all mounting and connection accessories, ducting, grilles, room sensors, controllers, piping, condensate drainage, etc as specified. The contractor shall check the quantities and prevailing site conditions for installation before pricing (LI)** | | | | |
| 4 | Decommission Island Kitchen Canopy together with accessories. OHSA regulations must be complied with (refer item PFF04.01 as per specifications attached to these bills of quantities) | No | 1 | | |
| 5 | Decommission Electrical Cooking Pot together with accessories. OHSA regulations must be complied with (refer specifications attached to these bills of quantities) | No | 3 | | |
| 6 | Decommission 3 Plate Electrical Inductrial Stove together with accessories. OHSA regulations must be complied with (refer specifications attached to these bills of quantities) | No | 1 | | |
| 7 | Remove rubbles from site to designated dump. OHSA regulations must be complied with (refer specifications attached to these bills of quantities) | Item | | | |
| 8 | Combi steamer: 40 tray capacity per setting c/w all inserts and accessories. Supply and install (refer item PFF04.02 as per specifications attached to these bills of quantities) | No | 2 | | |
| 9 | Install combi steamer at temporary kitchen and move it to final kitchen at a later stage. Rate to be inclusive of commissioning and decommissioning charges (refer item PFF04.02 SC as per specifications attached to these bills of quantities) | No | 1 | | |
| 10 | Tilting boiling pot: 150litres maximum capacity, self generating steam pot, low pressure. Supply and install (refer item PFF04.03 as per specifications attached to these bills of quantities) | No | 2 | | |
| 11 | Install tilting boiling pot at temporary kitchen and move it to main kitchen at a later stage. Rate to be inclusive of commissioning and decommissioning charges (refer item PFF04.03 SC as per specifications attached to these bills of quantities) | No | 2 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| 12 | Tilting frying pan: 150litres maximum capacity. Supply and install (refer item PFF04.04 as per specifications attached to these bills of quantities) | No | 3 | | |
| 13 | Install tilting frying pan at temporary kitchen and move it to main kitchen at a later stage. Rate to be inclusive of commissioning and decommissioning charges (refer item PFF04.04 SC as per specifications attached to these bills of quantities) | No | 3 | | |
| 14 | 350 litre electric phutu cooking pot: Supply and install (refer item PFF04.05 as per specifications attached to these bills of quantities) | No | 2 | | |
| 15 | Install 350l electric phutu cooking pot at temporary kitchen and move it to main kitchen at a later stage. Rate to be inclusive of commissioning and decommissioning charges (refer item PFF04.05 SC as per specifications attached to these bills of quantities) | No | 2 | | |
| 16 | Industrial stove: 3 solid plates with oven: Supply and install (refer item PFF04.06 as per specifications attached to these bills of quantities) | No | 1 | | |
| 17 | Install industrial stove at temporary kitchen and move it to main kitchen at a later stage. Rate to be inclusive of commissioning and decommissioning charges (refer item PFF04.06 SC as per specifications attached to these bills of quantities) | No | 1 | | |
| 18 | 30kg potato peeler: Industrial type. Supply and install (refer item PFF04.011 as per specifications attached to these bills of quantities) | No | 2 | | |
| 19 | Install 30kg potato peeler at temporary kitchen and move it to main kitchen at a later stage. Rate to be inclusive of commissioning and decommissioning charges (refer item PFF04.11 SC as per specifications attached to these bills of quantities) | No | 1 | | |
| 20 | Island canopy 7200 x 3000 x 600mm c/w all accessories, fans filters, attenuators, etc. Supply and install (refer item PFF04.01 as per specifications attached to these bills of quantities) | No | 1 | | |
| 21 | S/steel table combination sink size 1850 x 650mm wide. Supply and install (refer item PFF04.12 as per specifications attached to these bills of quantities) | No | 1 | | |
| 22 | S/steel double centre bowl pot sink size 1850 x 650mm wide. Supply and install (refer item PFF04.13 as per specifications attached to these bills of quantities) | No | 2 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| 23 | Install double bowl sink at temporary kitchen and move it to main kitchen at a later stage. Rate to be inclusive of commissioning and decommissioning charges (refer item PFF04.13 SC as per specifications attached to these bills of quantities) | No | 2 | | |
| 24 | Mobile food warming cabinet 8 x 1/1 GN insert capacity. Heavy duty castors 2 with brakes. Supply and install (refer item PFF04.14 as per specifications attached to these bills of quantities) | No | 3 | | |
| 25 | Bain marie hot cupboard: 5 division 0 - 110 degrees cel with low water cut out. Supply and install (refer item PFF04.15 as per specifications attached to these bills of quantities) | No | 1 | | |
| 26 | Freezer room: Repair and service all serviceable parts (refer item PFF04.16 as per specifications attached to these bills of quantities) | No | 1 | | |
| 27 | Cold room: Repair and service all serviceable parts (refer item PFF04.16 as per specifications attached to these bills of quantities) | No | 1 | | |
| 28 | Supply and install 9kg DCP fire extinguisher (refer item PFF04.17 as per specifications attached to these bills of quantities) | No | 6 | | |
| 29 | Supply and install 2kg carbon dioxide fire extinguisher (refer item PFF04.17 as per specifications attached to these bills of quantities) | No | 6 | | |
| 30 | 450mm wide steel grating erected on 50 x 50mm angle iron cast into concrete with lugs as per drawing attached to these Bills of Quantities | m | 17 | | |
| 31 | Supply s/steel table c/w galvanised undershelf size 1840 x 750mm wide (refer item PFF04.19 as per specifications attached to these bills of quantities) | No | 1 | | |
| 32 | Install s/steel table c/w gi undershelf at temporary kitchen and move it to main kitchen at a later stage. Rate to be inclusive of commissioning and decommissioning charges (refer item PFF04.19 SC as per specifications attached to these bills of quantities) | No | 1 | | |
| 33 | Water boiler: 30 litre capacity 304 s/steel interior and extrior construction automatic water refill. Supply and install (refer item PFF04.23 as per specifications attached to these bills of quantities) | No | 2 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| 34 | Full service 4.5kg DCP fire extinguisher (refer item PFF04.17 as per specifications attached to these bills of quantities) | No | 2 | | |
| 35 | Full service 9kg DCP fire extinguisher (refer item PFF04.17 as per specifications attached to these bills of quantities) | No | 2 | | |
| 36 | Any tests required by the enginner such as water quality tests, pressure tests, etc | Item | | | |
| 37 | Supply and install 300kg electronic platform scale (refer item PFF04.09.01 as per specifications attached to these bills of quantities) | No | 1 | | |
| 38 | Supply and install industrial pedestal bandsaw c/w s/steel table (refer item PFF04.08 as per specifications attached to these bills of quantities) | No | 2 | | |
| 39 | Install industrial pedestal bandsaw at temporary kitchen and move it to main kitchen at a later stage. Rate to be inclusive of commissioning and decommissioning charges (refer item PFF04.08 SC as per specifications attached to these bills of quantities) | No | 1 | | |
| 40 | Supply and install 250 litre high pressure geyser (refer item PFF04.22 as per specifications attached to these bills of quantities) | No | 2 | | |
| 41 | Supply and install planetary food mixer (refer item PFF04.10 as per specifications attached to these bills of quantities) | No | 1 | | |
| 42 | Install vegetable preparation machine at temporary kitchen and move it to main kitchen at a later stage. Rate to be inclusive of commissioning and decommissioning charges (refer item PFF04.10 SC as per specifications attached to these bills of quantities) | No | 1 | | |
| 43 | Supply and install inline extractor fan including ducting, grilles, cables, switches complete with silencer 705m3/hr (refer specifications attached to these bills of quantities) | No | 1 | | |
| 44 | Supply and install industrial bread slicing machine (refer item PFF04.07 as per specifications attached to these bills of quantities) | No | 2 | | |
| 45 | Supply heated food trolley, vandal proof, thermal insulated, 6 std bain marie inserts (refer item PFF04.07 as per specifications attached to these bills of quantities) | No | 5 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| 46 | Supply and install dehumidifier 12l/24Hr extration capacity (refer specifications attached to these bills of quantities) | No | 2 | | |
| 47 | Service all serviceable parts to 350 litre electric phutu cooking pot and leave in good order (refer item PFF04.05 as per specifications attached to these bills of quantities) | No | 3 | | |
| 48 | Service all serviceable parts to 150 litre tilting boiling pot and leave in good order (refer item PFF04.03 as per specifications attached to these bills of quantities) | No | 3 | | |
| 49 | Electric insect killer 50sqm shock mechanism: Supply and install (refer item PFF04.21 as per specifications attached to these bills of quantities) | No | 2 | | |
| 50 | Fire blanket: Supply and install (refer item PFF04.17 as per specifications attached to these bills of quantities) | No | 1 | | |
| 51 | Grease trap 7 L/s (refer item PFF04.18 as per specifications attached to these bills of quantities) | No | 1 | | |
| 52 | 14000BTU split air-conditioner: Supply and install (refer specifications attached to these bills of quantities) | No | 1 | | |
| 53 | S/steel table with splashback c/w undershelf: 1050 x 650 x 910mm high: Supply and install (refer item PFF04.19 as per specifications attached to these bills of quantities) | No | 3 | | |
| 54 | S/steel table with splashback c/w undershelf: 1650 x 650 x 910mm high: Supply and install (refer item PFF04.19 as per specifications attached to these bills of quantities) | No | 1 | | |
| 55 | Supply and install modular stainless steel storage shelving size 850 x 500mm complete with end 1982mm high frames (refer item PFF04.19 as per specifications attached to these bills of quantities) | No | 11 | | |
| 56 | Supply and install modular stainless steel storage shelving size 1150 x 500mm complete with end 1982mm high frames (refer item PFF04.19 as per specifications attached to these bills of quantities) | No | 19 | | |
| 57 | Supply and install stainless steel dunnage racks size 860 x 600 x 300mm high (refer item PFF04.20 as per specifications attached to these bills of quantities) | No | 11 | | |
| 58 | Supply and install 30kg electronic scale (refer item PFF04.09.02 as per specifications attached to these bills of quantities) | No | 1 | | |
| | Carried to Collection | | | **R** | |

| | | Unit | Quantity | Rate | Amount |
|---|---|---|---|---|---|
| 59 | Commissioning of entire installation (refer specifications attached to these bills of quantities) | Item | | | |
| | Carried to Collection | | | R | |

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| | **Mechanical Installations** | | |
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| | ADD VAT @ 15%: | | | |
| | LESS: CREDIT FOR MATERIALS | | | |
| | Credit for materials arising from demolitions - Part B | | | |
| | Carried to Tender | | **R** | |

FINAL SUMMARY

# PART B

# CREDIT FOR DEMOLITIONS

**PART B**

**BILL NO. 1**

**CREDIT FOR OLD MATERIALS**

Note: The contractor to allow herein for credit for materials from demolitions, to become the property of the Contractor

| Item | Descriptions | Unit | Qty | Rate | Amount |
|---|---|---|---|---|---|
| 1 | Timber single door size 813 x 2032mm high | No | 11 | | |
| 2 | Steel double door size 1670 x 2200mm high | No | 1 | | |
| 3 | Steel double door size 1860 x 2200mm high | No | 1 | | |
| 4 | Steel frames backed with mesh size 1700 x 1050mm high | No | 1 | | |
| 5 | Steel cell door size 1000 x 2032mm high | No | 2 | | |
| 6 | Steel shelves size 2000 x 800 x 750mm high | No | 6 | | |
| 7 | Steel shelves size 2520 x 470 x 1880mm high | No | 4 | | |
| 8 | CP basin tap | No | 2 | | |
| 9 | CP sink taps | No | 4 | | |
| 10 | Wash hand basin | No | 2 | | |
| 11 | Stainless steel insert sink | No | 1 | | |
| 12 | WC and cistern | No | 3 | | |
| 13 | Stainless steel WC and fashmaster | No | 3 | | |
| 14 | 250l gyser | No | 1 | | |
| 15 | Steel manhole cover and frame | No | 2 | | |
| 16 | Kitchen canopy | No | 1 | | |
| 17 | Electrical cooking pots | No | 3 | | |
| 18 | Industrial stove | No | 1 | | |
| | **Total carried to main summary** | | | | |

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Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

# BILLSOFQUANTITIES

# FOR

## THOHOYANDOU CORRECTIONAL CENTRE: MEDIUMB

## KITCHEN UPGRADING,REPLACEMENT OF KITCHEN EQUIPMENTS

## DRAWINGS AND SPECIFICATIONS


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Fax: 015-291 5205
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Phahlana Hunadi Quantity Surveyors
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DEPARTMENT OF PUBLIC WORKS
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Fax: 015-297 3314



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Department:
Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA


EXPANDED PUBLIC WORKS PROGRAMME

# DRAWINGS & SPECIFICATIONS

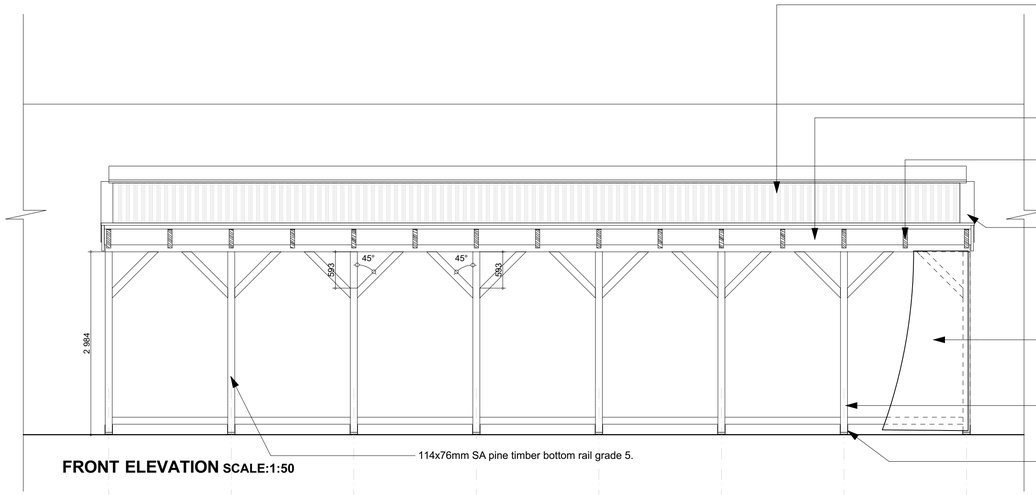
# ARCHITECTURAL DRAWINGS

**Notes**

All structures to be certified by Structural Engineer.

All timber to be CCA treated and done in accordance with SANS457, and finished with 3 coats of clear varnish.

Setting out of heights and levels to be confirmed on site prior to manufacturing of members.




Safintra 0,50mm thick 445mm cover Newlok™ ZINCAL® interlocking roof covering, fixed to steel purlins at 1500mm centres and end-span purlins at 1300mm centres (final spacing to be calculated by an engineer) using Newlok™ clips secured to purlins with Fixtite® or Safintra approved wafer head self-tapping fasteners, all in with 150mm over hang accordance with the manufacturer's recommendations. Safintra Newlok™ ZINCAL® accessories, fixed in accordance with the manufacturer's recommendations.

ACCESSORY : 95º x 462mm girth headwall flashing.

70x300mm timber beam Grade 5 placed in between rafters as shown.

70x300mm Laminated timber beam Grade 5 spaced at 1000mm centre to centre, with adequate 114 x 38mm SA pine bracing. Fixed to 100x100mm beam with MiTek® eCo® Type H, size 50 x 250 x 50 x 2,5mm thick multi purpose bracket.

Safintra Saflok NEWLOK® accessories, fixed in accordance with the manufacturer's recommendations.

ACCESSORY : 660mm girth barge flashing

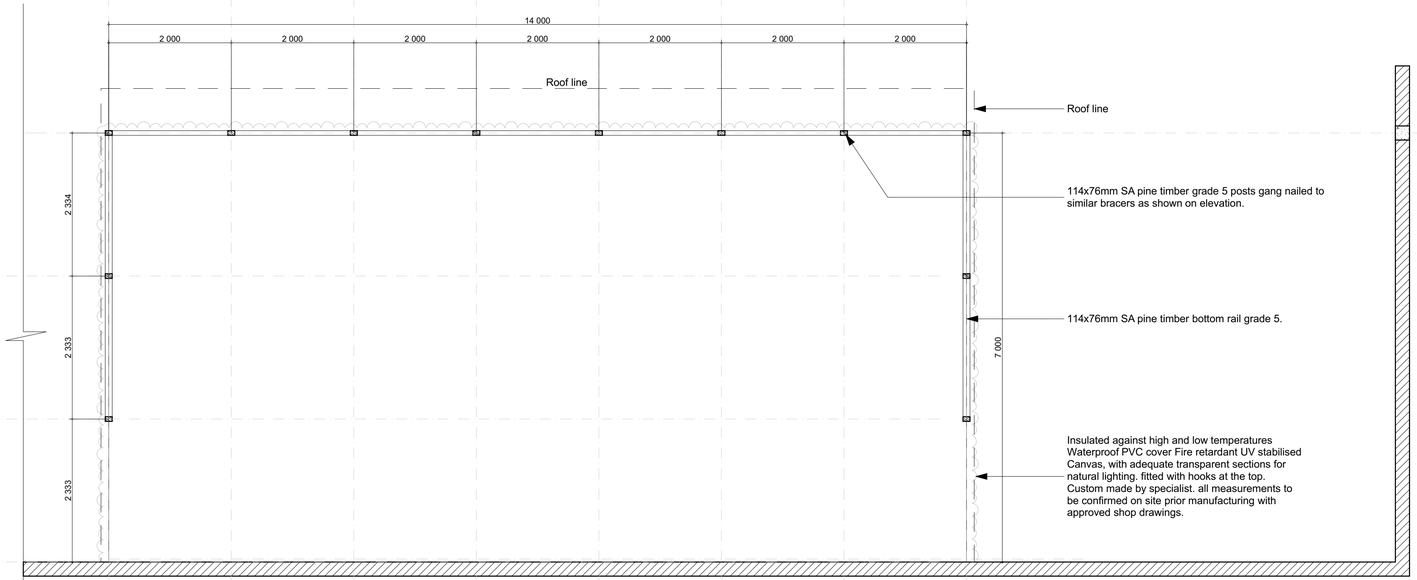
Insulated against high and low temperatures Waterproof PVC cover Fire retardant UV stabilised Canvas, with adequate transparent sections for natural lighting. fitted with hooks at the top. Custom made by specialist. all measurements to be confirmed on site prior manufacturing with approved shop drawings.

114x76mm SA pine timber grade 5 posts gang nailed to similar bracers as shown.

MiTek® eCo® post anchor base for timber post, fixed to existing concrete with heavy duty expansion bolts.

114x76mm SA pine timber bottom rail grade 5.

**FRONT ELEVATION SCALE:1:50**




114x76mm SA pine timber grade 5 posts gang nailed to similar bracers as shown on elevation.

114x76mm SA pine timber bottom rail grade 5.

Insulated against high and low temperatures Waterproof PVC cover Fire retardant UV stabilised Canvas, with adequate transparent sections for natural lighting. fitted with hooks at the top. Custom made by specialist. all measurements to be confirmed on site prior manufacturing with approved shop drawings.

**FLOOR PLAN SCALE:1:50**

0 0.5 1 2 4m

| No. | DATE | AMENDMENT | D.P.W. |
|---|---|---|---|
| 01 | 06/16 | **Remove concrete slab in the kitchen wash up and cooking area and replace with new.** | |
| 02 | 09/16 | **Design of a new temporary kitchen layout** | |
| 03 | 01/17 | **Change roof specification and include bottom timber rail for fixing canvas at the bottom.** | |

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date: ____

professional registration no.: ____

cad file name
MEDIUM B: KITCHEN

page type
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ARCHITECTURE

service
DEPARTMENT OF CORRECTIONAL SERVICES:

KITCHEN UPGRADING, REPLACEMENT OF KITCHEN EQUIPMENT AS WELL AS TEMPORARY KITCHEN

THOHOYANDOU CORRECTIONAL CENTRE: MEDIUM B

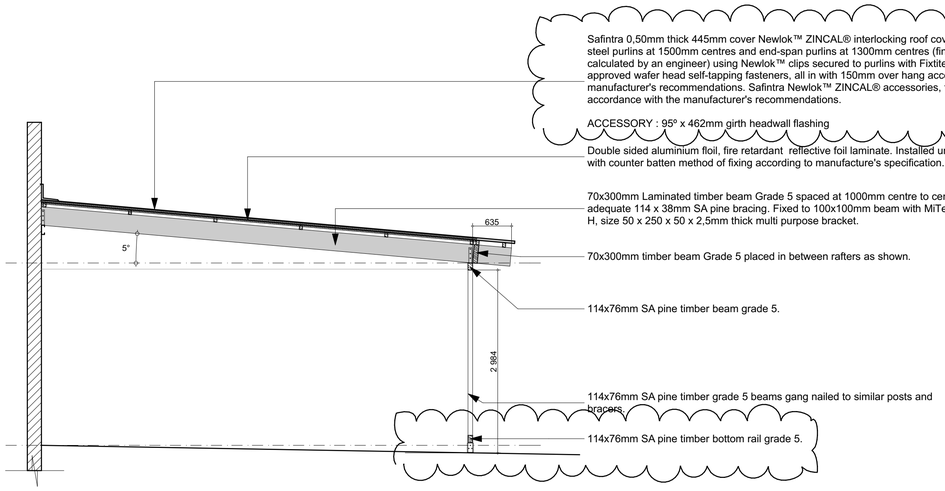
WCS number
050733

drawing title
TEMPORARY KITCHEN: FLOOR PLAN & FRONT ELEVATION

| | | | |
|---|---|---|---|
| ref.no. | - | designed | - |
| scale | AS SHOWN | drawn | G.N.M |
| date | 01/2017 | checked | H.D.J |

DPW drawing number

25531/L13-01 Drw. 05/08



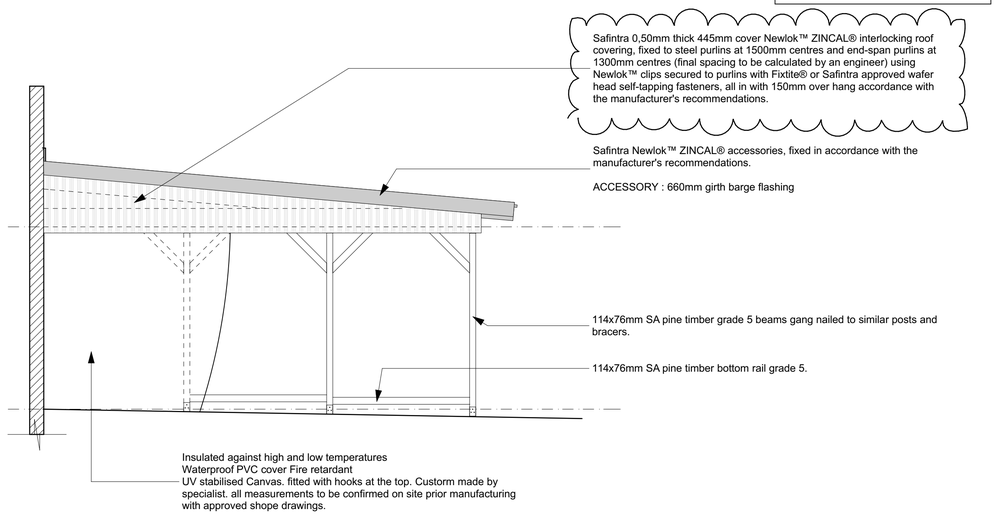

**TIPYCAL SECTION** SCALE:1:50

**Notes**

All structures to be certified by Structural Engineer.

All timber to be CCA treated and done in accordance with SANS457, and finished with 3 coats of clear varnish.

Setting out of heights and levels to be confirmed on site prior to manufacturing of members.




**TIPYCAL ELEVATION** SCALE:1:50

0 0.5 1 2 4m

| No. | DATE | AMENDMENT | D.P.W. |
|---|---|---|---|
| 01 | 06/16 | Remove concrete slab in the kitchen wash up and cooking area and replace with new. | |
| 02 | 09/16 | Design of a new temporary kitchen layout | |
| 03 | 01/17 | Change roof specification and include bottom timber rail for fixing canvas at the bottom. | |

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DEPARTMENT OF CORRECTIONAL SERVICES:

KITCHEN UPGRADING, REPLACEMENT OF KITCHEN EQUIPMENT AS WELL AS TEMPORARY KITCHEN

THOHOYANDOU CORRECTIONAL CENTRE: MEDIUM B

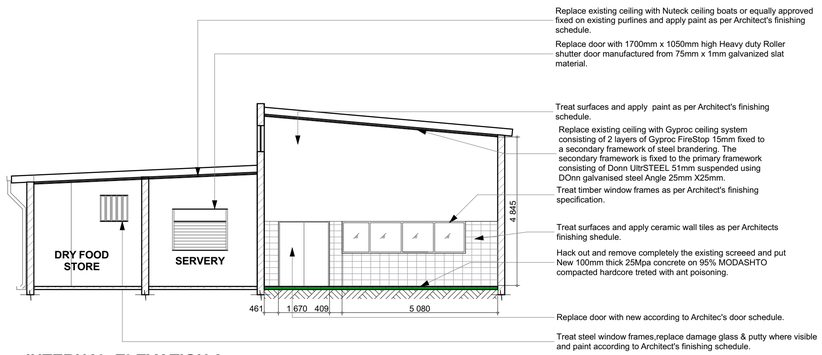
WCS number
050733

drawing title
TEMPORARY KITCHEN: TYPICAL SECTION AND ELEVATION

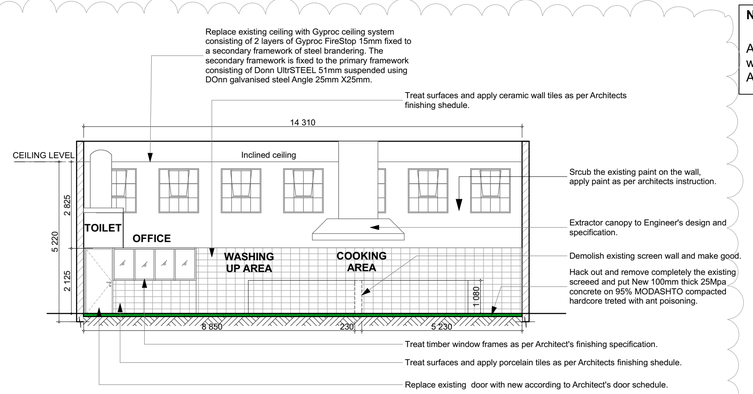
ref.no. _
designed _
scale AS SHOWN
drawn G.N.M
date 01/2017
checked H.D.J

DPW drawing number

25531/L13-01 Drw. 06/08




**INTERNAL ELEVATION A** SCALE:1:100

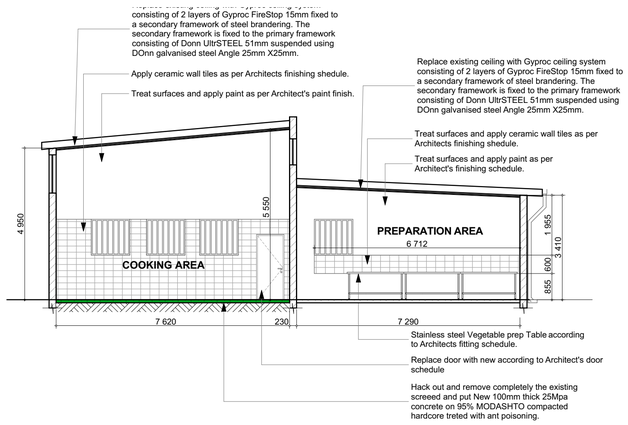



**INTERNAL ELEVATION B** SCALE:1:100

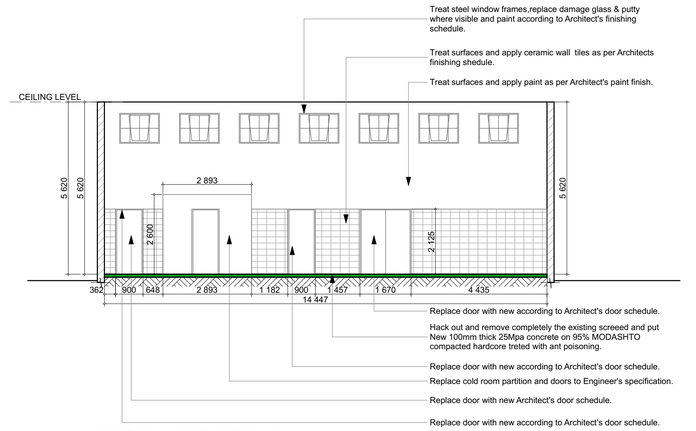
**Notes**

All exposed corners to be provided with corner protectors accordint to Architects finishing schedule.

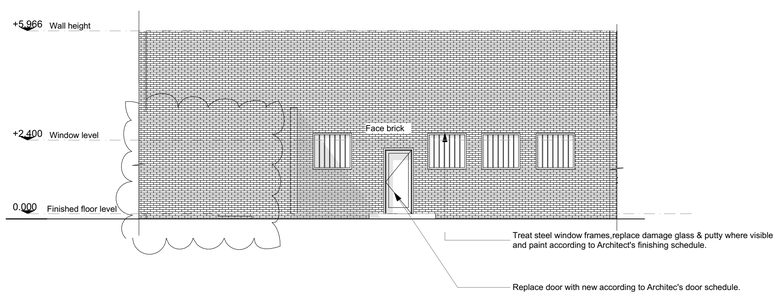
| No. | DATE | AMENDMENT | D.P.W. |
|---|---|---|---|
| 01 | 01/16 | **Include wash hand basin in entrance, put refuse bins, fly screens and door closers, Put refuse area.** | |
| 02 | 01/16 | **Increse level of wall tiles, change ceiling paint spec to Latex.** | |
| 03 | 02/16 | **Change refuse area walls to be steel partition & omit floor drain & tab.** | |
| 04 | 06/16 | **Remove concrete slab in the kitchen wash up and cooking area and replace with new.** | |
| 05 | 09/16 | **Re-design refuse area, and include 2 access doors to the refuse area.** | |
| 06 | 01/17 | **Reduce wall tile heights to door height and paint the rest of the wall.** | |
| 07 | 01/17 | **Relocate refuse area to new position.** | |



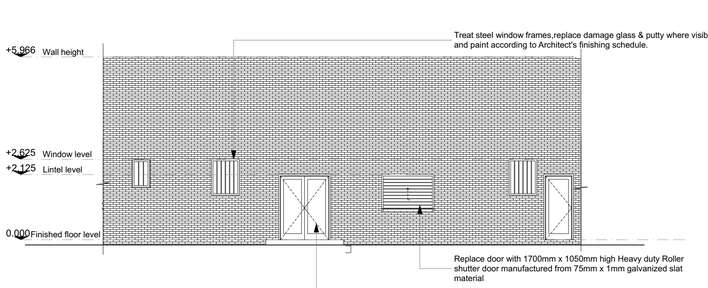

**INTERNAL ELEVATION C** SCALE:1:100



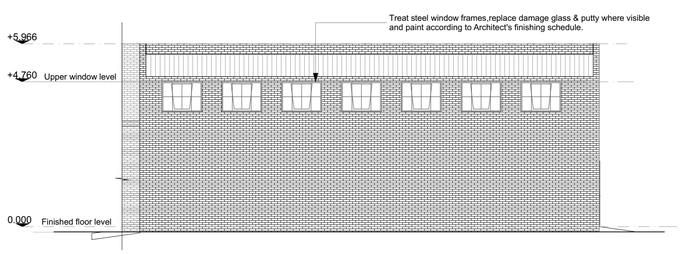

**INTERNAL ELEVATION D** SCALE:1:100



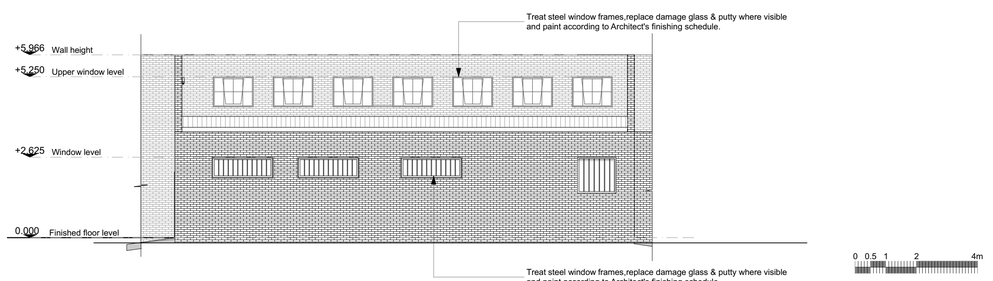

**NORTH-EAST ELEVATION** SCALE:1:100




**SOUTH-WEST ELEVATION** SCALE:1:100




**NORTH-WEST ELEVATION** SCALE:1:100




**SOUTH-EAST ELEVATION** SCALE:1:100

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DEPARTMENT OF CORRECTIONAL SERVICES:

KITCHEN UPGRADING, REPLACEMENT OF KITCHEN EQUIPMENT AS WELL AS TEMPORARY KITCHEN

THOHOYANDOU CORRECTIONAL CENTRE: MEDIUM B

WCS number
050733

drawing title
KITCHEN: INTERNAL ELEVATIONS & EXTERNAL ELEVATIONS

| | |
|---|---|
| ref.no. - | designed - |
| scale AS SHOWN | drawn G.N.M |
| date 01/2017 | checked H.D.J |

DPW drawing number

25531/L13-01 Drw. 02/08

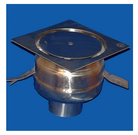
# MEDIUM B KITCHEN FITTINGS SCHEDULE



Right Hand Bowls All 430 type stainless steel Integrally pressed bowls with 40mm waste outlet, AISI 304 CR NI Grade Stainless Steel 150mm high splash back to rear Stainless steel legs with adjustable foot pieces Heavy duty backing sheet with bitumastic sound deadening Dimensions: 1850 × 650 × 910mm (H)



All 430 type stainless steel (optional 304) Stainless steel legs with adjustable foot pieces Heavy duty galvanised backing sheet with bitumastic sound deadening 150mm high splash back to the rear Dimensions: 1050 × 650 × 910mm (H)



Grade AISI 304 stainless steel RO 200 NW 100 square floor drain with perforated circular grating pattern (Code: RO200HNW100SQ), suitable for tiled floor covering, size 240 x 210mm deep240 x 210mm deep, with 104mm diameter horizontal waste outlet with mitred bend connected to waste pipe.



Vaal Sanitaryware Daisy vitreous china wall mounted basin colour White (Code: 700803) with Classic floor mounted pedestal (Code: 715000), size 510 x 400mm with one taphole including integrated overflow and chainstay hole, bolted to wall with 2No.10mm bolts (Code: 8448Z0) and sealed with silicone sealant where basin meets wall with Cobra Watertech Stella pillar tap with flanged backnut (Code: 3311ST-15), manufactured in accordance with SANS 226:2004 Type 2 (BS 5412).



Franke 1,2mm Grade 304 18/10 stainless steel Oval B wall mounted wash hand basin (code: 357454), size 420 x 336 x 330mm deep with a one piece pressed bowl, no tap hole, 30mm splashback, 30mm radiused apron and 40mm waste outlet, 20mm stainless steel square tubing brackets bolted to wall with 4 x 6mm anchor bolts.



Cobra Watertech 15mm chrome plated wall mounted mixer (Code: NM-859) with aerated fixed straight spout, manufactured in accordance with SANS 1480:2005 (BS EN 1286).



Vaal Sanitaryware Klip vitreous china low level suite colour White (Code: 751200) without seat, comprising 104º outlet pan with enlarged pedestal with 9 litre front single flush cistern (Code: 710531) including lid and fitments.



1200mm bulk fill soap dispenser, stainless steel finish.



Stainless Steel hand towel dispenser stainless steel (Code: SA426125), overall size 315 x 260 x 365mm high,



Wall-mounted rectangular bin with lid. 320x280x150mm. Contents 13 litres. Robust model, 1mm thick metal. Polished stainless steel..



Qty: 6 (738 x 595 x 1015)mm Plastic dust bin mobile (wheel Bin). Virgin hi density polyethylene (HDPE) 120L capacity. Colour :3 black & 3 White bins.



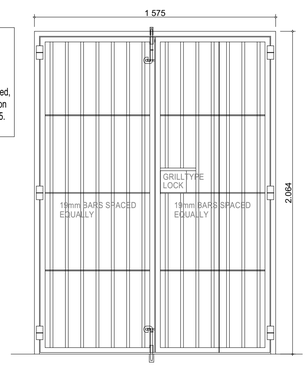
Heavy Duty-Urinal (313X733x342)mm hidden mounted with Stainless steel rods through wall(service room beind needed) product name(HDTX538)



Heavy Duty wall & floor mounted WC pan, (360x500x435) mm

**NOTE:**
All work according to Departmental Specification PW 371.

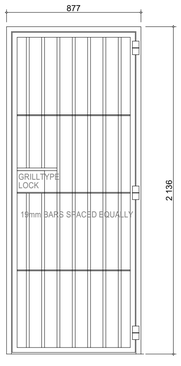
All steel work to be hot dipped galvanised, all in accordancewith SABS Specification 763 see PW 371-A adition 2.0 Section 5. Clause 5.1 to 5.3




ELEVATION SCALE:1:20
**DOUBLE BURGLAR PROOF STEEL DOOR GATE 1 DETAIL**

**NOTE:**
All work according to Departmental Specification PW 371.

All steel work to be hot dipped galvanised, all in accordancewith SABS Specification 763 see PW 371-A adition 2.0 Section 5. Clause 5.1 to 5.3




ELEVATION SCALE:1:20
**SINGLE BURGLAR PROOF STEEL DOOR GATE 2 DETAIL**

# MEDIUM B KITCHEN PREPARATION SCHEDULE

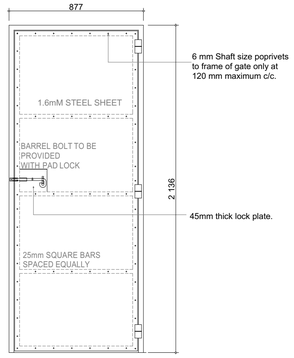
| SPECIFICATIONS | CRACKS | WOOD | METAL |
|---|---|---|---|
| | **Masonry plaster etc - SP4 crack repair: SP4a structural cracks (4-10mm)**<br>Remove existing tiles,fix cracks and prepare surfaces according to Architect's preparation schedule to receive tiles.<br>**Floor finish**<br>6mm heavy duty coloured polyurethane floor screed (6.1 of EN1504-9), textured non slip, or equally approved applied as per manufactures specifications. or equally approved.Color to be confirmed by Architect. | Remove existing tiles where necessary, fix cracks and prepare according to Architect's preparation schedule to receive tiles.<br>**Wall tiles**<br>Ceramic tiles group A1(Extruded split tiles) size 200 x 200 x 6mm thick fixed to existing internal wall/ plaster backing with TAL tile adhesive (elsewhere specified) mixed with TAL bonding liquid in lieu of water with joints continuous in both directions and grouted with TAL tile grout (elsewhere specified). Adhesive and grout colour to be selected by Architect. Tile up to door height.<br>Remove existing tile, fix cracks and prepare surfaceaccording to Architect's preparation schedule to receive paint.<br>**Wall paint**<br>Tiled wall finish shall be at least equal to Class 1 tiabed enamel of SABS Specification 757 with a dry film thickness of at least 0,03 mm. Color to be confirmed by Architect.<br>**Tile skirting**<br>STONCOR 200mm high x thick screed colored, textured non slip or equally approved, applied as per manufactures specifications. Thickness to be flush with wall tiles. Color to match new floor finish. | **Masonry plaster etc - SP4 crack repair: SP4a structural cracks (4-10mm)**<br>Remove dust. Fill cracks with Sikaflex 11FC+ polyurethane sealant (600ml) (SIK 20203) leaving a 2mm valley to be filled with Mendall 90. Smooth off while still wet and allow to dry for 8 hours. Sand smooth and remove dust. Prime repaired area with Plaster Primer (PPC 520) mixed with water in accordance with the manufacturer's instructions. Allow to dry for 4 hours drying time between coats. Apply a plaster skim coat of Plaster Waterproofing Compound (PWC 520) over the surface feathering the edges to zero using a wet brush. After 4 hours drying time apply a second coat of PWC 520 over the surface feathering the edges. This may be applied where evident on site prior or post opening up during construction. Moisture content not more than 5% measured on a Dozer Hygrometer BD4 (or equivalent) before painting.<br>**Concrete floors - SP3 concrete floor repair**<br>SP3 concrete floors.<br>Ensure surfaces are clean, dry and sound. The specified MPa strength should be achieved. Surface contaminants such as oils and grease to be removed using Aquasolv (GR 1) in conjunction with bristle brooms, then high pressure washed with water to obtain a water break-free surface. Laitance must be removed using Aquasolv (GR 1) in conjunction with bristle brooms and a stiff wire brush. Rinse with tap water to remove all traces of sugar soap and allow to dry. Apply either Universal Undercoat (UC 1) or Professional Undercoat (PU 800) to bare and repainted areas. Allow 16 hours to dry or apply Multisurface Primer (MUP 1) as per manufacturers specifications. Allow 2 hours drying time between coats, for a maintenance cycle of 3 years in a C1 - inland environment. Finish with two coats of Glatex 8 (PL) with 16 hours drying time between coats, for a maintenance cycle of 10 years in a C1. | **Polyurethane Enamel or equality approved to existing interior mild steel.**<br>Scrape off loose paint and rust. Wash down with Polycell Sugar Soap Powder (Code: 5501703) dissolved in 5 litres water, or Polycell Sugar Soap Liquid (5018010) or equally approved. For Remove surface contaminants using Polycell Sugar Soap Powder (Code: 5501703) dissolved in 5 litres water, or Polycell Sugar Soap Liquid (5018010) or equally approved. For tap water to remove all traces of sugar soap and allow to dry. Apply either Universal Undercoat (UC 1) or Professional Undercoat (PU 800) to bare and repainted areas. Allow 16 hours to dry or apply Multisurface Primer (MUP 1) as per manufacturers specifications. Allow 2 hours drying time between coats, for a maintenance cycle of 3 years in a C1 - inland environment.<br>**Rust treatment on existing steel shelves and door frames**<br>Remove all paint and rust completely. Apply Plascon Rust Remover (RR 1) to rusted areas and scrub with a bristle brush. Rinse with tap water and allow to dry. Ensure surface is clean, dry and sound. Apply a coat of Plascon Plaster Primer (PP 700) or Professional Alkali Resistant Primer (PP 950). Allow 16 hours to dry. Finish with two coats Velvaglo Water Based (VLW) with 4 hours drying time between coats, for a maintenance cycle of 12 years in a C1 - inland environment. |
| NOTE | To be applied where evident on site prior or post opening up during construction. | | |

# MEDIUM B KITCHEN FINISHING SCHEDULE

| | FLOORS | WALLS | SKIRTING | CEILING | WINDOW & DOOR FRAMES | | | | CORNER PROTECTORS |
|---|---|---|---|---|---|---|---|---|---|
| SPECIFICATIONS | Remove existing tiles,fix cracks and prepare surfaces according to Architect's preparation schedule to receive tiles.<br>**Floor finish**<br>6mm heavy duty coloured polyurethane floor screed (6.1 of EN1504-9), textured non slip, or equally approved applied as per manufactures specifications. or equally approved.Color to be confirmed by Architect. | Remove existing tiles where necessary, fix cracks and prepare according to Architect's preparation schedule to receive tiles.<br>**Wall tiles**<br>Ceramic tiles group A1(Extruded split tiles) size 200 x 200 x 6mm thick fixed to existing internal wall/ plaster backing with TAL tile adhesive (elsewhere specified) mixed with TAL bonding liquid in lieu of water with joints continuous in both directions and grouted with TAL tile grout (elsewhere specified). Adhesive and grout colour to be selected by Architect. Tile up to door height.<br>Remove existing tile, fix cracks and prepare surfaceaccording to Architect's preparation schedule to receive paint.<br>**Wall paint**<br>Tiled wall finish shall be at least equal to Class 1 tiabed enamel of SABS Specification 757 with a dry film thickness of at least 0,03 mm. Color to be confirmed by Architect. | **Tile skirting**<br>STONCOR 200mm high x thick screed colored, textured non slip or equally approved, applied as per manufactures specifications. Thickness to be flush with wall tiles. Color to match new floor finish. | Remove existing ceiling.<br>**OWAcoustic premium ceiling or equality approved.**<br>OWAcoustic premium Sinfonia ceiling tiles with a suspended ceiling system, 15mm thickness Lay-In OWAconstruction shadowline A/Perim.<br>**Ceiling Cornice**<br>20 x 40mm SA pine timber cornice fixed vertically flat to wall. | Prepare surfaces according to Architect's preparation schedules.<br>**Paint to internal timber frames**<br>Woodgard Interior Double Life Timbavarnish (High Gloss) polyurethane varnish (colour to be selected) to previously solvent based interior wood. or equally approved.<br>Remove all contaminants and inadequately adhering coatings. Repair all imperfections as per surface preparation guidelines. Ensure surface is clean, dry and free of contaminants. Prime all repaired areas with surface compatible primer. Apply two coats Woodgard Interior Double Life Timbavarnish (High Gloss) with an overcoating time of 16 hours. | In accordance with Architect's internal elevations | Prepare surfaces according to Architect's preparation schedules.<br>**Paint to internal steel door frames**<br>Plascon Multisurface Clean-up pure acrylic paint (colour to be selected) to interior shop primed mild steel. or equally approved<br>Remove all shop-primer and corrosion products from the steel by means of sand blasting steel to a bright metal condition, and a cleanliness standard of Sa2½ minimum. Prime surface with one coat Dulux Trade Corrocoat 3 (Code:T1030), undercoat with one coat Dulux Trade Ecosure Undercoat or a short-nap roller. Keep brush or roller well filled and flow on freely. | In accordance with Architect's door schedule and details | Prepare surfaces according to Architect's preparation schedules.<br>**Paint to internal steel door frames**<br>Plascon Multisurface Clean-up pure acrylic paint (colour to be selected) to interior shop primed mild steel. or equally approved<br>Remove all shop-primer and corrosion products from the steel by means of sand blasting steel to a bright metal condition, and a cleanliness standard of Sa2½ minimum. Prime surface with one coat Dulux Trade Corrocoat 3 (Code:T1030), undercoat with one coat Dulux Trade Ecosure Undercoat or a short-nap roller. Keep brush or roller well filled and flow on freely.<br>**Timber Cornice.**<br>Clean and remove dust. Apply wood promer, and two coats of Latex vinyl acrylic ceiling paint using a nylon wall brush or a short-nap roller. Keep brush or roller well filled and flow on freely. | | Replace putty on all windows and replace damaged glass panes. Prepare surfaces according to Architect's preparation schedules.<br>**Paint to window steel frames**<br>Plascon Multisurface Clean-up pure acrylic paint (colour to be selected) to exterior shop primed mild steel. Or equally approved.<br>Remove all shop-primer and corrosion products from the steel by means of sand blasting steel to a bright metal condition, and a cleanliness standard of Sa2½ minimum. Prime surface with one coat Dulux Trade Corrocoat 3 (Code:T1030), undercoat with one coat Dulux Trade Ecosure Undercoat with an overcoating time of 6 hours and finish with two coats Dulux Prestigio Water Clean-up (Code: D40) with an overcoating time of 4 hours, or equally equally | In accordance with Architect's specifications | **Corner protectors**<br>M-Trim 75 x 75mm brushed stainless steel wall corner protector (Code: SCP750 B), plugged and countersunk screwed into plaster backing with stainless steel screws. | On all exposed corners. |
| OFFICE | ○ | ○ | ○ | ○ | | | | | |
| WASHING UP AREA | ○ | ○ | ○ | ○ | | | | | |
| COOKING AREA | ○ | ○ | ○ | ○ | | | | | |
| PREPARATION AREA | ○ | ○ | ○ | ○ | | | | | |
| FREEZER | TO ENGINEER'S SPEC. | TO ENGINEER'S SPEC. | TO ENGINEER'S SPEC. | TO ENGINEER'S SPEC. | | | | | |
| COLD ROOM | TO ENGINEER'S SPEC. | TO ENGINEER'S SPEC. | TO ENGINEER'S SPEC. | TO ENGINEER'S SPEC. | | | | | |
| BREAD STORE | ○ | ○ | ○ | ○ | | | | | |
| DRY FOOD STORE | ○ | ○ | ○ | ○ | | | | | |
| SERVERY | ○ | ○ | ○ | ○ | | | | | |
| ENTRANCE | ○ | ○ | ○ | ○ | | | | | |

**NOTE:**
All work according to Departmental Specification PW 371.

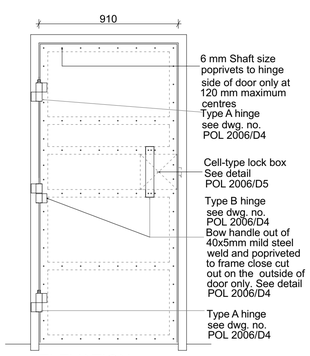
All steel work to be hot dipped galvanised, all in accordancewith SABS Specification 763 see PW 371-A adition 2.0 Section 5. Clause 5.1 to 5.3




ELEVATION SCALE:1:20
**STEEL DOOR DOOR 3 DETAIL**

**NOTE:**
All work according to Departmental Specification PW 371.

All steel work to be hot dipped galvanised, all in accordancewith SABS Specification 763 see PW 371-A adition 2.0 Section 5. Clause 5.1 to 5.3




ELEVATION SCALE:1:20
**STEEL DOOR DOOR 5 DETAIL**

## GENERAL EQUIPMENT

+ A stainless steel work top with shelf below is to be provide (Length ±**1500mm** min).

+ A stainless steel (PS-L or PS-R) double combination pot sink is to be built in with bib tap extension peaces and flange. All equipment to be stainless steel grade 304.

+ A handheld **4,5kg $CO^2$** fire extinguisher is to be fixed to a wall in an accessible position.

## Adjustable Stainless Steel Shelves for Bread Store

+ the units to be constructed out of 304-stainless steel framed supports and similar stainless steel shelves.
+ the shelves to be 900mm in lenth, complete with covered sides and backs.
+ the units shall be provided with braces and fixing pegs for shelves, and provided with type 304-stainless steel back
+ as manufactured by 'Symo Corporation' or similar.

## Paint Specification

+ Walls have to be painted to specification in heavy-duty, light coloured oil base coating.
+ Approved undercoat Alkail resistant primer. No Contractors PVA.

0 0.5 1 2 4m

| No. | DATE | AMENDMENT | D.P.W. |
|---|---|---|---|
| 01 | 01/16 | **Include wash hand basin in entrance, put refuse bins, fly screens and door closers, Put refuse area.** | |
| 02 | 01/16 | **Increse level of wall tiles, change ceiling paint spec to Latex.** | |
| 03 | 09/16 | **Change wc and wash hand basin specification.** | |
| 04 | 01/17 | **Change specifications according to revissions clouds and omit new shelves.** | |

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cad file name: MEDIUM B: KITCHEN

page type: A 1

public works
Department: Public Works
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service:
DEPARTMENT OF CORRECTIONAL SERVICES:

KITCHEN UPGRADING, REPLACEMENT OF KITCHEN EQUIPMENT AS WELL AS TEMPORARY KITCHEN

THOHOYANDOU CORRECTIONAL CENTRE: MEDIUM B

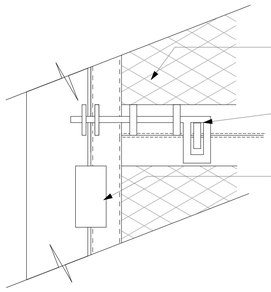
WCS number: 050733

drawing title:
KITCHEN: FITTINGS SCHEDULE, PREPARATION SCHEDULE, FINISHING SCHEDULE AND DOORS DETAILS.

ref.no. -
designed -
scale AS SHOWN
drawn G.N.M
date 01/2017
checked H.D.J

DPW drawing number

25531/L13-01 Drw. 03/08

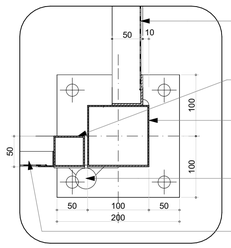


Expanded metal (L.W.M) 30mm x (S.W.M) 10mm, 2.5x1.6mm strand thickness. welded to frames.

Heavy duty steel barrel bold with and catch and pad lock welded to frame and post.

100x50x3mm mild steel flat welded to gate frame only.

**REFUSE AREA**
**GATE LOCK DETAIL 04 SCALE:1:5**




Expanded metal (L.W.M) 30mm x (S.W.M) 10mm, 2.5x1.6mm strand thickness. welded to frames.

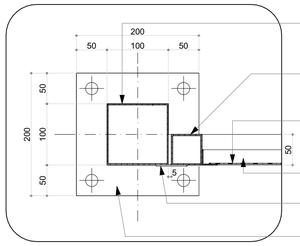
50x50x3mm mild steel square tube welded gate frame.

100x100x3mm mild steel posts welded to base plate.

Heavy duty type 4 cell hinges as per drawing POL2012/D4, on SAPS PROJECT 5 STAR 2012 document.

25x25x1.6mm mild steel angle welded to gate frame.

**REFUSE AREA**
**DETAIL 04 SCALE:1:5**




100x100x3mm mild steel posts with 200x200x8mm base plate bolted to existing concrete with expantion bolts.

50x50x3mm mild steel square tube welded gate frame.

Expanded metal (L.W.M) 30mm x (S.W.M) 10mm, 2.5x1.6mm strand thickness. welded to frames.

25x25x1.6mm mild steel angle welded to gate frame.

100x50x3mm mild steel flat welded to gate frame only.

200x200x8mm base plate bolted to existing concrete with M16 expantion bolts.

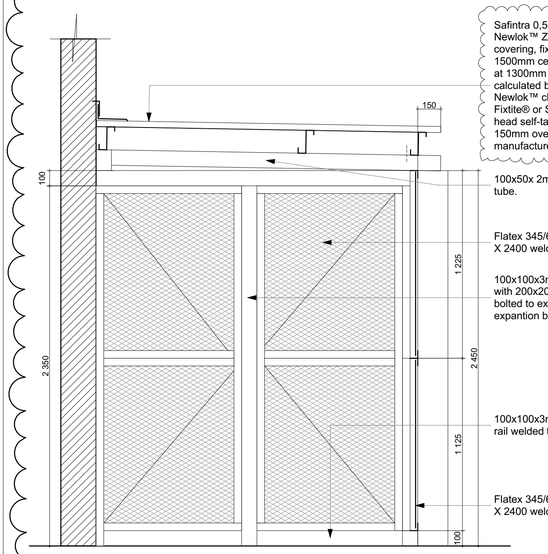
**REFUSE AREA**
**DETAIL 05 SCALE:1:5**

**NOTE:**

All work according to Departmental Specification PW 371.

All steel work to be hot dipped galvanised, all in accordancewith SABS Specification 763 see PW 371-A adition 2.0 Section 5. Clause 5.1 to 5.3

| No. | DATE | AMENDMENT | D.P.W. |
|---|---|---|---|
| 05 | 09/16 | **Re-design refuse area, and include 2 access doors to the refuse area.** | |
| 06 | 09/16 | **Change expanded metal specification.** | |
| 07 | 01/17 | **Omit suspended steel floor and include gate on refuse area.** | |
| 08 | 04/19 | **Refuse area, increasing the size of refuse shelter to suite 6 bins.** | |




Safintra 0,50mm thick 445mm cover Newlok™ ZINCAL® interlocking roof covering, fixed to steel purlins at 1500mm centres and end-span purlins at 1300mm centres (final spacing to be calculated by an engineer) using Newlok™ clips secured to purlins with Fixtite® or Safintra approved wafer head self-tapping fasteners, all in with 150mm over hang accordance with the manufacturer's recommendations.

100x50x 2mm mild steel rectengule tube.

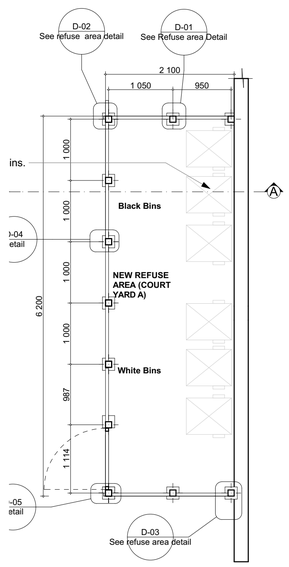
Flatex 345/6320K 25/50/10.0/3.0 1200 X 2400 welded to steel angle frames.

100x100x3mm mild steel posts with 200x200x8mm base plate bolted to existing concrete with expantion bolts.

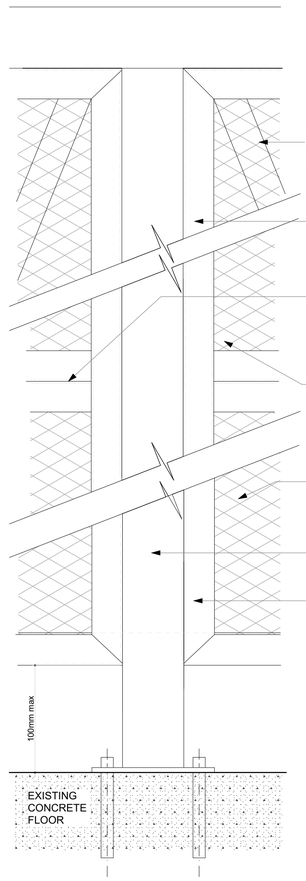
100x100x3mm mild steel bottom rail welded to statdards.

Flatex 345/6320K 25/50/10.0/3.0 1200 X 2400 welded to steel angle frames.

**REFUSE AREA**
**SECTION AA SCALE:1:10**




**REFUSE FLOOR PLAN**
**SCALE:1:50**




50x50x2mm mild steel angle bracings welded to frame and spot weld to expanded metal.

50x50x2mm mild steel square tube welded gate frame.

2x50x50x2mm mild steel angle iron welded together to form T-section cross bar.

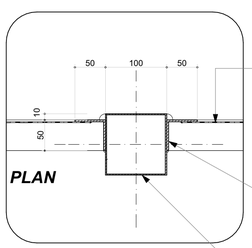
Flatex 345/6320K 25/50/10.0/3.0 1200 X 2400 welded to steel angle frames.

Expanded metal (L.W.M) 30mm x (S.W.M) 10mm, 2.5x1.6mm strand thickness. welded to frames.

100x100x2mm mild steel posts welded to base plate.

50x50x2mm mild steel angle iron frame welded to steel posts.

***ELEVATION***



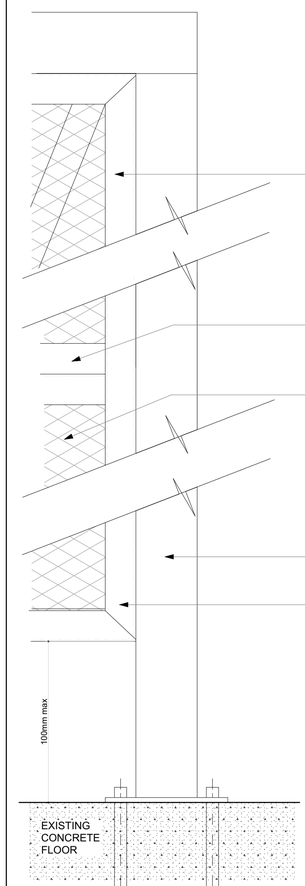

***PLAN***

Flatex 345/6320K 25/50/10.0/3.0 1200 X 2400 welded to steel angle frames.

50x50x2mm mild steel angle frame welded to steel posts.

100x100x2mm mild steel posts with 200x200x8mm base plate bolted to existing concrete with expantion bolts.

**REFUSE AREA**
**DETAIL 01 SCALE:1:5**




50x50x2mm mild steel angle bracings welded to frame and spot weld to expanded metal.

2x50x50x2mm mild steel angle iron welded together to form T-section cross bar.

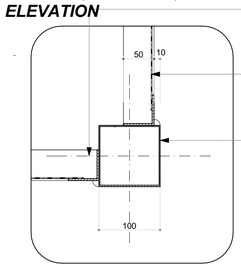
Flatex 345/6320K 25/50/10.0/3.0 1200 X 2400 welded to steel angle frames.

100x100x2mm mild steel posts welded to base plate.

50x50x2mm mild steel angle iron frame welded to steel posts.

***ELEVATION***

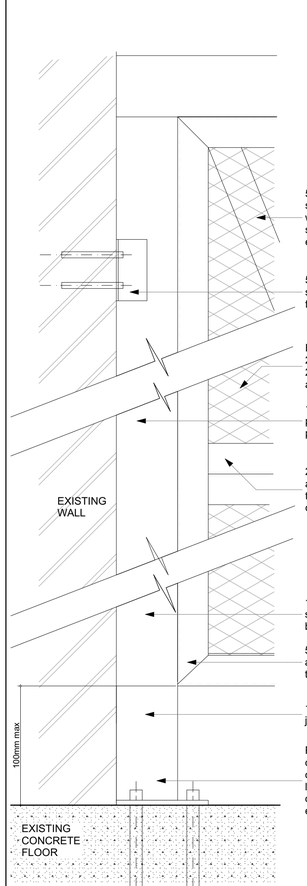
50x50x2mm mild steel square tube welded gate frame.




Flatex 345/6320K 25/50/10.0/3.0 1200 X 2400 welded to steel angle frames.

100x100x2mm mild steel posts welded to base plate.

**REFUSE AREA**
**DETAIL 02 SCALE:1:5**




50x50x2mm mild steel angle bracings welded to frame and spot weld to expanded metal.

50x50x2mm mild steel square tube welded gate frame.

Flatex 345/6320K 25/50/10.0/3.0 1200 X 2400 welded to steel angle frames.

100x100x2mm mild steel posts welded to base plate.

2x50x50x2mm mild steel angle iron welded together to form T-section cross bar.

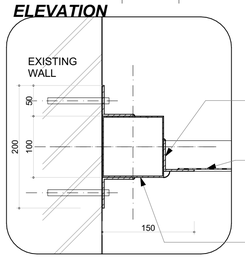
100x100x2mm mild steel posts welded to base plate.

50x50x2mm mild steel angle iron frame welded to steel posts.

100x100x2mm steel joist.

Pedestal footing to specialist design with the height set out on site to enable the floor level to be same with adjacent duct floor, And fixed to existing sloping concrete floor.

***ELEVATION***




50x50x2mm mild steel angle frame welded to steel posts.

Flatex 345/6320K 25/50/10.0/3.0 1200 X 2400 welded to steel angle frames.

100x100x2mm mild steel posts with 200x200x8mm base plate bolted to existing concrete with expantion bolts.

**REFUSE AREA**
**DETAIL 03 SCALE:1:5**

0 0.5 1 2 4m

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REPUBLIC OF SOUTH AFRICA

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service: DEPARTMENT OF CORRECTIONAL SERVICES:

KITCHEN UPGRADING, REPLACEMENT OF KITCHEN EQUIPMENT AS WELL AS TEMPORARY KITCHEN

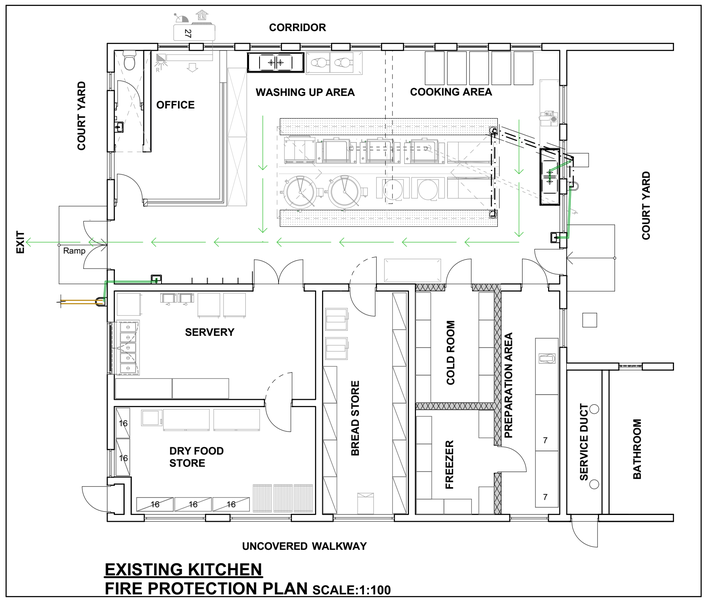
THOHOYANDOU CORRECTIONAL CENTRE: MEDIUM B

WCS number: 050733

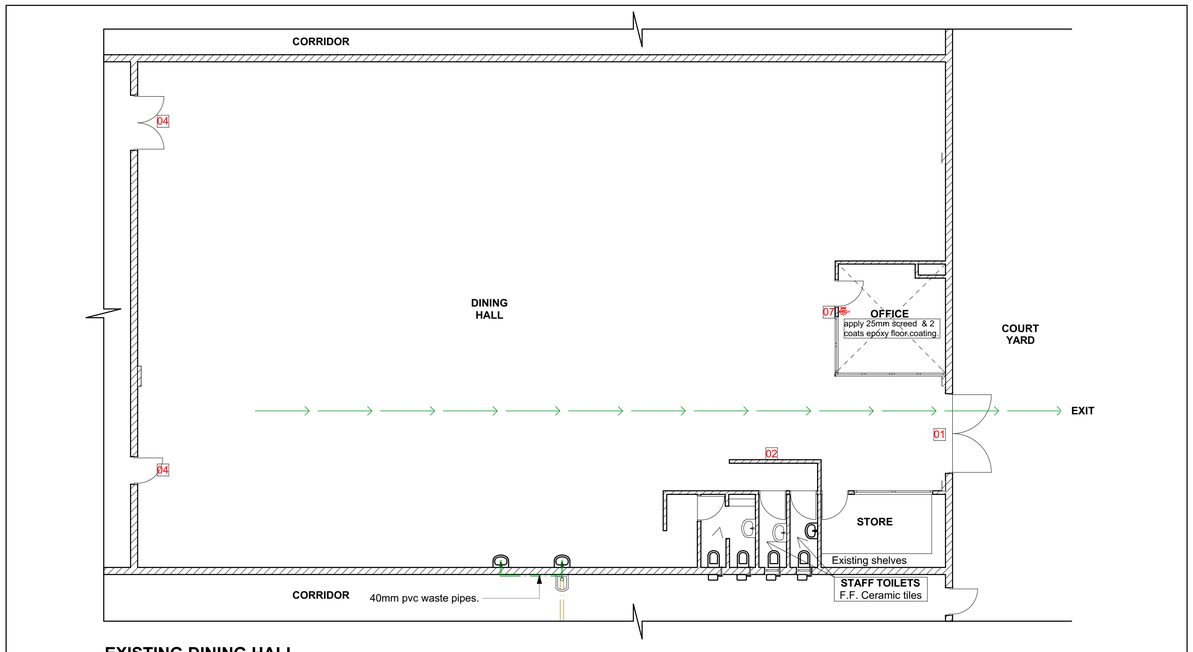
drawing title: REFUSE AREA DETAILS

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| ref.no. - | designed - |
| scale AS SHOWN | drawn G.N.M |
| date 01/2017 | checked H.D.J |

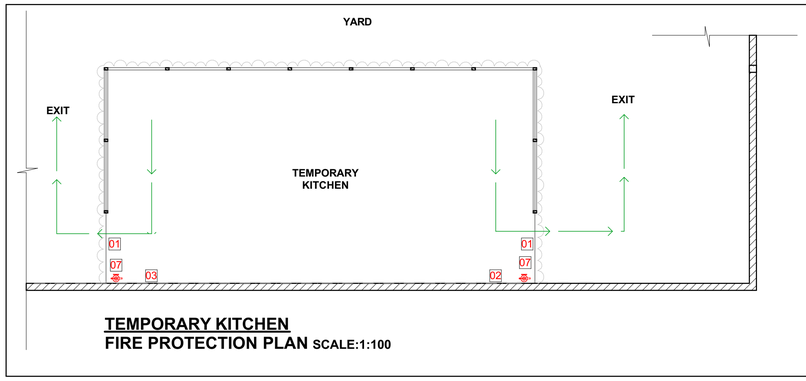
DPW drawing number: 25531/L13-01 Drw. 04/08




**EXISTING KITCHEN**
**FIRE PROTECTION PLAN** SCALE:1:100




**EXISTING DINING HALL**
**FIRE PROTECTION PLAN** SCALE:1:100




**TEMPORARY KITCHEN**
**FIRE PROTECTION PLAN** SCALE:1:100

30m FHR — 30m FIRE HOSE REEL AS PER NATIONAL BUILDING REGULATIONS (1/500m² FLOOR AREA).

9kg DCP — 9kg DRY CHEMICAL POWDER FIRE EXTINGUISHER AS PER NATIONAL BUILDING REGULATIONS (1 per 200m² FLOOR AREA). ENCLOSED IN CABINET, AND PUT BREAK GLASS KEY.

FIRE SIGNAGE

01 

Photoluminescent "EXIT" signage, size 300x150mm in SANS 1186 certified ABS plastic, with natural anodized aluminum frame, drilled, plugged and fixed with non-corrosive screws against wall surface above door-frame.Colour: White panel with red border-line, and red pictogram as per SANS.

02 
Photoluminescent "ESCAPE ROUTE - LEFT" signage, size 300x150mm in SABS 1186 certified ABS plastic, with natural anodized aluminum frame, mounted (hanging) to underside of ceiling with non-corrosive screws or drilled, plugged and fixed with non-corrosive screws against wall surface above door-frame Colour: Green with white border-line, and white pictograms as per SANS.

03 
Photoluminescent "ESCAPE ROUTE - RIGHT" signage, size 300x150mm in SABS 1186 certified ABS plastic, with natural anodized aluminum frame, mounted (hanging) to underside of ceiling with non-corrosive screws or drilled, plugged and fixed with non-corrosive screws against wall surface above door-frame. Colour:Green with white border-line, and white pictograms as per SANS.

04 
Photoluminescent "ESCAPE ROUTE - DOWN" signage, size 300x150mm in SANS 1186 certified ABS plastic, with natural anodized aluminum frame, mounted (hanging) to underside of ceiling with non-corrosive screws or drilled, plugged and fixed with non-corrosive screws against wall surface above door-frame.Colour: Green with white border-line, and white pictograms as per SANS.

05 
Photoluminescent "FIRE HOSE REEL" signage, size 300x150mm in SABS 1186 certified ABS plastic, with natural anodized aluminum frame, drilled,plugged and fixed with non-corrosive screws against wall surface above equipment. Colour: White panel with red border-line, and red pictogram as per SABS.

06 
Photoluminescent double-sided "FIRE CABINET" signage, size 450x150mm in SANS 1186 certified ABS plastic,with natural anodized aluminum frame, mounted against underside of ceiling with non-corrosive screws. Colour: White panel with red border-line, and red pictogram as per SANS.

07 
Photoluminescent "FIRE EXTINGUISHER" signage, size 300x150mm in SABS 1186 certified ABS plastic, with natural anodized aluminum frame, drilled, plugged and fixed with non-corrosive screws against wall surface above fire-extinguisher. Colour: White panel with red border-line, and red pictogram as per SABS.

08 

Photoluminescent "FLAMMABLE LIQUIDS / NO SMOKING / NO FIRE" signage,size 300x300mm in SANS 1186 certified ABS plastic, with naturalanodized aluminum frame, drilled, plugged and fixed with non-corrosive screws against wall surface AT 1,8m AFFL. Colour: White panel with red border-line, and red pictogram as per SANS.

09 
Photoluminescent "FIRE HYDRANT" signage, size 450x150mm in SABS 1186 certified ABS plastic, with natural anodized aluminum frame, drilled, plugged and fixed with non-corrosive screws against wall surface above equipment. Colour: White panel with red border-line, and red pictogram as per SABS.

0 0.5 1 2 4m

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discipline: ARCHITECTURE

service: DEPARTMENT OF CORRECTIONAL SERVICES:

KITCHEN UPGRADING, REPLACEMENT OF KITCHEN EQUIPMENT AS WELL AS TEMPORARY KITCHEN

THOHOYANDOU CORRECTIONAL CENTRE: MEDIUM B

WCS number: 050733

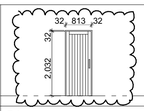
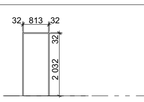
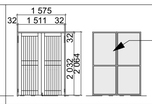
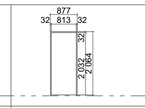
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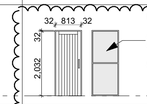
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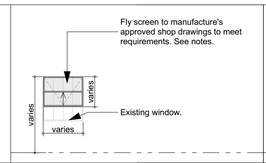
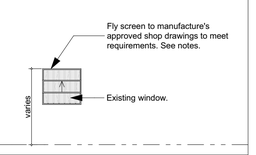
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# DOOR SCHEDULE

| | | | | | | |
|---|---|---|---|---|---|---|
| FFL |  |  |  Fly screen to manufactures approved shop drawings to meet requirements. See notes. |  |  |  |
| DOOR NO. | D1 | D2 | D3 | D4 | D5 | D6 |
| NO. REQUIRED | 1 | 1 | 1 | 4 | 2 | 3 |
| FRAME | Use existing door frame | Standard 1.2mm mild steel double rebate door frame to suit walls as shown on plan, finished with one coat factory primer, suitable for painting | Standard 1.2mm mild steel double rebate door frame to suit walls as shown on plan, finished with one coat factory primer, suitable for painting | Use existing door frame | Use existing door frame | Use existing door frame |
| FRAME FINISH | One coat factory primed finished with two coats " Plascon velvaglow" or equal approved polyrethane aklyd semigloss enamel color to be confirmed by Architect. | 1 coat universal undercoating with 2 coats approved type semi-gloss enamel paint - colour to be confirmed by the Architect. | One coat factory primed finished with two coats " Plascon velvaglow" or equal approved polyrethane aklyd semigloss enamel color to be confirmed by Architect. | Treat rust on existing frame by applying rust remover according to Architects preparation schedule. | All steel work to be hot dipped, galvanised, all in accordance with SABS Specification 763. | |
| DOOR LEAF | 44mm thick standard frames and ledged meranti door with rebated meeting styles and plywood back to be fittrd externally with meranti weather board. | 40mm thick x 813 x 1900mm high semi-solid internal door. | 44mm thick standard frames and ledged meranti door with rebated meeting styles and plywood back to be fittrd externally with meranti weather board. | 40mm thick x 813 x 2064mm high semi-solid internal door. | Solid steel door | |
| DOOR LEAF FINISH | Sand down and finish with one coat sanding sealer and two wood guard. | Prepare and clean, apply one coat approved undercoat and two coats SABS approved Gloss enamel, Sandpaper lightly between coats. | Sand down and finish with one coat sanding sealer and two wood guard. | Prepare and clean, apply one coat approved undercoat and two coats SABS approved Gloss enamel, Sandpaper lightly between coats | All steel work to be hot dipped, galvanised, all in accordance with SABS Specification 763. | |
| IRONMONGERY | HANDLES : 1x set Union AL6C63-05AS on 152 x 76 x 3mm back plate. Or equally approved.<br>LOCK : 1x cylinder upright lock.<br>1x cylinder profile MKD.<br>1x rebate conversion set to inactive leaf.<br>1x Set flush bolt AL8208-AS 150x20mm to inactive Leaf<br>HINGES : 2x 100mm brass butt hinges (dooe frames). | One AL6D21TR-73AS Furniture with indicator, one 2226-78SS W/C indicator lock one AL8722AS Hat & Coat hook<br><br>TS71 Door closer | HANDLES : 1x set aluminium orion handle on rose AL600-05A S escutcheons.<br>LOCK : Pair of 584-05A S escutcheons 1x uero lock case L-22315-76SS with stainless steel forent Euro profile double cylinder 2x 18SC 66mm long.<br>HINGES : 2x 100mm brass butt hinges (door frame). | HANDLES : 1x set Union aluminium orion handle on rose AL600-05A S escutcheons.Or equally aproved.<br>LOCK : Pair of 584-05A S escutcheons 1x uero lock case L-22315-76SS with stainless steel forent Euro profile double cylinder 2x 18SC 68mm long.<br>HINGES : 2x 100mm brass butt hinges (door frame). | HANDLES : Bow handle out of 40x5mm mild steel weld and popriveted to frame close cut out on the outside of door only<br>LOCK : Cell-type lock box<br>HINGES : 2x type A hinge and 1 x type B hinge | Special door to Engineer's specifications |
| POSITION | FHR DUCT | TOILET | ENTRANCE | DRY FOOD STORE, BREAD STORE, OFFICE | PREPARATION AREA | |
| NOTES | 1. External fly screens by Specialist:<br>-**Frame**: Natural anodised aluminium members , with corner cleats & mid rail for structural stability.<br>-**Netting**: The mesh itself is made from interwoven fiber glass and coated with PVC. This means it's not only strong but dos not rust or corrode, Fixed with gasket to enable future replacement.<br>-**Hinges & Handles**: To manufactures specification,<br>-**Accessories**: Brush strips to seal at bottom. And Door closer.<br>-**Dementions**: To be confirmed on site prior manufacturing/ Ordering. | | 1. Install burglar proof door. See drawing: GATE 1 DETAIL<br>2. External fly screens by Specialist:<br>-**Frame**: Natural anodised aluminium members , with corner cleats & mid rail for structural stability.<br>-**Netting**: The mesh itself is made from interwoven fiber glass and coated with PVC. This means it's not only strong but dos not rust or corrode, Fixed with gasket to enable future replacement.<br>-**Hinges & Handles**: To manufactures specification,<br>-**Accessories**: Brush strips to seal at bottom. And Door closer.<br>-**Dementions**: To be confirmed on site prior manufacturing/ Ordering. | 1. Install burglar proof door. See drawing: GATE 2 DETAIL | 1. See drawing: DOOR 5 DETAIL | |

| | D7 |
|---|---|
| |  Fly screen to manufactures approved shop drawings to meet requirements. See notes. |
| DOOR NO. | D7 |
| NO. REQUIRED | 1 |
| FRAME | Use existing door frame |
| FRAME FINISH | One coat factory primed finished with two coats " Plascon velvaglow" or equal approved polyrethane aklyd semigloss enamel color to be confirmed by Architect. |
| DOOR LEAF | 44mm thick standard frames and ledged meranti door with rebated meeting styles and plywood back to be fittrd externally with meranti weather board. |
| DOOR LEAF FINISH | Sand down and finish with one coat sanding sealer and two wood guard. |
| IRONMONGERY | HANDLES : 1x set Union AL6C63-05AS on 152 x 76 x 3mm back plate. Or equally approved.<br>LOCK : 1x cylinder upright lock.<br>1x cylinder profile MKD.<br>1x rebate conversion set to inactive leaf.<br>1x Set flush bolt AL8208-AS 150x20mm to inactive Leaf<br>HINGES : 2x 100mm brass butt hinges (dooe frames). |
| POSITION | EXIT |
| NOTES | 1. External fly screens by Specialist:<br>-**Frame**: Natural anodised aluminium members , with corner cleats & mid rail for structural stability.<br>-**Netting**: The mesh itself is made from interwoven fiber glass and coated with PVC. This means it's not only strong but dos not rust or corrode, Fixed with gasket to enable future replacement.<br>-**Hinges & Handles**: To manufactures specification,<br>-**Accessories**: Brush strips to seal at bottom. And Door closer.<br>-**Dementions**: To be confirmed on site prior manufacturing/ Ordering. |

# GENERIC WINDOW FLY SCREEN SCHEDULE

| | | |
|---|---|---|
| |  |  |
| TYPE. | A | B |
| QUANTITY | As per external elevations. | As per external elevations. |
| POSITION | As per external elevations. | As per external elevations. |
| NOTES | 1. External fly screens by Specialist:<br>-**Frame**: Outer frame consisting of two sashes, bottom sah designed to slide up in order to reach window handles,Natural anodised aluminium members.<br>-**Netting**: Mesh to be interwoven fiber glass and coated with PVC. to prevent rust and corrossion, Fixed with gasket to enable future replacement.<br>-**Fixing**: To be clipped on existing steel window on opening section only.<br>-**Accessories**: To manufactures screens.<br>-**Dementions**: To be confirmed on site prior manufacturing/ Ordering. | 1. External fly screens by Specialist:<br>-**Frame**: Outer frame consisting of three sashes, middle sash designed to slide up in order to reach window handles,Natural anodised aluminium members.<br>-**Netting**: Mesh to be made from interwoven fiber glass and coated with PVC. to prevent rust and corrossion, Fixed with gaskets to frame to enable future replacement.<br>-**Fixing**: To be clipped around the existing steel window.<br>-**Accessories**: To manufacture's specification.<br>-**Dementions**: To be confirmed on site prior manufacturing/ Ordering. |

ITEMS TO BE REPLACED

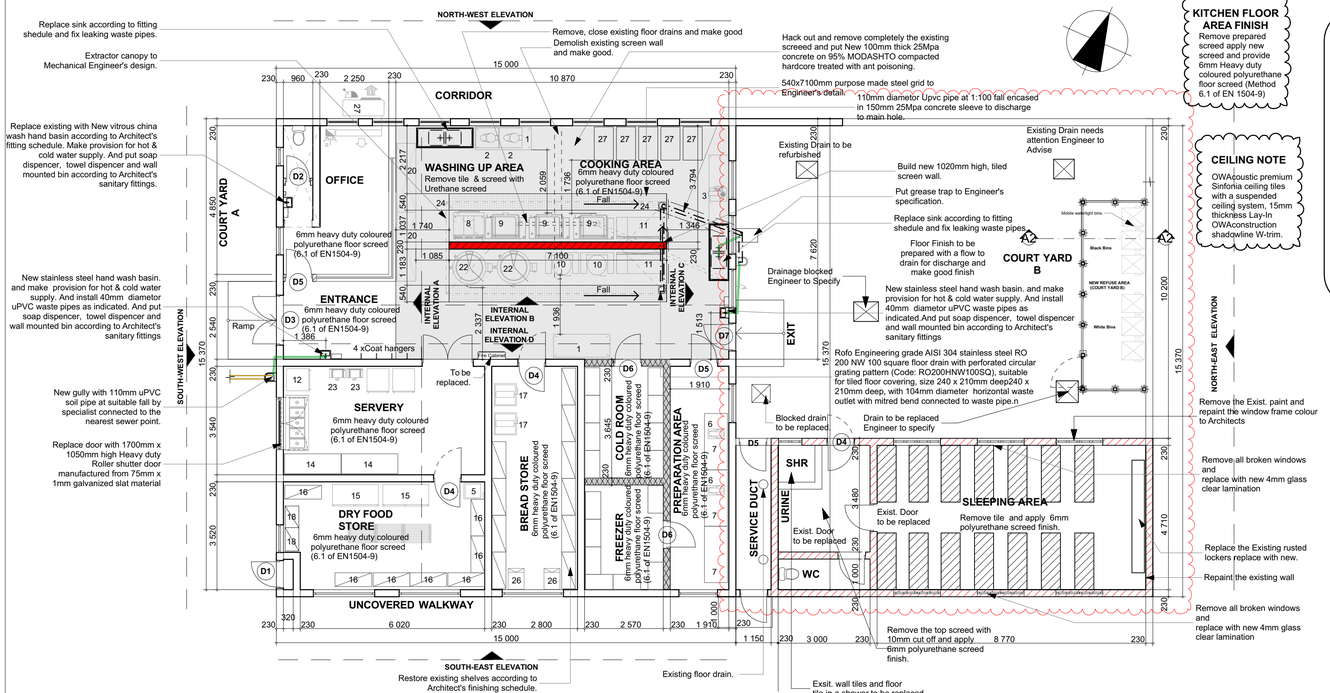
| | |
|---|---|
| 1 | Stainless Steel Table - mobile 1650 x 650 x 910mm high |
| 2 | 30kg Potato peeler |
| 3 | Band saw, pedestal bandsaw with stainless steel working surgace |
| 4 | 1850 x 650mm Stainless steel Combination sink |
| 5 | 300kg Electronic Platform Scale |
| 6 | RG-200 Vegetable Prep Machine Hallde |
| 7 | Stainless steel table with splashback 1050 x 650 x 910mm high |
| 8 | 1000 x 850 x 910mm high, 3 Solid Top Electrical Range with Oven |
| 9 | Tilting Fry Pan TP-80 |
| 10 | Tilting Boiling Pan 150et (low pressure) |
| 11 | Rational Combimaster plus Steamer 40 Pan unit Model CM202 |
| | |
| | |
| 14 | Stainless Steel Table - mobile 1840 x 650mm with galvanized undershelf |
| 15 | Fridge |
| 16 | Shelving Modular Stainless steel - dry goods |
| 17 | Bread Slicer Model B |
| 18 | Shelving Modular Stainless steel - Bread store |
| 19 | Dunnage Racks |
| 20 | 2250 x 620mm Dump Table with Flat shelf over |
| 21 | 1850 x 650mm Stainless steel Double bowl Pot sink |
| | |
| | |
| 24 | Extraction Canopy 7200mm X 3000mm X 600mm |
| 25 | Mixer -Cooking Pot |

ADDITIONAL ITEMS

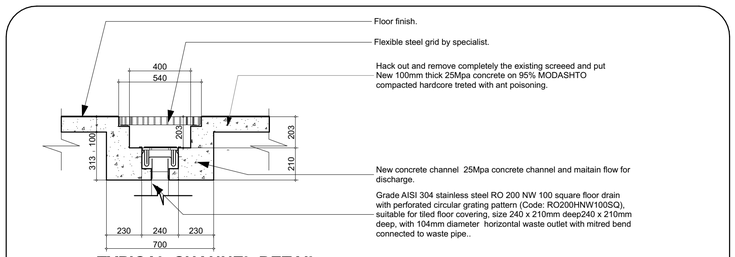
| | |
|---|---|
| 12 | Mobile Food Warming cabinet |
| 13 | 5 division - Bain marie hot cupboard |
| 22 | 350L Phutu Cooking Pot 380V 3ph 50Hz 24kW 37A |
| 23 | Water Boiler 30L |
| 26 | Dehumidifier 230V 1ph 50Hz |
| 27 | Heated Food Trolley 240V 1ph 50Hz 1kW |
| 28 | 3.5kW Midwall Split inverter aircon: 230V 1ph 50Hz |

**BUILDING AREA 234m²**

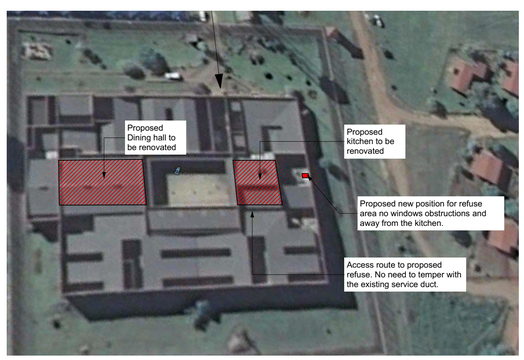
**ADDITION BUILDING AREA 203m²**




**FLOOR PLAN** SCALE:1:100




**TYPICAL CHANNEL DETAIL**
**SCALE:1:20**




**PART LOCALITY PLAN** SCALE TO FIT

0 0.5 1 2 4m

| No. | DATE | AMENDMENT | D.P.W. |
|---|---|---|---|
| | | | |

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public works

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KITCHEN UPGRADING, REPLACEMENT OF KITCHEN EQUIPMENT AS WELL AS TEMPORARY KITCHEN

THOHOYANDOU CORRECTIONAL CENTRE: MEDIUM B

WCS number: 050733

drawing title

ref.no. -
designed -
scale AS SHOWN
drawn G.N.M
date 01/2017
checked H.D.J

DPW drawing number

# ELECTRICAL DRAWINGS AND SPECIFICATIONS

PW 354

public works

Department:
Public Works
REPUBLIC OF SOUTH AFRICA

# STANDARD

# ELECTRICAL SPECIFICATIONS

## SECTION A: PREAMBLE TO STANDARD SPECIFICATIONS

## SECTION B: INSTALLATION SPECIFICATIONS

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# SECTION A

## A.1 PRE-AMBLE TO STANDARD SPECIFICATION FOR ELECTRICAL INSTALLATIONS

## GENERAL

### 1. INTRODUCTION

(a) These Standard Specifications cover the general technical requirements for the equipment, materials, installation, testing, commissioning and maintenance of electrical installations for the Department. These requirements shall be read in conjunction with the Documents as specified below.

(b) "Document" shall mean the complete set of contract documents, including the Department's Tender Conditions, Tender Qualifications, the Standard Specification and the Detail Technical Specification including all drawings and variation orders issued in terms of the contract.

(c) "Contractor" shall mean the person, partnership, company or firm appointed for the supply, installation, testing, commissioning and maintenance of the Electrical Installation. In the case of the Electrical Installation being a sub-contract, nominated in terms of the Main Contract or otherwise, the word "Contractor" shall also mean "Sub-Contractor" in terms of the Sub-Contract Conditions for the specific installation. Where applicable the Builder or Principal Contractor shall be referred to as "Main Contractor".

### 2. INSTALLATION WORK

(a) The complete installation shall comply with the requirements of this Specification. Should any discrepancies or contradictions exist between this specification and the Detail Technical Specification for the specific installation, then the latter shall take precedence.

In the event of discrepancies between the drawings, specifications and bill of quantities the Department shall decide whether the work as executed shall be remeasured on site or whether remeasurement shall be effected from the working drawings only.

(b) The Department's authorised representative will inspect the installation from time to time during the progress of the work. Discrepancies will be pointed out to the Contractor and these shall be remedied at the Contractor's expense. Under no circumstances shall these inspections relieve the Contractor of his obligations in terms of the Documents.

(c) The Contractor shall notify the Department timeously when the installation reaches important stages of completion (e.g. before closing cable trenches, before casting concrete, etc.) so that the Department's authorised representative may schedule his inspections in the best interest of all parties concerned.

### 3. REGULATIONS

(a) The installation shall be erected and tested in accordance with the Acts and Regulations as indicated in PW 379 or PW 379 (Civil) – “Standard Conditions in respect of the Supply-, Delivery and Installation of Electrical-, Mechanical-, Pneumatic- and Vacuum Operated Equipment, Control Systems, Plant and Materials”.

(b) The Contractor shall issue all notices and pay all of the required fees in respect of the installation to the authorities, and shall exempt the Department from all losses, claims, costs or expenditures which may arise as a result of the Contractor's negligence in complying with the requirements of the regulations.

(c) It shall be assumed that the Contractor is conversant with the above-mentioned requirements. Should any requirement, by-law or regulation, which contradicts the requirements of this Document, apply or become applicable during erection of the Installation, such requirement, by-law or regulation shall overrule this Document and the Contractor shall immediately inform the Department of such a

contradiction. Under no circumstances shall the Contractor carry out any variations to the installation in terms of such contradictions without obtaining the written permission to do so from the Department.

## 4. SITE CONDITIONS

Tenderers are advised to visit the site and acquaint themselves with all local conditions pertaining to the execution of the installation before tender closing date. No claims from the Contractor which may arise from insufficient knowledge of site access, type of site, labour conditions, establishment space, transport and loading/unloading facilities, power and water supply, etc. will be considered after submission of tenders.

For services where prior permission is required before contractors can visit the site, a visit will be arranged for all interested parties.

## 5. ARRANGEMENTS WITH THE SUPPLY AUTHORITY

(a) The contractor shall give all notices required by and pay all necessary fees, including any inspection fees, which may be due to the local Supply Authority unless specified to the contrary.

(b) It shall be the responsibility of the Contractor to make the necessary arrangements with the local Supply Authority at his own cost and to supply the labour, equipment and means to inspect, test and commission the installation to the satisfaction of the Local and Supply Authorities.

(c) The Contractor shall supply and install all notices and warning signs that are required by the relevant laws, regulations and/or the Documents.

## 6. MATERIAL AND EQUIPMENT

(a) All material and equipment shall conform in respect of quality, manufacture, tests and performance, with the requirements of the South African Bureau of Standards or where no such standards exist, with the relevant current Specification of the British Standards Institution.

(b) All material and equipment shall be of high quality and suitable for the conditions on site. These conditions shall include weather conditions as well as conditions under which materials are installed, stored and used. Should the materials not be suitable for use under temporary site conditions then the Contractor shall at his own cost provide suitable protection until these unfavourable site conditions cease to exist.

(c) The Contractor shall, where requested to do so, submit samples of equipment and material to the Department for approval prior to installation. Samples may be retained in the Department's possession until the contract is completed after which they will be returned.

## 7. CONNECTIONS INVOLVING ALUMINIUM (CABLES AND TRANSFORMERS)

As a result of the fact that aluminium flows when subjected to pressure and electrical connections based on this principle thus loses proper contact during the course of time, it should be noted that bolted connections between aluminium and copper or any other metal is not acceptable to this Department.

## 8. CODES OF PRACTICE OR STANDARD SPECIFICATION

Where reference is made to any Code of Practice or Standard Specification in this document the latest edition or amendment shall be applicable, except where specified to the contrary.

# SECTION B.1

## B.1 INSTALLATION AND TERMINATION OF CONDUITS AND CONDUIT ACCESSORIES

### 1. GENERAL

1.1 SCOPE

1.1.1 This section covers the installation of conduits and conduit accessories in buildings and other structures under normal environmental conditions and for system voltages up to 600 V.

1.1.2 The following types of conduit installations are included:

(a) Screwed metallic conduit - black enamelled and galvanised.

(b) Plain-end metallic conduit - black enamelled and galvanised.

(c) Non-metallic conduit.

(d) Flexible conduit.

1.1.3 Conduits may be installed as follows:

(a) In open roof spaces.

(b) Cast in concrete.

(c) Surface mounted against walls, concrete slabs, etc.

(d) In wall chases.

1.1.4 Where conduits are to be installed in concrete, this shall be undertaken while the building work is still in progress. Conduits may only be surface mounted where specified or where the Department has given its written consent.

1.1.5 Under no circumstances will conduit having a wall thickness of less than 1,6mm be allowed in screeding laid on top of concrete slabs.

1.1.6 Bending and setting of conduit must be done with special bending apparatus manufactured for the purpose and which are obtainable from the manufacturers of the conduit systems. Damage to conduit resulting from the use of incorrect bending apparatus or methods applied must on indication by the Department's inspectorate staff, be completely removed and rectified and any wiring already drawn into such damaged conduits must be completely renewed at the contractor's expense.

1.1.7 Tenderers must ensure that general approval of the proposed conduit system to be used is obtained from the local electricity supply authority prior to the submission of their tender. Under no circumstances will consideration be given by the Department to any claim submitted by the contractor, which may result from a lack of knowledge in regard to the supply authority's requirements.

1.1.8 For light and socket outlet circuits, the conduit used shall have an external diameter of 20mm. In all other instances the sizes of conduit shall be in accordance with the "Wiring Code" for the specified number and size of conductors, unless otherwise directed in part 2 of this specification or indicated on the drawings.

1.2 OTHER SERVICES

Conduits may not be installed closer than 150 mm to pipes containing gas, steam, hot water or other materials, which may damage the conduits or conductors. Conduits may not touch pipes of other service installations in order to prevent electrolytic corrosion. Where this is unavoidable, cathodic protection shall be provided.

Conduit and conduit accessories used for flame-proof or explosion proof installations and for the suspension of luminaries as well as all load bearing conduit shall in all instances be of the metallic screwed type.

## 2. SCREWED METALLIC CONDUIT

2.1 GENERAL

2.1.1 In general, screwed steel conduit shall be used in the wiring of buildings.

2.1.2 The installation shall comply with SANS 10142.

2.2 GALVANISED CONDUIT

Galvanised conduit and accessories shall be used in the following:

(a) In damp areas.
(b) In areas exposed to the weather.
(c) For all installations within 50 km of the coast.
(d) In plenum chambers containing humidifying equipment.
(e) For surface mounted conduit installations in kitchens and boiler rooms.
(f) In screeds resting directly on soil.
(g) For connection points to future installations.
(h) For underground conduit containing earthing conductors.
(I) In buildings where animals are housed such as cattle, sheep, dogs, etc.

2.3 TERMINATIONS

2.3.1 Spouted Connections.

Conduits shall be connected directly to draw-boxes with spouted connections. Conduits shall be screwed tightly home and no threads shall be visible.

2.3.2 Switchboards, Power skirting, etc.

Conduits shall be terminated by means of a brass female bush and two locknuts in pressed steel switchboards and distribution boxes, cable ducts, power skirting, etc. The conduit end shall only project far enough through the entry hole to accommodate the bush and locknut. Alternatively the method detailed in 2.3.3 may be used.

2.3.3 Draw-boxes.

A female bush and two locknuts shall be used to terminate conduits at draw-boxes and outlet boxes without spouts, should there be sufficient room in the box. Where there is insufficient room, a coupling, brass male bush and locknut may be used with sufficient allowance for the reduction of the internal diameter by the male bush.

2.3.4 Holes.

Holes to accommodate brass bushes shall be large enough to accommodate the bush with a minimum of clearance.

2.3.5 Bush-nuts.

Bush-nuts for the connection of earth conductors to conduits are not acceptable.

2.4 SCREWS, BOLTS AND NUTS

Steel locknuts of thick gauge steel with milled sides shall be used in all cases. Cadmium-plated bolts and nuts shall be used except where the installation is exposed to the weather in which case brass bolts and nuts shall be used. Screws shall be installed in all tapped holes in fittings and accessories to prevent damage to the screw thread by concrete or plaster. The screws shall be screwed completely down to prevent damage to the thread on the screw.

2.5 CONDUIT ENDS

Conduit ends shall be cut at right angles to ensure that ends butt squarely at joints. Threads shall not be visible at joints and connections except at running joints. The total length of the thread on the two conduit ends shall not exceed the length of the coupling.

2.6 JOINTS

All conduit ends shall be reamed and all joints tightly screwed. Only approved couplings shall be used. Running joints with long threads shall be kept to a minimum and locknuts shall be provided to ensure a strong mechanical and a continuous electrical joint. Running joints in screwed conduit are to be avoided as far as possible and all conduit systems shall be set or bent to the required angles. The use of normal bends must be kept to a minimum with exception of larger diameter conduits where the use of such bends is essential.

2.7 FINISH

All joints shall be painted with red lead to prevent them from rusting in damp areas, areas within 50 km of the coast and in cases where the installation is exposed to the weather for any length of time. Where the galvanising or black paint has been damaged, the area shall first be cleaned and a coat of zinc base paint applied subsequently. Additional coats of paint shall only be applied after the undercoat has completely dried. All surface mounted non-galvanised metallic conduit must be painted. (Refer to par. 8.8 of Section B1).

2.8 CONTINUITY

Mechanical and electrical continuity shall be maintained throughout the conduit installation.

## 3. PLAIN-END METALLIC CONDUIT

As an alternative to the screwed conduit, plain-end conduit complying with the Department's standard specification for "CONDUITS AND CONDUIT ACCESSORIES", par. 7 of Section CI, may be installed subject to the following additional conditions:

3.1 Bending and setting of plain-end conduit must be done with special benders and apparatus manufactured for this purpose and which are obtainable from the suppliers of the system. Damaged conduit resulting from the use of incorrect bending apparatus shall be completely removed and any wiring already drawn into such damaged conduits shall be completely renewed at the Contractor's expense.

3.2 Screwed conduit must be used in the following instances:

(a) In flameproof installations.
(b) Load bearing conduit.
(c) For the suspension of luminaries.
(d) Surface mounted conduit.

3.3 Plain-end conduit and associated accessories shall be manufactured of mild steel having a minimum thickness of 1,2 mm and shall comply with SANS 1065. Conduit manufactured of lighter gauge material, i.e. 0,97 mm, will not be permitted.

3.4 All conduit and accessories used in areas within 50 km of the coast shall be hot-dip galvanised to SANS 32 & 121. In inland areas Electro-galvanised or cadmium-plated accessories will be accepted.

## 4. NON-METALLIC CONDUIT

4.1 INSTALLATION CONDITIONS

Where specified for a particular service, non-metallic conduit may be installed under the following conditions:

4.1.1 All non-metallic conduit shall comply fully with SANS 950 and shall be installed in accordance with Appendix C of the same specification as well as SANS 10142.

4.1.2 Insulated heat-resistant boxes shall be used for outlets of totally enclosed luminaries and other fittings where excessive temperatures are likely to occur.

4.1.3 Luminaries and other fittings shall not be supported by non-metallic conduit or conduit boxes. These fittings shall be secured to the surrounding structure in a way that is acceptable to the Department. Refer to the Department's standard specification for "INSTALLATION OF LUMINAIRES", Section B9.

4.1.4 The conduit shall be supported and fixed with saddles with a maximum spacing of 1 m, even in roof spaces. (Refer to SANS 10142.) The Contractor shall supply and install all additional supporting timbers required.

4.1.5 It shall be possible to rewire the completed installation in the future without undue difficulty.

4.1.6 Non-metallic conduit and fittings shall not be used under the following conditions:

(a) Outside a building (unless protected, or sheltered under eaves).

(b) For mechanical load bearing.

(c) Where they may be subjected to temperatures below -10°C or above 70°C for prolonged periods.

(d) As primary electrical insulation.

(e) In areas where they may be subject to mechanical damage.

(f) For applications other than those for which they are designed.

(g) In concrete slab unless specified to the contrary.

4.2 PAINTING OF CONDUITS

Exposed conduit may be painted with normal oil or PVA paints, but care must be taken to ensure that the paint used does not contain any component that will soften or have any other detrimental effect on the materials from which the conduit and fittings are manufactured.

4.3 CONNECTING OF CONDUIT TO METAL EQUIPMENT/COMPONENTS

When any part of a non-metallic conduit system has to be connected to metal equipment or components (e.g. switchboard, surface socket-outlet or switch box, existing metallic conduit system, etc.) fittings and joints manufactured specifically for this purpose must be used. Non-metallic conduit must not be threaded to fit metallic connectors.

4.4 BENDS

In conduit of nominal size not exceeding 25 mm, bends may be made in accordance with par. 4.5. In all other cases bends must be achieved by the use of accessories that are introduced into the conduit run. Bends shall comply with SANS 10142.

4.5 BENDING

Conduit of nominal size up to and including 25mm may be cold bent by hand provided that the radius of the bend is greater than six times the nominal size of the conduit, and that the external angle of the bend does not exceed 90°. The procedure (which involves the use of a bending spring) should be as follows:

(a) Determine the angle through which the conduit is to be bent.

(b) Warm the cold conduit over the length to be bent by rubbing with hands.

(c) Select a bending spring which matches the conduit size and insert in to the conduit at the point where the bend is required.

(d) Bend the conduit slowly with one motion (either with the hands alone approximately 1 m apart, or across the knee) to double the required angle, release the conduit and, when its position is stable, withdraw the bending spring (turning it in an anti-clockwise direction to reduce its diameter) and gently correct the angle.

(e) Install and secure the conduit immediately following bending.

4.6 ADHESIVE JOINTS

All adhesive joints must be made in a clean dry area. The surfaces of all components to be bonded must be dry and clean.

The insertion depth should be marked on the conduit end and the adhesive applied (by means of a soft clean brush) as quickly as possible to the surfaces to be bonded by brushing lengthwise along the conduit, ensuring that a thin coating of uniform thickness is formed. The joint must be made immediately after the application of the adhesive by pushing the prepared parts squarely together with a twisting motion to the full insertion depth. Care must be taken to avoid squeezing adhesive into the cableway and all excess adhesive must be wiped off.

NOTE: Solvent adhesives contain highly volatile liquids and their containers should not be left open.

4.7 Cutting

A fine-tooth hacksaw should be used to cut conduit to the required length. Each cut end should be square and free from swarf, burrs and loose material. When determining the length of conduit to be cut, allowance must be made for the length of couplings or accessories attached to the conduit. Incorrect determination will cause bulging of the conduit or insufficient joint length.

## 5. FLEXIBLE CONDUIT

5.1 In installations where the equipment has to be moved frequently to enable adjustment during normal operation, for the connection of motors or any other vibrating equipment, for the connection of thermostats and sensors on equipment, for stove connections and where otherwise required by the Department, flexible conduit shall be used for the final connection to the equipment.

5.2 The installation shall comply with SANS 10142.

5.3 Flexible conduit shall preferably be connected to the remainder of the installation by means of a draw-box. The flexible conduit may be connected directly to the end of a conduit if an existing draw-box is available within 2 m of the junction and if the flexible conduit can easily be rewired.

5.4 Flexible conduit shall consist of metal-reinforced plastic conduit or PVC-covered metal conduit with an internal diameter of at least 15mm, unless approved to the contrary. In false ceiling voids, flexible conduit of galvanised steel construction may be used. Connectors for coupling to the flexible conduit shall be of the gland or screw-in type, manufactured of either brass or mild steel plated with either zinc or cadmium.

## 6. INSTALLATION REQUIREMENTS

### 6.1 POSITIONS OF OUTLETS

All accessories such as boxes for socket-outlets, switches, lights, etc. shall be accurately positioned. It is the responsibility of the Contractor to ensure that all outlets are installed level and square, at the correct height from the floor, ceiling or roof level and in the correct position relative to building lines and equipment positions as specified. It shall be the responsibility of the Contractor to determine the correct final floor, ceiling and roof levels in conjunction with the Main Contractor. Draw-boxes shall not be installed in positions where they will be inaccessible after completion of the installation. Draw-boxes shall be installed in inconspicuous positions to the approval of the Department's representative and shall be indicated on the "as built" drawings.

### 6.2 COVER PLATES

All draw-boxes and outlets shall be fitted with cover plates, either as part of the switch or socket assembly or with blank cover plates if unused. Blank cover plates shall match other cover plates in the same area. Flush mounted cover plates in both ceilings and walls shall overlap the draw-box and edges of the recess. If the fixing lugs are substantially deeper than the finished wall surfaces, suitable coiled steel wire or tubes shall be used as spacers.

### 6.3 DRAW-WIRES

Galvanised steel draw-wires shall be installed in all unwired conduits e.g. conduits for future extensions, telephone installations and other services.

### 6.4 BENDS

A maximum of two 90 bends or the equivalent displacement will be allowed between outlets and/or boxes.

Draw-boxes shall be installed at maximum intervals of 15 m in straight runs. All bends shall be made without heating the conduit or without reducing the diameter of the conduit. The inside radius of a bend shall not be less than five times the outside diameter of the conduit. (Refer to SANS 10142,

### 6.5 WALL SOCKET-OUTLETS

Where more than one socket-outlet is connected to the same circuit, the conduit shall be looped from one outlet box to the following on the same circuit. Where a metal channel is used, the conduit may be installed from the channel directly to the outlet box on condition that the conductors can be looped from one outlet to the next without making any joints in the wires.

### 6.6 LUMINAIRES

Where the conduit end is used to support luminaries, a ball-and socket type lid shall be fitted to the pendant box in all cases where the conduit is longer than 500 mm. In all other cases a dome lid may be used. Where luminaries are specified which are fixed directly to the pendant box, the pendant box shall be fixed independently of the conduit installation except where the pendant box is cast into concrete.

### 6.7 FLUSH MOUNTED OUTLET BOXES

The edges of flush mounted outlet boxes shall not be deeper than 10 mm from the final surface. Spacer springs shall be used under screws where necessary.

### 6.8 EXCESS HOLES

All excess holes in draw-boxes or other conduit accessories shall be securely blanked off by means of brass plugs to render the installation vermin proof.

### 6.9 DEBRIS

Care shall be taken to prevent debris or moisture from entering conduits during and after installation. Conduit ends shall be sealed by means of a solid plug which shall be screwed to the conduit end. Conduits shall be cleaned and swabbed to remove oil, moisture or other debris that may be present before conductors are installed. Swabs shall not be attached to the conductors.

6.10 Defects

Each length of conduit shall be inspected for defects and all burrs shall be removed. All conduits that are split, dented or otherwise damaged or any conduits with sharp internal edges shall be removed from site. The Contractor shall ensure that conduits are not blocked.

6.11 WITHDRAWAL OF CONDUCTORS

To ensure that all electrical conductors are easily withdrawable from conduits and to ensure that there are no joints in the conductors, the Department's representative will have the right to have the conductors of any circuit removed at his discretion. If the conductors are found to be in a satisfactory condition after having been withdrawn, the Department shall bear the cost of withdrawing and re-installing such conductors. If the conductors are found to have been damaged during installation or removal or if joints are found, they shall be replaced and the cost shall be borne by the Contractor.

## 7. INSTALLATION IN CONCRETE

7.1 TIMEOUS INSTALLATION

In order not to delay building operations, the Contractor shall ensure that all conduits and accessories which are to be cast in concrete are placed in position in good time. The Contractor or his representative shall be in attendance when the concrete is cast.

7.2 DRAW-BOXES

Draw-boxes, expansion joints and round ceiling boxes shall be installed where required and shall be neatly finished to match the finished slab and wall surfaces. Ceiling draw-boxes shall be of the deep type. In hollow block slabs, rear-entry draw-boxes shall be used. In columns where flush mounted draw-boxes are installed, the conduits shall be offset from the surface of the column immediately after leaving the draw-box.

7.3 ELBOWS

Elbows for conduits of 32mm dia. and smaller and sharp bends will not be allowed in concrete slabs.

7.4 COVER PLATES

Draw-boxes and/or inspection boxes shall, where possible, be grouped together under a common approved cover plate, and must preferably installed in passages or male toilets. The cover plate shall be secured by means of screws.

7.5 NEUTRAL AXIS

All conduits shall be installed as close as possible to the neutral axis of concrete beams, slabs and columns. The conduits shall be rigidly secured to the reinforcing to prevent movement towards the surface of the concrete.

7.6 FIXING TO THE SHUTTERING

All conduits, draw-boxes etc. shall be securely fixed to the shuttering to prevent displacement when concrete is cast. Draw-boxes and outlet boxes shall preferably be secured by means of a bolt and nut installed from the back of the box through the shuttering. Fixing lugs may also be used to screw the boxes to the shuttering. Wire will not be accepted for securing boxes to the shuttering where off-shutter finishes are required. Where fibreglass shuttering is used by the Builder, the equipment shall be fixed to the steel only

and no holes shall be drilled or made in shuttering. All draw-boxes and outlet boxes shall be plugged with wet paper before they are secured to the shuttering.

Before any concrete slabs are cast, all conduit droppers to switchboards shall be neatly spaced and rigidly fixed.

### 7.7 CONCRETE FLOOR SLABS

Conduits will not be allowed in concrete floor slabs of boiler rooms (or boiler houses), laundries or other damp areas. All socket outlets and three phase outlets in damp areas shall be supplied from above with galvanised conduit and accessories.

### 7.8 EXPANSION JOINTS

As far as possible, conduits shall not be installed across expansion joints. Where this is unavoidable a conduit expansion joint shall be provided. (Refer to par. 10)

### 7.9 SCREEDS

The installation of conduits in floor screeds shall be kept to a minimum. Where conduits are installed in screeds, the top of the conduit shall be at least 20 mm below the surface of the screed. Where the screed is laid directly on the ground, galvanised conduits shall be used. This ruling will always be applicable to the lowest floor of a building. A minimum distance of twice the outside diameter of the conduit shall be left free between adjoining conduits. Conduits shall be secured to the concrete slab at intervals not exceeding 2 m. The Contractor shall ensure that conduits are not visible above the screed where the conduits leave the screed.

### 7.10 INSPECTION

All draw-boxes, conduits, etc. which are installed in concrete shall be cleaned with compressed air and provided with draw-wires two days after removal of the shuttering. Errors that occurred during the installation of the conduits, or any lost draw-boxes, or blocked conduits shall be immediately reported to the Department by telephone and confirmed in writing in order that an alternative route can be planned and approved by the Department before the additional concrete is cast. Any additional cost shall be for the Contractor's account.

## 8. SURFACE INSTALLATIONS AND INSTALLATIONS IN ROOF SPACES

Wherever possible, the conduit installation is to be concealed in the building work; however, where unavoidable or otherwise specified, conduit installed on the surface must be plumbed or levelled and only straight lengths shall be used.

### 8.1 APPEARANCE

(a) All conduits shall be installed horizontally or vertically as determined by the route and the Contractor shall take all measures to ensure a neat installation.

(b) Where conduits are to be installed directly alongside door frames, beams, etc. that are not true, conduits shall be installed parallel to the frames, beams, etc.

(c) All labels shall be removed from surface mounted conduit.

### 8.2 SADDLES

Conduits shall be firmly secured by means of saddles and screws and in accordance with SANS 10142. Where saddles are used to secure vertical lengths of conduit connected to surface mounted switch boxes or socket outlet boxes, the saddles shall be spaced so that the intervals between the box and the first saddle, between any two successive saddles and between the last saddle and the ceiling or roof are equidistant. Conduits shall be secured within 150 mm before and after each 90° bend and within 100mm of each outlet box.

8.3 JOINTS

Joints will only be allowed in surface conduit lengths exceeding 3,5 m. Threads shall not be visible at joints of completed installations, except where running joints are used. Running joints will be allowed only when absolutely necessary. All running joints shall be provided with locknuts and shall be painted with red lead immediately after installation.

8.4 ACCESSORIES

Inspection bends or tee pieces shall not be used. Non-inspection type bends may be used in the case of 32mm or 50 mm diameter conduits. All draw-boxes supporting luminaries or other equipment shall be fixed independently of the conduit installation.

8.5 OFFSETS

Where an offset is required at conduit terminations or crossovers, the conduit shall be saddled at the offset.

8.6 CROSS-OVER

Conduit routes shall be carefully planned to avoid crossovers. Where a crossover is inevitable, one conduit only shall be offset to cross the other. Crossovers shall be as short as possible and shall be uniform. Alternatively, crossovers shall be installed in purpose-made boxes. This method shall be employed on face brick walls and in other circumstances where required by the Department.

8.7 PARALLEL CONDUIT

Parallel conduit runs shall be equidistant and saddles shall be installed in line. Alternatively, a special clamp may be used to secure all conduits in unison. In the case of conduits of different diameters, the latter method shall only be used if a purpose-made clamp designed to accommodate the various conduit sizes, is provided.

8.8 PAINTING OF CONDUIT

All surface mounted conduits and accessories shall be painted with two coats of a high quality enamel paint or as otherwise specified. The colour shall comply with the colour code specified for the installation or where no code has been specified, shall match the colour of the surrounding finishes.

8.9 CONDUIT IN ROOF SPACES

8.9.1 In open roof spaces (no ceiling) conduits shall run along the wall plates and the rafters. The installation of conduits suspended between the rafters is not acceptable.

8.9.2 Conduit in roof spaces shall be installed parallel or at right angles to the roof members and shall be secured at intervals not exceeding 1,5 m by means of saddles screwed to the roof timbers for metallic conduit and 1m for non-metallic conduit.

8.9.3 Nails or crampets will not be allowed.

8.9.4 Under flat roofs in false ceilings or where there is less than 900 mm clearance, or in instances where the ceilings are insulated with glass-wool or other insulating material impeding access, the conduit shall be installed in a manner which allows for wiring from below the ceilings.

8.9.5 Conduit runs from switchboards shall terminate in fabricated sheet steel draw-boxes installed directly above or in close proximity to the boards. Refer to the Department's standard specification for "CONNECTIONS TO SWITCHBOARDS", par. 2 of Section B10.

8.9.6 Spare conduits covering the total number of spare ways on switchboards, shall be provided between the boards and the roof draw-box.

8.9.7 Where non-metallic conduit has been specified for a particular service, the conduit shall be supported and fixed with saddles with a maximum spacing of 450mm throughout the installation. The contractor shall supply and install all additional supporting timbers in the roof space as required.

8.10 FIXING TO WALLS

Only approved plugging materials such as aluminium inserts, fibre plugs or plastic plugs, etc., and round-head screws shall be used when fixing saddles, switches, plugs etc. to walls. Wood plugs are not acceptable nor should plugs be installed in joints in brick walls.

## 9. FUTURE EXTENSIONS

9.1 OPEN ROOF SPACES

Conduits intended for future switches and socket outlets, shall terminate 40 mm above the tie beams in roof spaces with more than 900 mm free space. The conduit ends shall be threaded and fitted with a coupling and brass plug.

9.2 CONCRETE SLABS

Conduit ends shall protrude 150 mm from the concrete to facilitate the installation of future extensions above, below or to the side of the concrete slabs. All these conduits shall be connected to a draw-box, which is cast into the concrete within 2 m of the end of the concrete. Conduit ends shall be threaded and fitted with a coupling and brass plug. In cases where holes cannot be drilled through the shuttering to accommodate the conduit end, a deep draw-box with rear entry may be placed over the conduit end.

9.3 COVER PLATES

Unused boxes for switches and socket-outlets shall be covered with metal cover plates. Unused boxes for luminaries shall be covered with round galvanised metal cover plates, which fit tightly against the finished surface. The cover plate shall overlap the outlet box and recess.

9.4 GALVANISED CONDUIT

Galvanised conduit shall be installed at all free ends intended for future extensions. The conduit shall be treated with a paint, which will prevent corrosion and white rust.

## 10. EXPANSION JOINTS

10.1 Where conduits cross expansion joints in the structure, approved draw-boxes which provide a flexible connection in the conduit installation shall be installed. Refer to the Department's standard drawing No EE3/136/139.

10.2 The draw-box shall be installed adjacent to the expansion joint of the structure and a conduit sleeve, one size larger than that specified for the circuit, shall be provided on the side of the draw-box nearest the joint. The one end of the sleeve shall terminate at the edge of the joint and the other shall be secured to the draw-box by means of locknuts.

10.3 The circuit conduit passing through the sleeve shall be terminated 40 mm inside the draw-box and in the case of metallic conduit, the conduit end shall be fitted with a brass bush. The gap between the sleeve and the conduit at the joint shall be sealed with 'Pratley Tic-Tac' or equal sealing compound, to prevent the ingress of wet cement. In the case of metallic conduit, an earth clip shall be fitted to the conduit projection inside the draw-box and the conduit bonded to the box by means of 2,5mm2 bare copper earth wire and a brass bolt and nut.

10.4 The end of the other circuit conduit shall be secured to the draw-box by means of locknuts and a brass bush in the case of screwed metallic conduit or a standard bushed adaptor for other conduit types.

10.5 In the case of metallic conduit, a 2,5mm$^2$ bare copper wire shall be installed between the first conduit boxes on either side of the joint, in addition to an earth wire, which may be specified for the circuit. The conduit boxes shall be drilled and tapped and the earth wire shall be bonded to the boxes by means of lugs and brass screws.

10.6 Suitable steel cover plates shall be screwed to draw-boxes installed along the expansion joint. The cover plates shall be installed before the ceilings are painted.

10.7 Where a number of conduits are installed in parallel they shall cross the expansion joint of the structure via a single draw-box. A number of draw-boxes adjacent to each other will not be allowed.

## 11. CHASES AND BUILDER'S WORK

11.1 Except where otherwise specified the Builder or Main Contractor shall be responsible for the builder's work related to the installation of conduits, outlet boxes, switchboard trays, bonding trays and other wall outlet boxes and will undertake the necessary chasing and cutting of walls and the provision of openings in ceilings and floors for luminaries and other electrical outlets. The Contractor shall notify the Builder or Main Contractor of his requirements and the responsibility lies with the Contractor to ensure that all builder's work is clearly indicated or marked in accordance with his requirements.

11.2 Electrical materials to be built in must be supplied, placed and fixed in position by the Contractor when required to do so by the Builder or Main Contractor. The Contractor shall also ensure that these materials are installed in the correct positions.

11.3 Where no Builder or Main Contractor is available, the Contractor must provide all chases and is required to cover conduits installed in chases by a layer of 4:1 mixture of coarse sand and cement, finished 6 mm below the face of the plaster and roughened. Chases shall be deep enough to ensure that the top of conduits are at least 12 mm below the finished surface of the plaster.

11.4 Where the Contractor is responsible for the cutting of chases or the building in of conduits and other equipment, he will be held responsible for all damage as a result of this work and will be required to make good to the satisfaction of the Department.

This ruling is particularly applicable but not exclusively to the rewiring and renewal of existing installations. Chases shall be made by means of a cutting machine.

11.5 Under no circumstances shall face brick walls or finished surfaces be chased or cut without the written permission of the Department. Where it is necessary to cut or drill holes in the concrete structure, the prior permission of the Department shall be obtained.

# SECTION B2

## B2. INSTALLATION OF WIRING CHANNELS, UNDERFLOOR DUCTING AND POWER SKIRTING

## 1. RESPONSIBILITY OF THE CONTRACTOR

The Contractor shall supply and install all wiring channels, underfloor ducting and power skirting as specified or as required for the cable, socket outlet and wiring installation including the necessary supports, hangers, fixing materials, bends, angles, junctions, T-pieces, etc. He shall further liaise with the Main contractor to verify the position of holes and access routes through the structure and finishes.

(Refer to the Department's quality specification for "WIRING CHANNELS, UNDERFLOOR DUCTING AND POWER SKIRTING", Section C2 to determine which types are acceptable).

## 2. WIRING CHANNELS

### 2.1 FIXING

The Contractor shall supply and install all hangers, supports or fixings for the channels. Channels up to and including 76 x 76 mm shall be supported at maximum intervals of 600 mm and larger channels at maximum intervals of 1 m. Channel runs shall be carefully planned to avoid clashes with other services and to ensure that all covers can be removed after completion of the entire installation. Purpose made clamps, hangers, etc. shall be used as required. Where it is not possible to support the channels at the specified intervals, they shall be supported in a sound manner to the satisfaction of the Department.

### 2.2 INSTALLATION IN CONCRETE

Where channels are cast into concrete, the insert type shall be used. Additional spacer blocks shall be used where necessary to prevent ducts from being deformed while the concrete is cast. Channels shall be filled with polystyrene or other suitable fillers to prevent the ingress of concrete and shall be securely fixed in position to the shuttering.

### 2.3 COVER PLATES

All channels up to and including 127mm width shall have snap-in cover plates of metal or PVC. Cover plates for wider channels shall be of metal and shall be fixed by means of screws at suitable intervals to prevent warping. Cover plates shall be installed over the full length of the channels. Flush mounted wiring channels shall be fitted with overlapping metal cover plates with plastic edge trim to cover irregularities in the wall recess.

### 2.4 JOINTS

Adjoining lengths shall be aligned and securely joined by means of fishplates fixed by mushroom bolts, washers and nuts or connection pieces that are pop-riveted to both adjoining sections. All adjoining sections shall be rectangular and shall butt tightly. Covers shall fit tightly across the joints.

Where channels cross expansion joints in the structure, suitable expansion joints shall be provided in the channels by means of fishplates pop-riveted or screwed to the channel on one side of the expansion joint and floating freely in the channel on the other side of the expansion joint.

### 2.5 SUPPORT FOR CONDUCTORS

All conductors in inverted cable channels shall be retained by means of metal clips or metal spacer bars at not more than 1m centres. Where vertical duct lengths exceed 5m, conductors installed in the channels shall be secured at intervals not exceeding 5m to support the weight of the conductors. Clamps shall be provided in suitable draw-boxes for this purpose.

2.6 CONDUIT CONNECTIONS

Conduit connections shall be terminated by means of two locknuts and a brass female bush. Where the channel is wide enough, conduit connections may be made by means of a conduit box and hole through the back or side of the channel. All holes through which conductors pass shall be fitted with bushes or grommets or shall be sleeved.

2.7 INTERNAL FINISHES

Bends and T-joints shall be constructed to ensure compliance with the allowable bending radii specified in SANS 10142, Appendix D in the case of PVC-insulated cables and conductors and shall comply with the relevant specification in the case of other cables. Burrs and sharp edges shall be removed and the inside edges of the joints shall be lined with rubber cement or other suitable rubberised or plastic compound to prevent laceration of the conductor insulation.

2.8 VERMIN PROOFING

All cable channels shall be vermin proofed after installation. Holes shall be covered by means of screwed metal plugs or by means of metal strips, which are bolted, or pop-riveted to the channel. Wooden or other plugs which are driven into holes or other temporary plugs or covers are not acceptable.

2.9 SERVICES

Multiple duct runs or internal metal partitions shall be used where conductors for power, control, communication and other services are present.

# SECTION B3

## B.3 INSTALLATION OF CABLE TRAYS AND LADDERS

### 1. GENERAL

Cable trays and cable ladders complying with the Department's standard specification for "CABLE TRAYS AND LADDERS", Section C3 shall be supplied and installed where specified and/or where generally suitable for cable distribution.

### 2. RESPONSIBILITY OF THE CONTRACTOR

The Contractor shall supply and install all cable trays and/or ladders as specified or as required by the cable routes including the necessary supports, clamps, hangers, fixing materials, bends, angles, junctions, reducers, T-pieces etc. He shall further liaise with the Main Contractor for the provision of holes and access through the structure and finishes.

### 3. SUPPORTS

Cable tray supports shall consist of two steel hangar rods, at least 8mm in diameter, on both sides of the tray with a substantial steel cross-member on the underside of the tray and bolted to the rods. Alternatively, cable trays may be cantilevered from walls on suitable brackets.

### 4. SPACING OF HORIZONTAL SUPPORTS

4.1 Horizontal trays shall be supported at the following maximum intervals:

(a) 1,2 mm to 1,6 mm thick metal with 12mm to 19 mm return trays. 1m maximum spacing

(b) 2,5 mm thick metal trays with 76 mm return 1,5m spacing.

(c) Cable ladders with 76mm side rail of 2mm thickness and with crossrungs.

| | | |
|---|---|---|
| | | 1,5m spacing |
| (d) | Metal cable ladders other than c) above, including site manufactured angle iron types | 1m spacing |
| (e) | 3 mm thick PVC trays with 40mm return. | 1m maximum spacing |
| (f) | 4 mm thick PVC trays with 60mm return | 1,5m maximum spacing |

4.2 In addition to the above spacing on the longitudinal run, trays and ladders shall be supported at each bend, offset and T-junction.

## 5. JOINTS

5.1 Joints shall be smooth and without projections or rough edges that may damage the cables. The Contractor will be required to cover joints with rubber cement or other non-hardening rubberised or plastic compounds if in the opinion of the Department joints may damage cables.

5.2 Joints shall as far as possible be arranged to fall on supports. Where joints do not coincide with supports, joints shall be made by means of wrap-around splices of the same material as the tray and at least 450mm long. The two cable tray ends shall butt tightly at the centre of the splice and the splice shall be bolted to each cable tray be means of at least 8 round head bolts, nuts and washers. Splices shall have the same finish as the rest of the tray.

5.3 Splices as described above shall be provided at joints, which do coincide with supports if the loaded tray sags adjacent to the joint due to the interruption of the bending moment in the tray.

## 6. FIXING TO SUPPORTS

Trays shall be bolted to supports by at least two round head bolts per support. Bolts shall be securely tightened against the tray surface to avoid projections which might damage cables during installation.

## 7. FIXING TO THE STRUCTURE

7.1 Where installed on concrete or brick, the supports for cable trays and ladders shall be securely fixed by means of at least 2 heavy duty, expansion type anchor bolts. Cantilevered trays shall be supported by a minimum of two 6mm diameter expansion bolts per support.

7.2 It is the responsibility of the Contractor to ensure that adequate fixing is provided since cable trays and ladders that work loose shall be rectified at his expense. The fixing shall take into account site conditions that prevail during installation.

7.3 Where installed on vertical steelwork, cable trays and ladders shall be fixed by means of 6mm diameter bolts and nuts.

7.4 On horizontal steelwork, use may alternatively be made of "CADDY" type fasteners.

7.5 Horizontal trays and ladders shall in general be installed 450 mm below slabs, ceilings, etc. to facilitate access during installation of cables.

7.6 Multiple runs shall be spaced at least 300 mm apart unless a different spacing is specified in the Detail Technical Specification.

## 8. INSTALLATION OF CABLES

Cables shall be installed adjacent and parallel to each other on the trays with spacings as specified in the Department's standard specification for "INSTALLATION OF CABLES", Section B6, and snaked slightly to allow for expansion. Cables shall present a neat appearance and shall under no circumstances be bunched. Cables shall be clamped at maximum intervals of 3 m when installed on horizontal trays and at maximum intervals of 600 mm when installed on vertical trays.

## 9. EARTHING

Metal trays and ladders shall be bonded to the earth bar of the switchboard to which the cables are connected. Additional bare copper stranded conductors or copper tape shall be bolted to the tray or ladder where the electrical continuity cannot be guaranteed. These additional conductors or tapes shall always be installed in outdoor applications and in coastal regions.

## 10. CORROSION

PVC trays shall be used in corrosive atmospheres. All supports shall be adequately protected against corrosion, preferably with a powder coated paint finish in accordance with the Department's "STANDARD PAINT SPECIFICATION", Section C39.

# SECTION B4

## B.4 FIXING MATERIALS

### 1. RESPONSIBILITY

It is the responsibility of the Contractor to position and securely fix conduits, ducts, cables and cable channels, switchboards, fittings and all other equipment or accessories as required for the Installation. The Contractor shall provide and fix all supports, clamps, brackets, hangers and other fixing materials.

### 2. FINISHING

All unpainted supporting steelwork installed by the Contractor shall be wire brushed and given one coat of rust-resisting primer, followed by one coat of high quality enamel paint before any other equipment is fixed.

### 3. STRUCTURAL STEEL

Supports, brackets, hangers, etc. may only be welded to structural steel members where prior permission of the Department has been obtained. "CADDY" or similar fasteners may be used to fix equipment to structural steel members.

### 4. SCREWS AND BOLTS

Where holes exist in equipment to be fixed, bolts and fixing screws as specified shall be used. Where sizes are not specified, the largest bolt or screw that will fit into the hole shall be used.

### 5. WALL PLUGS

Where the fixing holes in brick or concrete walls are smaller than 10mm dia. and where the mass of the equipment is less than 10kg, wall plugs may be used to fix conduits, cables and other equipment. Fibre or plastic plugs shall be used. Wooden Plugs are not acceptable. Aluminium plugs may be used in face bricks. Plugs installed in joints between bricks are not acceptable. A masonry drill of the correct size shall be used to drill holes for plugs. Round-headed screws of the correct diameter to match the specific plug shall be used throughout.

### 6. ANCHOR BOLTS

Where the fixing holes are 10mm and larger or where the mass of the equipment is 10kg, equipment shall be fixed by means of expanding anchor bolts or by means of bolts cast into the concrete or built into walls.

### 7. GALVANISED EQUIPMENT

Brass screws bolts and nuts shall be used to fix galvanised equipment.

### 8. SHOT-FIRED FIXING

8.1 Materials such as metal cable ducts or channels may be fixed against walls and concrete slabs by means of the shot-fired fixings.

8.2 The Contractor shall ascertain whether this method of fixing will carry the weight of the material including conductors, cables and other items of equipment to be installed later. Should it be found that the method of fixing is inadequate and supports tend to loosen, the Contractor will be required to fix the material by an alternative method to the satisfaction of the department.

8.3 Where the shot-fired method is used, warning signs shall be placed at all entrances leading to the area where this work is in progress. The Contractor shall take all reasonable precautions to prevent accidents. Refer also to The Occupational Health and Safety Act.

8.4 Nails and explosive charges recommended by the manufacturer shall be used throughout.

## 9. CLAMPS AND BRACKETS

Clamps and brackets used to fix or support equipment such as cable trays, ducts, etc. shall be of a purpose-made type suitable for the specific application. Refer also to the Department's standard specification for "CABLE TRAYS AND LADDERS", Section B3 and "INSTALLATION OF WIRING CHANNELS", Section B2.

# SECTION B5

## B.5 WIRING

This section covers wiring in approved wire-ways for electrical installations in buildings or other structures under normal environmental conditions for 50 Hz systems not exceeding 600 V.

### 1. TYPE OF CONDUCTORS

PVC-insulated or equivalent, stranded copper conductors and bare stranded or green PVC-insulated copper earth conductors complying with the Department's quality specification for "PVC-INSULATED CABLES", Section C4, shall be used exclusively. Only where cables are specified or in instances where the exceptions stipulated in SANS 10142 are applicable, may the Contractor deviate from this requirement.

### 2. WIRE-WAYS

2.1 All unarmoured conductors shall be installed in conduits, cable channels (trunking) or power skirting and shall under no circumstances be exposed. Cable channels and power skirting shall be of metal construction unless specifically approved to the contrary.

2.2 Tenderers must note that common wire-ways will only be permitted for relatively light current-carrying conductors such as lighting and socket-outlet circuits. Refer also to par. 4 below. Heavy current-carrying conductors such as feeders to distribution boards and large power points, must be installed in separate conduits or wire-ways.

### 3. ORDER OF WORK

Wiring shall only be carried out after the wire-way installation has been completed, but before painting has commenced. Debris and moisture shall be removed from the wireways prior to the installation of the conductors.

### 4. CIRCUITS

Conductors that are connected to different switchboards, shall not be installed in the same wireway. The wiring of one circuit only will be allowed in a 20 mm dia. conduit with the exception of the wiring from switchboards to fabricated sheet metal boxes close to switchboards in which case more than one circuit will be allowed. For larger conduit sizes the requirements of SANS 10142, shall be met.

### 5. LOOPING AND JOINTS

A loop-in wiring system where conductors are looped from outlet to outlet, shall be employed. Joints in conductors shall be avoided as far as possible but where it becomes unavoidable, joints will be accepted in cable channels only and not in conduits. Joints shall be soldered or shall alternatively consist of approved ferruling, properly covered with heat-shrink sleeves. The use of PVC insulation tape is not acceptable.

### 6. GROUPING OF CONDUCTORS

In cases where the conductors of more than one circuit are installed in the same wireway, the conductors of each separate circuit (including earth conductor) shall be taped at intervals of 1m with PVC insulation tape. The conductors of different circuits shall however remain separate in order that any given circuit can be withdrawn. Conductors entering switchboards or control boards shall be grouped and bound by means of plastic or metal bands (not tape).

### 7. CABLE TRAYS

Conductors may only be installed directly on cable trays if specifically approved by the Department. In these cases cable trays shall be at least 2m above walkways or working areas. Conductors of the same circuit shall be grouped in the same manner as described in the previous paragraph. All the conductors on the

cable tray shall then be tied down securely to the cable tray at intervals of 2m or less by means of plastic or metal bands (not tape).

## 8. DRAWING-IN OF CONDUCTORS

When conductors are drawn through conduit, care shall be taken that they are not kinked or twisted. Care shall also be taken that the conductors do not come into contact with materials or surfaces that may damage or otherwise adversely affect the durability of the conductor.

## 9. THREE-PHASE OUTLETS

9.1 With the exception of three-phase outlets, circuits connected to different phases shall not normally be present at lighting, switch or socket outlet boxes. Where this is unavoidable, barriers shall be provided between terminals or connections of the various phases and the box shall be suitably labelled internally to indicate the presence of three phase voltages.

9.2 A neutral conductor shall be installed to all three phase outlets intended for equipment connection, whether sockets or isolators, irrespective of whether the particular equipment normally requires a neutral or not.

## 10. VERTICAL CONDUIT INSTALLATION

Conductors installed in vertical wire-ways shall be secured at intervals not exceeding 5m to support the weight of the conductors. Clamps shall be provided in suitable drawboxes for this purpose.

## 11. CONNECTIONS

The insulation of conductors shall only be removed over the portion of the conductors that enter the terminals of switches, socket outlets or other equipment. When more than one conductor enters a terminal, the strands shall be securely twisted together. Under no circumstances shall strands be cut off.

## 12. EARTHING CONDUCTORS

12.1 When earth continuity conductors are looped between terminals of equipment, the looped conductor ends shall be twisted together and then soldered or ferruled to ensure that earth continuity is maintained when the conductors are removed from a terminal.

12.2 The installation shall be earthed to comply with SANS 10142.

12.3 The installation shall be bonded to comply with SANS 10142.

## 13. COLOURS

The colours of conductor insulation shall comply with SANS 10142. The colours of conductors for sub-circuits shall as far as possible correspond with the colour of the supply phase. The colours of conductors for wiring to two-way and intermediate switches shall preferably differ from the colour of phase conductors.

## 14. SINGLE-POLE SWITCHES

Single-pole switches shall be connected to the phase conductor and not to the neutral conductor.

## 15. SIZE OF CONDUCTORS

Where conductor sizes are not specified, the following <u>minimum</u> conductor sizes shall be used:

Lighting circuits: 2,5mm² and 2.5mm² copper earth conductor

Socket-outlet circuits: 4mm² and 2,5mm² copper earth conductor.

Bell circuits: 1,5mm²

Stove circuits: 10mm² and 6mm² copper earth conductor

Clock circuits: 1,5mm²

## 16. PARTITIONS

16.1 When wiring is installed in removable partitions, the vertical and/or horizontal metal supports of the walls may be utilised for wiring on condition that:

(a) The conductors are not exposed,

(b) The metal supports are properly earthed,

(c) A separate bare earth continuity conductor is drawn in together with the current carrying conductors and is earthed to the metal parts of the switches and/or the socket-outlets, and

(d) Conductors are installed in the metal and non-inflammable sections of the partitions.

16.2 Conductors enclosed in a copper braiding (harness wiring) may be installed in removable partitions. The braiding can be used as earth continuity conductor. The wiring shall be joined to the conduit (or cable) installation by interconnecting the conductor and the earth conductors in a draw-box using suitable ferrules and heat-shrink sleeves or screwed terminals.

# SECTION B6

## B.6 INSTALLATION OF CABLES

This section covers the installation of cables for the distribution of power in buildings, other structures and in ground for system voltages up to 11 kV, 50 Hz.

## 1. GENERAL

1.1 CABLE TYPES

(a) All cables and jointing and termination accessories used for power distribution shall comply with the Department's Quality Specifications, Section C.

(b) Cables with copper conductors shall be used throughout unless otherwise specified or approved.

(c) All unarmoured cables shall be installed in metal trunking, sleeves or conduit unless clearly specified to the contrary.

(d) XLPE Cables shall only be used in exceptional circumstances with the written permission of the Department.

1.2. COMPETENCE OF PERSONNEL

It is a definite requirement that the Contractor shall only employ personnel fully conversant with cable manufacturer's recommendations for joining and terminating cables.

## 2. IDENTIFICATION OF CABLES

2.1 Cables shall be identified at all terminations by means of punched metallic bands or marked with labels or tags. (Refer also to SANS 10142).

2.2 The use of PVC tape with punched characters is not acceptable.

2.3 The identification numbers of cables shall be shown on "as built" drawings of the Installation.

## 3. TRENCHING

3.1 GENERAL

3.1.1 The Contractor shall be responsible for all trenching excavations unless specified to the contrary.

3.1.2 The Contractor shall, before trenching commences, familiarise himself with the routes and site conditions and the procedure and order of doing the work shall be planned in conjunction with the general construction programme for other services and building requirements.

3.1.3 The Contractor shall acquaint himself with the position of all the existing services such as storm water pipes, water mains, sewer mains, gas pipes, telephone cables, etc. before any excavations are commenced. For this purpose he shall approach this Department's representative, the local municipal authority and any other authority which may be involved, in writing.

3.1.4 The Contractor will be held responsible for damage to any existing services brought to his attention by the relevant authorities and shall be responsible for the cost of repairs.

3.1.5 The Contractor shall take all the necessary precautions and provide the necessary warning signs and/or lights to ensure that the public and/or employees on site are not endangered.

3.1.6 The Contractor shall ensure that the excavations will not endanger existing structures, roads, railways, other site constructions or other property.

3.2 MECHANICAL EXCAVATORS

3.2.1 Power driven mechanical excavators may be used for trenching operations provided that they are not used in close proximity to other plant, services or other installations likely to be damaged by the use of such machinery.

3.2.2

3.2.2 The use of power driven mechanical excavators shall be subject to the approval of the Department. Should the excavator produce trenches that exceed the required dimensions, payment based on volumetric excavation rates will be calculated on the required dimensions only.

3.3 BLASTING

3.3.1 No guarantee is given or implied that blasting will not be required.

3.3.2 Should blasting be necessary and approved by the Department, the Contractor shall obtain the necessary authority from the relevant Government Departments and Local Authorities. The Contractor shall take full responsibility and observe all conditions and regulations set forth by the above authorities.

3.4 ROUTES

3.4.1 Trenches shall connect the points shown on the drawings in a straight line. Any deviations due to obstructions or existing services shall be approved by the Department beforehand. Refer also to par. 10.4.

3.4.2 The Department reserves the right to alter any cable route or portion thereof in advance of cable laying. Payment in respect of any additional or wasted work involved shall be at the documented rates.

3.4.3 The removal of obstructions along the cable routes shall be subject to the approval of the Department.

3.5 SHORING AND WATERLOGGING

3.5.1 The Contractor shall provide shoring for use in locations where there is a danger of the sides of the trench collapsing due to waterlogging or other ground conditions. Refer to the The Occupational Health and Safety Act.

3.5.2 The strength of shoring must be adequate for site conditions prevailing and the shoring must be braced across the trench.

3.5.3 The Contractor shall provide all pumps and equipment required to remove accumulated water from trenches. Water or any other liquid removed shall be disposed of without any nuisance or hazard.

3.6 TRENCHING

3.6.1 Trenching shall be programmed in advance and the approved programme shall not be departed from except with the consent of the Department.

3.6.2 Trenches shall be as straight as possible and shall be excavated to the dimensions indicated in this specification.

3.6.3 The bottom of the trench shall be of smooth contour, and shall have no sharp dips or rises which may cause tensile forces in the cable during backfilling.

3.6.4 The excavated material shall be placed adjacent to each trench in such a manner as to prevent nuisance, interference or damage to adjacent drains, gateways, trenches, water furrows, other works,

properties or traffic. Where this is not possible the excavated materials shall be removed from site and returned for backfilling on completion of cable laying.

3.6.5 Surplus material shall be removed from site and disposed of at the cost of the Contractor.

3.6.6 Trenches across roads, access ways or footpaths shall not be left open. If cables cannot be laid immediately the Contractor shall install temporary "bridges" or cover plates of sufficient strength to accommodate the traffic concerned.

3.6.7 In the event of damage to other services or structures during trenching operations the Contractor shall immediately notify the Department and institute repairs. (Refer to par. 3.1.3 and 3.1.4)

3.6.8 Prior to cable laying the trench shall be inspected thoroughly and all objects likely to cause damage to the cables either during or after laying shall be removed.

3.6.9 Where ground conditions are likely to reduce maximum current carrying capacities of cables or where the cables are likely to be subjected to chemical or other damage or electrolytic action, the Department shall be notified before installing the cables. The Department will advise on the course of action to be taken.

3.6.10 Extreme care shall be taken not to disturb surveyor's pegs. These pegs shall not be covered with excavated material. If the surveyor's pegs are disturbed, they shall be replaced by a person qualified to do so.

3.7 DIMENSIONS OF TRENCHES

3.7.1 Cable trenches for one or two cables shall not be less than 300 mm wide and need not be more than 450 mm wide. This dimension shall be valid for the total trench depth.

3.7.2 The width shall be increased where more cables are installed to allow for the spacings stipulated in par. 4.2.

3.7.3 Where trenches change direction or where cable slack is to be accommodated, the Contractor shall ensure that the requirements of the relevant SANS Specification regarding the bending radii of cables are met when determining trench widths.

3.7.4 Trench depths shall be determined in accordance with cable laying depths and bedding thickness.

3.7.5 Payment will be made on a volumetric excavation rate calculated on the basis of the given maximum dimensions or the actual dimensions, whichever is the lesser. Refer also to par. 3.2.2 and 3.7.1 above.

3.8 JOINT HOLES

Where cable joints are required to be made in the course of a cable run, a joint hole shall be excavated of sufficient size to enable the cable jointer to work efficiently and unimpeded.

3.9 BEDDING

3.9.1 The bottom of the trench shall be filled across the full width with a 75mm layer of suitable soil sifted through a 6mm mesh and levelled off.

3.9.2 Only sandy clay or loam soil with a satisfactory thermal resistivity (not exceeding 1,5°C m/W) may be used for this purpose. Sea or river sand, ash, chalk, peat, clinker or clayey soil shall not be used. The use of crusher sand is acceptable.

3.9.3 Where no suitable soil is available on site, the Contractor shall import fill from elsewhere and make all the necessary arrangements to do so. The cost of importing soil for bedding purposes shall be included in the unit rates for excavations.

3.9.4 After cable laying a further layer of bedding shall be provided to extend to 75 mm above the cables.

3.9.5 The bedding under joints shall be fully consolidated to prevent subsequent settling.

3.10 CABLE SLEEVES

3.10.1 Where cables cross under roads, railway tracks, other service areas, etc. and where cables enter buildings, the cables shall be installed in Polyethylene (6mm thickness), asbestos cement pipes or earthenware pipes. Pitch fibre and PVC pipes are not acceptable because of the adhesion that occurs after a period of time between the pipe and the sheathing or outer serving of the cables.

3.10.2 Pipes shall be joined in accordance with the manufacturer's instructions.

3.10.3 Sleeves shall cross roads and railway tracks at right angles.

3.10.4 Sleeves shall have a minimum diameter of 100mm. They shall extend at least 2m beyond the tracks of a railway line or of the outermost tracks where there is more than one line. In the case of roads, the sleeves shall extend at least 1m beyond the road edge or kerb on both sides of the road.

3.10.5 All sleeves shall be graded 1:400 for water drainage.

3.10.6 Cable sleeves shall be installed to the spacings and depths stated in paragraph 4 below.

3.10.7 Galvanised metallic sleeves up to and including 76mm dia. shall be supplied and installed by the contractor.

3.10.8 The ends of all sleeves shall be sealed with a non-hardening watertight compound after the installation of cables. All sleeves intended for future use shall likewise be sealed.

3.11 BACKFILLING

3.11.1 The Contractor shall not commence with the backfilling of trenches without prior notification to the Department so that the cable installation may be inspected. Should the Contractor fail to give a timeous notification, the trenches shall be re-opened at the Contractor's cost. Such an inspection will not be unreasonably delayed.

3.11.2 For high voltage cables (1 kV to 11 kV) a coloured plastic marking tape shall be installed 400 mm above the cable. The tape shall be yellow, marked with the words "ELECTRIC CABLE/ELEKTRIESE KABEL" in red. These markings shall not be more than 1m apart from centre to centre.

3.11.3 Backfilling shall be undertaken with soil suitable to ensure settling without voids. The maximum allowable diameter of stones present in the backfill material, is 75mm.

3.11.4 The Contractor shall have allowed in his tender for the importation of suitable backfill material if required.

3.11.5 The backfill shall be compacted in layers of 150mm and sufficient allowance shall be made for final settlement. The Contractor shall maintain the refilled trench at his expense for the duration of the contract. Surplus material shall be removed from site and suitably disposed of.

3.11.6 On completion, the surface shall be made good to match the surrounding area.

3.11.7 In the case of roadways or paved areas the excavations shall be consolidated to the original density of the surrounding material and the surface finish reinstated.

3.12 CABLE MARKERS (FOR HV CABLES ONLY, EXCEPT WHERE OTHERWISE SPECIFIED)

3.12.1 Cable markers shall be provided along all HV cable routes but need only be provided along LV cable routes where specified.

3.12.2 Cable markers shall consist of concrete blocks in the shape of truncated pyramids, approx. 300mm high, 150 x 150mm at the top and 250 x 250mm at the bottom.

3.12.3 Brass plates shall be cast into the tops of the blocks in such a manner that they cannot be prised loose. The wording "ELECTRIC CABLE/ELEKTRIESE KABEL" shall be stamped on the brass plates as well as direction arrows and the cable voltage rating.

3.12.4 Cable markers shall be installed on the surface along all the underground routes and shall project 35 mm above normal ground level unless the projected markers could be a hazard to pedestrian or other traffic in which case they shall be installed flush with the surface.

3.12.5 Cable markers shall be installed at the beginning and end of a cable run (e.g. where a cable enters a substation or building), at all changes of direction, above all joints, above cable pipe entries and exits and at intervals not exceeding 50 m along the cable route.

3.12.6 The position of cable markers shall be indicated on the "as built" drawings.

## 4. INSTALLATION OF UNDERGROUND CABLES

4.1 INSTALLATION DEPTHS

4.1.1 Cables shall be installed at the following minimum depths below final ground level:

Up to 11kV: 8OOmm

4.1.2 All cable depth measurements shall be made to the top of the cable when laid directly in ground or to the top of the duct or sleeve where these are provided.

4.1.3 The above depths shall apply to the top layer where cables are installed in layers.

4.1.4 The Contractor may only deviate from the above depths provided prior authority in writing has been obtained from the Department. In this event the cables shall be protected with a suitable concrete covering.

4.1.5 The depth of cable pipes or ducts beneath railway lines or roads shall be not less than 1,1 m below the formation level.

4.2 CABLE SPACINGS

4.2.1 Cables installed in the same trench shall be laid parallel to each other with the following spacings between cables (LV: up to 1 kV; HV: 1 kV to 11 kV):

| | | |
|---|---|---|
| LV/LV | : | 2 cable diameters |
| LV/HV | : | 150mm minimum |
| HV/HV | : | 150mm minimum |
| LV/HV/PILOT | : | 1 cable diameter |

4.2.2 Where HV and LV cables have to be installed in the same trench, both shall be laid at a depth of 800 mm and then covered with 200mm of soil. The soil shall then be compacted, and then backfilled layer by layer and compacted until the trench is completely backfilled.

4.2.3 Cables for telephones, communication systems and other low voltage systems (less than 50 V) shall be separated from power cables by at least 1m. All control or pilot cables without a lead sheath and steel armouring shall be laid at least 300mm from power cables.

4.2.4 Cables shall not be buried on top of each other unless layers are specified. The minimum spacing between layers shall be 200mm.

4.3 CABLE LAYING

4.3.1 Except where ducts, tunnels or pipes are provided, cables shall be laid directly in the ground.

4.3.2 The cable shall be removed from the drum in such a manner that the cable is not subjected to twisting or tension exceeding that stipulated by the cable manufacturer.

4.3.3 Cable rollers shall be used as far as possible to run out cables. Rollers shall be spaced so that the length of cable in the trench will be totally suspended during the laying operation and sufficiently close to prevent undue sagging and the cable from touching the ground. Rollers shall also be placed in the trench in such a manner that they will not readily capsize.

4.3.4 Cable rollers shall have no sharp projecting parts liable to damage the cables.

4.3.5 Where cables have to be drawn around corners, well-lubricated skid plates shall be used. The skid plates shall be securely fixed between rollers and shall constantly be examined during cable laying operations.

4.3.6 Where cables have to be drawn through pipes or ducts, a suitable cable sock shall be used and particular care shall be exercised to avoid abrasion, elongation or distortion of any kind. In the case of oil filled cables, a cable sock may never be used. Special eyes giving access to the interior of the cable, must be utilised.

4.3.7 The maximum allowable tension when pulling a cable, is 70 N/mm2 of conductor area.

4.3.8 It will be assumed that the price or rates contained in the tender includes for the installation of cables in pipes and ducts or below existing or newly installed services.

4.3.9 The Department shall be informed timeously of the intention to carry out all cable laying operations to allow an inspection of the works by the Department if so required.

## 5. INSTALLATION OF CABLES IN CONCRETE TRENCHES

5.1 GENERAL

This paragraph covers the installation of cables in building trenches, service ducts, etc. The trenches, ducts, etc. inside buildings will be constructed and installed by others.

5.2 INSTALLATION

Cables shall be installed in one of the following ways:

(a) On horizontal cable trays.

(b) On horizontal metal supports with suitable clamps.

(c) On vertical cable trays or metal. Supports fixed to the side of the trench. The cables shall be clamped in position.

Cables shall not be bunched and laid on the floor of the building trenches.

5.3 COVERS

5.3.1 The covering of concrete trenches shall as a rule fall outside the scope of the electrical installation. The Contractor shall however be responsible for the cutting or drilling and smoothing of holes for cables through chequer plates, concrete or other coverings as required.

5.3.2 Cables shall enter and exit the trench through sleeves protruding 300mm beyond the covering. The sleeves shall be permanently secured in position and the open space between the cable and sleeves shall be sealed with a non-hardening, watertight compound.

5.4 FILLED TRENCHES

5.4.1 Where specified, floor trenches shall be filled with fine crusher sand (no river or see sand).

5.4.2 If a sand filling is specified, the cables shall be fixed to non-corroding supports.

5.4.3 Sand-filled trenches other than in substations shall be covered in one of the following ways:

(a) Reinforced concrete covers.

(b) Sand and cement screed.

(c) Removable chequer plates.

5.4.4 Method (a) above shall be used where vehicular traffic may be encountered over trenches. Unless otherwise specified allowance for a mass of 2 tons shall be made.

5.4.5 Cable trenches in substations, switch rooms and generator rooms shall be covered in accordance with the Department's standard specification for "COVERING AND SEALING OF CABLE TRENCHES", Par. 9 of Section B13.

## 6. FIXING OF CABLES TO TRAYS OR STRUCTURES

6.1 INSTALLATION

Cables may be installed in one of the following ways:

(a) On horizontal cable trays.
(b) Against vertical cable trays with suitable clamps.
(c) Against horizontal or vertical metal supports or brackets with suitable clamps.
(d) On clamps which are fixed to the structure.

6.2 CLAMPS

Suitable clamps (cleats) which will secure cables without damage shall be used. Metal clamps or drilled hard wood blocks shall be used. Clamps shall consist of adjustable metal wings which clamp to a metal support, or consist of two halves that are bolted together. The correct clamp size to fit the cable shall be used. Cables of different sizes nay only be fixed by a common clamp when the clamp is specially made to accommodate the various cables.

6.3 SPACING OF SUPPORTS

Two methods of supporting cables are found in practice. The most generally known method is the restrained installation where the distance between supports is small enough to prevent any noticeable sag in the cable. The alternative method is the unrestrained installation where the distance between supports should be great enough to ensure that there will be obvious sag in each span between supports.

6.4 SPACING OF SUPPORTS OF UNRESTRAINED CABLES

Large single core cables shall always be installed according to this method. Generally, single core cables with conductors exceeding a cross sectional area of 185mm² should be supported at spacings in excess of 2m since the sag between supports will safely accommodate any thermal expansion.

Reducing the spacing between the supports to 1,5m or less shall be avoided at all costs, as expansion cannot be taken up by a change of sag and chances of sheath failure become considerable.

6.5 SPACING OF SUPPORTS OF RESTRAINED CABLES

Additional cleats shall be installed at each bend or offset in the cable run. The maximum distance between supports or cleats for multi-core control cables shall be 20 times the outside diameter of the cable with a maximum spacing of 550mm for unarmoured cables and 30 times the outside diameter of the cable with a maximum spacing of 900mm for armoured cables. Spacing of supports for cables for high voltage lighting

shall be in accordance with Table 8 of SANS 10142. A minimum of 20mm ventilation clearance shall be maintained between cables and the wall to which they are cleated.

## 7. GROUPING AND SPACING OF CABLES IN BUILDINGS AND STRUCTURES

### 7.1 SPACING CORRECTION FACTORS

Cables shall as a rule be spaced two cable diameters apart, for which no grouping correction factor need be applied.

### 7.2 CABLES ON DIFFERENT LEVELS

Where parallel cable runs are installed at different levels (e.g. on parallel cable trays) and where the spacing of the layers is not specified, a minimum spacing of 300mm shall be maintained.

### 7.3 SINGLE CORE CABLES

Where single core cables are installed along a three-phase circuit, the cables shall be installed in trefoil formation and bound together at 300mm intervals.

### 7.4 HIGH VOLTAGE CABLES

High voltage cables shall be separated from other cables and services throughout the installation and shall as far as possible be installed in separate floor trenches, pipes or metal channels. Where this is not feasible a minimum spacing of 500 mm shall be maintained.

### 7.5 CABLES FOR OTHER SERVICES

Cables for telephones, communication systems and other low voltage systems (less than 50 V) shall be separated from power cables. In building ducts a physical barrier shall be provided between power cables and cables for other services. Where armoured cables are used for such other services, they shall be installed on separate cable trays or shall otherwise be at least 1m away from power cables. Where unarmoured cables are used for these other services, they shall be installed in separate conduits or metal channels.

**TABLE B6.1**

| Cross-Sectional Area of Cable Conductors (mm²) | MAXIMUM SPACING OF SUPPORTS (CLEATS) (mm) FOR RESTRAINED CABLES | | | |
|---|---|---|---|---|
| | Wire Armoured Cables | | Other than Wire Armoured Cables and Unarmoured Cables | |
| | Horizontal Cable Routes | Vertical Cable Routes | Horizontal Cable Routes | Vertical Cable Routes |
| 1,5 | 450 | 750 | 300 | 400 |
| 2,5 | 450 | 750 | 300 | 400 |
| 4,0 | 600 | 750 | 300 | 400 |
| 6,0 | 600 | 750 | 300 | 400 |
| 10,0 | 750 | 900 | 400 | 450 |
| 16,0 | 750 | 1000 | 400 | 550 |
| 25,0 | 900 | 1000 | 450 | 550 |
| 35,0 | 900 | 1000 | 450 | 550 |
| Bigger than 35,0 | 900 | 1000 | 450 | 550 |

For larger cables the spacing shall be 10 x outside diameter of the cable.

## 8. TERMINATION AND JOINTING OF CABLES

8.1 GENERAL

8.1.1 Cable ends shall be terminated with glands or in cable boxes with the associated accessories such as clamps, shrouds, etc. complying in all respects with the Department's quality specifications, Section C.

8.1.2 Connection of cables to switchgear shall always be effected in such a way that the various phases, seen from the front of the switchgear will be in the following positions:

No. 1 conductor: left (red) (A)
No. 2 conductor: centre (white) (B)
No. 3 conductor: right (blue) (C)

8.1.3 Exposed armouring shall be covered with bitumen-base paint.

8.1.4 All cable ends shall be supplied with the necessary earth connection.

8.1.5 A channel or other approved means of support shall be provided to remove mechanical stress from the glands.

8.1.6 Cable cores shall be marked with heat-shrunk sleeves where necessary to identify the phases. Refer to SANS 10142.

8.1.7 The current-carrying capacity and breakdown voltage of the cable end shall be the same as for the complete cable.

8.1.8 Cables shall be terminated in accordance with the recommendations laid down by the manufacturers of the cables and glands employed.

8.2 TERMINATION OF PAPER-INSULATED CABLES

8.2.1 The ends shall be terminated in cable end boxes filled with bituminous, cold filling or resin oil semi-fluid compound or heat-shrinkable terminations in accordance with the Department's standard specification for "CABLE END BOXES AND COMPOUND", Section C8 or "CABLE TERMINATIONS AND JOINTS", Section C6.

8.2.2 Heat-shrinkable materials shall only be used in exceptional circumstances with the written permission of the Department.

8.2.3 Before terminating or jointing paper-insulated cables, a test to establish the presence of moisture must be carried out.

The following procedure may be followed:

(a) Place an adequate quantity of cable impregnating oil in a suitable container and heat up to 130 C ± 5 C.

(b) Cut a small length (± 300mm) of the cable concerned and remove the armouring and sheath, taking care not to handle the dielectric in any way.

(c) Dip a section of the outer insulating impregnated paper (belt paper) in the heated oil, taking care not to contaminate the tapes with moisture from the hands. If frothing appears on the surface of the oil, this is a clear indication of the presence of moisture in the paper.

(d) The same procedure should then be repeated on the insulating impregnated paper around the conductors (especially those layers closest to the conductors). Frothing will also indicate the presence of moisture.

(e) Should only a small number of bubbles appear on the surface of the oil, this is an indication of air bubbles on the paper and not moisture since the presence of moisture will result in a series of bubbles rising to the surface of the oil for a number of seconds, until all moisture has been removed.

8.2.4 The armouring shall be bonded to the main earth bar of the switchgear or transformer, but the bond shall be easily removable for testing purposes.

8.2.5 The lead sheath shall be wiped against the conical wiping gland.

8.2.6 All cut cable ends which will be exposed to the atmosphere for more than two hours shall be sealed and wiped to prevent penetration of moisture.

8.3 TERMINATION OF XLPE CABLES

8.3.1 These cables shall only be used in exceptional circumstances and only with the written permission of the Department.

8.3.2 Cross-linked polyethylene cables (XLPE) shall be terminated in accordance with the Department's standard specification for "CABLE TERMINATIONS AND JOINTS", Section C6 unless a pre-fabricated system based on pre-moulded slip-on EPR stress cones is used.

8.3.3 The copper tapes of the earth screen on the cable shall be bonded to the main earth bar of the switchgear or transformer, but the bond shall be easily removable for testing purposes.

8.3.4 The cable shall be firmly secured on the switchgear by means of a clamp to prevent mechanical stress on the cable and terminations.

8.4 TERMINATION OF PVC-INSULATED CABLES

8.4.1 Cable ends shall be terminated by means of adjustable glands in accordance with the Department's standard specification for "GLANDS FOR PVC-INSULATED CABLES", Section C5.

8.4.2 The glands shall be fitted in accordance with the cable and gland manufacturers' instructions.

8.4.3 The correct size and type of gland shall be used for the particular cable and application.

8.5 CONNECTION OF CABLE CONDUCTORS

8.5.1 Suitable lugs shall be used, preferably solidly sweated to the cable conductor ends. Lugs may be crimped, using mechanical or pneumatic tools designed for this purpose, on condition that evidence is submitted that the method used complies with the performance requirements of BS 4579, Part 1: "COMPRESSION JOINTS IN COPPER".

8.5.2 Contact surfaces shall be thoroughly cleaned and smoothed and fixing bolts shall match the whole size of the lug.

8.5.3 Cables that are connected to clamp type terminals where the clamping screws are not in direct contact with the conductor, need not be lugged but the correct terminal size shall be used.

8.5.4 Ferrules shall be used as far as possible where cable conductors are connected directly to equipment with screws against the conductor strands.

8.5.5 When cutting away insulation from cable conductors to fit into lugs, care shall be taken that no strands are left exposed. Under no circumstances may any of the conductor strands be cut away to fit into lugs.

8.6 JOINTS

8.6.1 Joints in cable runs will not be allowed unless specified in the Detail Technical Specification or authorised by the Department.

8.6.2 Jointing shall be carried out strictly in accordance with the manufacturer's instructions and by personnel competent in jointing the types of cables used.

8.6.3 During outdoor jointing operations, the joint bays shall be adequately covered by tents of waterproof material suitably supported. Where necessary a trench shall be excavated around the bay to prevent the ingress of moisture. The sides of the hole shall be draped with small tarpaulin or plastic sheeting to prevent loose earth from falling in during jointing operations.

8.6.4 The joint shall not impair the anti-electrolysis characteristics of the cable.

8.6.5 The Contractor shall notify the Department timeously of the day on which jointing is to be carried out in order than an inspection may be arranged if so required. Any cable joint not inspected by the Department because of insufficient notice being given, shall be opened for inspection and redone at the discretion of the Department at the cost of the contractor.

8.6.6 HV cable joints on paper insulated cables shall be of the compound cast type and the compound used shall comply with the Department's standard specification for "CABLE END BOX FILLING COMPOUND", par. 2 of Section C8.

8.6.7 HV cable joints on XLPE-insulated cables shall be of the heat shrinkable type and shall comply with the Department's standard specification for "CABLE TERMINATIONS AND JOINTS" Section C6, or shall be based on a prefabricated system utilising pre-moulded slip-on stress cones.

8.6.8 LV cable joints shall be of the epoxy-resin type.

8.6.9 Joints shall be fully water and air tight and shall be free of voids and air pockets.

8.6.10 The crossing of cores in joints will not be permitted under any circumstances.

## 9. TESTING

9.1 Each cable shall be tested after installation in accordance SANS 1507 (up to 1 kV) and SANS 97 (up to 11 kV) as well as the requirements of the Local and Supply Authorities.

9.2 LV Cables shall be tested by means of a suitable megger at 1 kV and the insulation resistance shall be tabulated and certified.

**TABLE B6.2**

| Cable Rating (kV) | TEST VOLTAGE (Applied for 15 minutes) (kV) | | | | |
|---|---|---|---|---|---|
| | Paper-insulated cables | | | | XLPE-insulated cables |
| 6,6<br>11 | Between conductors | | Conductors to sheath | | Conductors to screen |
| | AC (r.m.s) | DC | AC (r.m.s) | DC | DC |
| | 12<br>20 | 18<br>30 | 12<br>20 | 18<br>30 | 11<br>18 |

* High Voltage test with DC to 2kV for 1 minute only. Discharge cable slowly via discharge stick (1 minute). Clamp all conductors to earth for 24 hours.

9.3 HV Cables shall be high voltage tested in accordance with Table B6.2 and the exact leakage current shall be tabulated and certified.

9.4 The Contractor shall make all arrangements, pay all fees and provide all equipment for these tests. The cost of testing shall have been included in the tender price.

9.5 The Contractor shall notify the Department timeously so that a representative of the Department may witness the tests.

9.6 On completion of the tests on any cable, the Contractor shall without delay, submit three copies of the certified Test Reports to the Department.

## 10. MEASUREMENTS

10.1 All measurements for payments shall be made jointly by the representatives of the Department and the Contractor and the Contractor shall obtain the signature of the Department's representative including approval of such measurements.

10.2 No allowance shall be made for the breaking away of the trench sides, other earth movements or for trenches excavated in excess of the stipulated dimensions. Refer also to par. 3.7.5 above.

10.3 The classification shall be as follows:

Very hard rock shall mean rock that can only be excavated by means of explosives.

Hard rock shall mean granite, quartzitic sandstone, slate and rock of similar or greater hardness, solid shale and boulders in general requiring the use of jack hammers and other mechanical means of excavations.

Soft rock and earth shall mean rock and earth that can be loosened and removed by hand-pick and shovel.

10.4 Where very hard rock and hard rock are encountered, the prior approval of the Department shall be obtained before proceeding with the excavation. This requirement is stipulated in order to afford the Department the opportunity to determine whether an alternative cable route is justified.

10.5 All cable lengths indicated in the Detail Technical Specification and/or shown in the cable route drawings shall be regarded as estimates and are given for tendering purposes only. The successful tenderer shall measure actual cable lengths on site before ordering.

10.6 The final price for the supply and installation of all cables will be adjusted, on the basis of the actual lengths of installed cables, in accordance with the unit rates quoted at the time of tendering. Cable lengths shall be measured on site to the nearest 500mm for this purpose and surplus cable will not be paid for.

## 11. COMPLETION

11.1 The Department reserves the right to inspect the installation at any stage during the course of construction. Such inspections will however not deem the portions inspected as being complete or accepted and the Contractor shall remain responsible for completing the installation fully in accordance with the Contract Documents.

11.2 The Contractor shall carry out a final "as built" survey of the cable routes and present to the Department "as built" route plans of the complete installation. The following information shall be reflected on the plans or submitted as separate schedules with the plans:

(a) Overall length of each cable.

(b) Locations of all joints (if any) in relation to permanent reference points. Dimensions shall be shown and the method of triangulation i.e. two dimensions to each joint, shall be used.

(c) Identification of each cable.

11.3 The works will be deemed to be incomplete until all tests have been conducted successfully and all "as built" drawings and schedules have been handed to the Department.

# SECTION B7

## B.7 INSTALLATION OF LIGHT SWITCHES AND SOCKET-OUTLETS

## 1. GENERAL

### 1.1 STANDARDS

Light switches and socket-outlets shall comply with the Department's quality specification for "LIGHT SWITCHES", Section C10 and UNSWITCHED AND SWITCHED SOCKET-OUTLETS", Section C11. Surface or flush mounted boxes and cover plates, complying with the Department's quality specification for "CONDUIT AND CONDUIT ACCESSORIES", Section C1, shall be provided.

### 1.2 POSITION OF OUTLETS

Switches and socket-outlets shall be accurately positioned in accordance with the drawings. It is the Contractor's responsibility to ensure that all outlets are installed level and square, at the correct height from the floor and at the correct position relative to building lines and equipment positions as specified. It is the Contractor's responsibility to determine the correct final floor level and ceiling level in conjunction with the Main Contractor.

### 1.3 COVER PLATES

All switches and socket-outlets shall be fitted with standard metal cover plates. The colour of cover plates shall be as specified or shall otherwise match the surrounding finishes as closely as possible. Unless specified to the contrary, ivory cover plates shall be installed on painted walls. Cover plates in the same area shall have the same colour. Flush mounted cover plates shall overlap the draw-box and edges of the recess. Cover plates shall under no circumstances be cut unless authorised by the Department.

### 1.4 ESCUTCHEON PLATES

Where flush mounted switches or socket-outlets are installed in special wall finishes e.g. wood or board panels, acoustic tiles or other cladding, etc. and where the wall finishes must be cut to accommodate the switch, it may be necessary to fix an escutcheon plate to the wall to cover the cut-outs. The escutcheon plate shall fit closely around the outlet boxes and shall be fixed independently of the boxes and cover plates. Bevelled cover plates shall be fixed to the outlet boxes and shall fit firmly against the escutcheon plate.

### 1.5 APPEARANCE

The sides of adjacent switches, plugs, push-buttons etc. shall be parallel or perpendicular to each other and uniformly spaced. A common escutcheon plate shall be placed around flush mounted outlets and accessories where the standard cover plates do not cover the cut-outs in the finishes.

### 1.6 DEEP BOXES

Where switch or socket-outlet boxes have been set deep, spiral type steel wire spacers shall be used to fix the yoke of the switch or socket.

## 2. INSTALLATION OF SOCKET-OUTLETS

### 2.1 MOUNTING HEIGHT

Unless specified to the contrary, socket-outlets shall be installed at the following heights above finished floor level, measured to the centre of the outlet:

| | |
|---|---|
| Flush mounted in general: | 300mm |
| Showrooms, shops, servants quarters: | 1,4m |
| Domestic kitchens, tea kitchens: | 1,05m |
| Commercial kitchens: | 1,4m |

Factories, workshops, garages: 1,4m

2.2 WALLS

In cases where socket-outlets must be mounted at a nominal height of 300mm and where the lower portion of the wall consists of face bricks and the upper portion is plastered, the outlets shall be installed in the plastered portion of the wall. If however the plastered portion of the wall commences 500mm or more above floor level the outlets shall be installed in the face bricks. Where a wall has different surface finishes the outlets shall be installed within the same finish and not in the dividing lines between the different wall finishes. All outlets shall be installed at least 150mm away from door frames.

## 3. INSTALLATION OF LIGHT SWITCHES

3.1 MOUNTING

Light switches shall be installed 1,4m above finished floor level unless specified to the contrary. Mounting heights given shall be measured from the finished floor level to the centre of the switch. All single switches shall be installed with the long side of the toggle vertical.

3.2 DOORS

Unless specified to the contrary, switches adjacent to doors shall be installed on the side containing the lock. If the position of the lock is not shown on the drawings, the position shall be verified before the switch-box is installed. Switch boxes in brick or concrete walls shall be installed 150mm from the door frame. Light switches installed in partitions or door frames shall be of the type designed for that purpose.

3.3 WALLS

Where the lower portion of a wall is face brick and the upper portion plastered, light switches shall be installed wholly in the plaster provided that the lower edge of the plaster is not higher than 1,6m above the finished floor level. In general where different wall finishes are used in the same area. Switches shall be installed within the same finish and not on the dividing lines between finishes.

3.4 PARTITIONS

Light switches installed in partitions shall preferably be of the type designed to be accommodated in the partition construction. Switches installed in the metal supports do not require switch boxes. Switches may not be flush mounted in partition walls without switch boxes.

3.5 WATERTIGHT SWITCHES

Switches that are exposed to the weather or are installed in damp areas, shall be of the watertight type complying with the Department's quality specification for "WATERTIGHT SWITCHES", par. 3 of Section C1O.

3.6 MULTIPLE SWITCHES

Where several switches are required in one position, multi-lever switches in a common switch box shall be provided wherever possible. All circuits wired into this box shall be on the same phase in order that voltages in excess of 250 V are not present in the box. Where it is not possible or practical to do this, barriers shall be installed and a label shall be prominently displayed within the box stating that voltages in excess of 250 V are present.

# SECTION B8

## B.8 PHOTO-ELECTRIC DAYLIGHT SENSITIVE SWITCH FOR OUTSIDE LIGHTING

### 1. INSTALLATION

1.1 The outside lighting of each individual building i.e. light circuits marked "T" on the drawings, shall be controlled by photo-electric daylight sensitive switches.

1.2 The positions of the switches as indicated on the drawings are provisional and the exact positions shall be confirmed with the representative of the Department on site.

1.3 Individual outside lighting circuits on a building may be connected directly to the daylight sensitive switch.

1.4 Where two or more lighting circuits are to be controlled by a single daylight sensitive switch, a contactor actuated by the unit shall be provided in the switchboard.

1.5 A by-pass switch enabling the lights to be turned on at any time, shall be provided.

1.6 Standard control circuits are indicated in fig. B8.1 and B8.2.

### 2. CONSTRUCTION

2.1 The unit shall comprise a photo cell, thermal actuator and change-over switch. The cover of the unit shall be manufactured from a tough, durable material providing protection against tampering. The cover shall have good weathering properties. It shall be ultraviolet-resistant and shall not deteriorate when exposed to sunlight for prolonged periods.

2.2 The unit shall be of the wall mounting type and shall be supplied complete with a suitable bracket.

2.3 The operational level shall be factory preset for "ON" at a light level of approximately 54 lux and "OFF" at approximately 108 lux. Voltage variations shall not materially affect the operational levels.

2.4 A time delay of not less than 15 seconds shall be provided to prevent the unit from functioning due to short period changes in illumination.

2.5 The unit shall be effectively safeguarded against voltage surges by means of a suitable surge protector which shall preferably form an integral part of the unit.

# SECTION B9

## B.9 INSTALLATION OF LUMINAIRES

### 1. POSITIONS

The mounting positions of luminaries shall be verified on site. All luminaries shall be placed symmetrically with respect to ceiling panels, battens, beams, columns or other architectural features of the space unless otherwise indicated. The layout as shown in the Documents shall generally be adhered to but any discrepancies or clashes with structural or other features must be referred to the Department, before commencing erection of the installation.

### 2. COVER PLATES

Cover plates shall be fitted over all draw-boxes and outlets intended for luminaries that are not covered by the luminaries canopy, lamp-holder, ceiling rose or similar accessories.

### 3. FIXING TO DRAW-BOXES

Where an outlet box or draw-box provides the necessary support for a luminaries, all luminaries with the exception of fluorescent luminaries mounted against ceilings, shall be fixed directly to the box. Fluorescent luminaries and luminaries with a mass in excess of 10kg shall however be suspended independently of the outlet box.

### 4. HANGERS AND SUPPORTS

Where provision has not been made for the fixing of luminaries, the Contractor shall supply the necessary supports, hangers, conduit extensions, angle brackets or any other fixing method approved by the Department.

### 5. SUSPENDED LUMINAIRES

The necessary hangers shall be provided where luminaries which are of the non-suspension type have to be fixed below false ceilings or roof slabs. The use of 20mm conduits fixed to the roof slab or ceiling is preferred. Provision shall be made for adjustments to enable the levelling of luminaries. Suspended conduits shall be fixed to the ceiling by means of screwed dome lids, bolts and nuts. Ball-and-spigot type domelids shall be used where conduit lengths exceed 600mm. Wiring shall be installed in the conduit hangers.

### 6. SUSPENDED WIRING CHANNELS

Luminaries (especially fluorescent luminaries) may also be suspended from ceilings by means of suspended metal channels. The metal channel may be supported by conduits or threaded rods. Should metal rods be utilised, these shall be screwed to anchor bolts fixed in the roof slab. Wiring shall either be installed in conduits fixed to the metal channel or in the metal channels and covered with a suitable cover plate. Purpose-made clamps shall be used to fix the luminaries to the cable channel.

### 7. CEILING BATTENS

Where wooden blocks are used to suspend luminaries, ceiling battens shall not be cut. The wooden blocks shall be cut to fit around battens and shall be screwed to the ceiling. Battens may however be cut where fluorescent or incandescent luminaries with metal canopies have to be installed against a false ceiling.

### 8. GLASS-BOWL LUMINAIRES

Unless specified to the contrary, suspended glass-bowl luminaries shall be installed with the underside at least 2,1 m above finished floor level.

## 9. FLUORESCENT LUMINAIRES FIXED TO CONCRETE SLABS

Fluorescent luminaries to be installed directly against concrete slabs or walls shall be securely fixed to the outlet box and at two additional points. Shot-fired fixings are not acceptable. Where approved, fluorescent luminaries may be installed against metal wiring channels in which the wiring is housed. The channel fixing may in this case be shot-fired. Purpose-made fluorescent fixing adaptors shall be used to fix luminaries to cable channels.

## 10. FLUORESCENT LUMINAIRES FIXED TO CEILINGS

10.1 In all cases where luminaries are fixed to false ceilings, the Contractor shall ensure that the ceiling is capable of carrying the weight of the luminaries before commencing installation. Should any doubt exist in this regard, the matter shall be referred to the Department.

10.2 In cases where the weight of the luminaire is not carried by the ceiling but by a support or other suspension method, provision shall be made to prevent relative movement between the ceiling and luminaire, ceiling rose or connection point.

10.3 Surface mounted fluorescent luminaries shall fit firmly against the ceiling brandering without leaving gaps between luminaire and ceiling. The luminaire shall be fixed directly to the ceiling by means of brass plated round-head wood screws and washers.

10.4 In the case of tiled ceilings with exposed or concealed T-section supports, surface mounted luminaries shall be fixed only to the tiles by means of butterfly screws or bolts with nuts and washers. The tiles shall be suitably reinforced.

10.5 Luminaries may alternatively be fixed to metal cross-pieces resting in the ceiling tees.

10.6 Drilling of holes in ceiling tees to support luminaries will not be allowed.

10.7 Luminaries shall be fixed in neat relation to the ceiling lay-out.

## 11. CONTINUOUS ROWS OF LUMINAIRES

In cases where fluorescent luminaries are installed in tandem, only one connection outlet need be supplied per circuit. All luminaries shall be coupled to one another by means of nipples or brass bushes and locknuts to ensure that wiring is not exposed and that earth continuity is maintained. Luminaries on the same circuit may be wired through the channel formed by the luminaire bodies. In this case silicon-rubber insulated conductors shall be used and internal connections shall be made at porcelain terminal blocks. "SCREW-IT" or similar connectors may only be used if prior permission is obtained from the Department. The wiring for any other circuits or outlets, even though these may be in the same row, may not be installed through the luminaire bodies. The Contractor shall ensure that continuous rows are straight and parallel to the relevant building lines.

## 12. RECESSED LUMINAIRES

12.1 Where recessed luminaries are specified, the Contractor shall maintain close liaison with the ceiling Contractor. In the case of tiled ceilings, the luminaries shall preferably be installed while the metal supports are being installed and before the tiles are placed in position. The Electrical Contractor shall be responsible for the co-ordination of the cutting of ceiling tiles with the other contractors concerned.

12.2 All mounting rings and other accessories shall fit closely into cut-outs to ensure a proper finish.

12.3 In all false ceilings where wiring channels are used, recessed luminaries shall be connected to the wiring channels by means of unswitched 5 A socket-outlets.

12.4 The following requirements shall be adhered to:

(a) Socket-outlets used shall comply with the Department's quality specification for "UNSWITCHED AND SWITCHED SOCKET-OUTLETS", par. 4 of Section 11 and shall be of 5 A minimum rating.

(b) The connector cord attached to the luminaire may not exceed 3m in length and shall consist of 1,5mm² minimum, 3-core, PVC-insulated flexible cord.

(c) The 5A socket-outlets shall be positioned such that they are not more than 600mm above the false ceiling.

## 13. SPECIAL CEILINGS

In cases where special ceilings e.g. aluminium strips, decorative glass, metal leaves, etc. are to be installed, the Contractor and the Manufacturer of the ceiling shall agree upon the method of fixing of luminaries in the ceiling.

## 14. BULKHEAD LUMINAIRES

Surface mounted bulkhead luminaries shall not be screwed directly to conduit ends. The conduit shall terminate in a round draw-box at the top or rear of the luminaire. The PVC-insulated conductors shall terminate in a porcelain terminal strip in the draw-box. Silicon-rubber-insulated conductors shall be installed from the terminal strip to the luminaire lamp-holder. "SCREW-IT" or similar connectors may only be used if prior permission is obtained from the Department.

## 15. TYPE OF CONDUCTOR

PVC-insulated conductors, unless protected by an approved heat-resistant sheathing, shall not be used where the temperature of the insulation is likely to exceed 70°C. In unventilated luminaries or luminaries capable of housing incandescent lamps over 60W, the interconnecting wiring from the lamp-holder to the circuit wiring shall consist of silicon-rubber insulated conductors. Silicon-rubber insulated conductors shall be used exclusively in the case of high bay fittings. Refer also to the provisions of SANS 10142.

## 16. WIRING OF LAMPHOLDERS

The central terminal of Edison Screw (E.S.-type) LAMP-HOLDERS shall be connected to the phase conductor and the screwed housing to the neutral conductor.

## 17. HIGH BAY LUMINAIRES

17.1 High bay luminaries shall be securely suspended from the roof structure.

17.2 The luminaries nay be fixed to suspended wiring channels containing the wiring on condition that:

(a) Rigid channels with a maximum width of 42 mm be used,

(b) The channels are supported at intervals that will prevent sag or warp and

(c) The channels are large enough to accommodate the wiring.

17.3 Luminaries may be suspended from metal roof trusses with the aid of "CADDY" or similar fasteners.

17.4 Luminaries shall preferably be connected to unswithed 5A socket outlets. Silicon-rubber insulated flexible cord shall be used exclusively to connect the luminaire to the outlet.

17.5 A safety chain to keep the luminaire from falling when loosened shall be provided.

# SECTION B10

## B.10 CONNECTIONS TO EQUIPMENT

## 1. GENERAL

This section covers the final electrical connections to switchboards and various equipment in general electrical installations under normal environmental conditions for system voltages up to 600 V. Refer also to the Department's standard specifications for "WIRING", Section B5 and "INSTALLATION OF CABLES", Section B6.

## 2. CONNECTIONS TO SWITCHBOARDS

2.1 CONDUIT ENTRIES

2.1.1 Where sufficient space for conduit entries as well as adequate space for future conduit entries is available, conduits may be terminated directly on the switchboard.

2.1.2 Alternatively, conduits connected to switchboards shall terminate in a common fabricated sheet steel draw-box installed in the vicinity of the switchboard. In open roof spaces this draw-box shall be placed in a roof space of not less than 900mm clearance.

2.1.3 Lighting and socket-outlet circuits may be separately grouped in common conduits or metal ducts (trunking) from the distribution board to the draw-box. The drawbox shall be of sheet steel with a minimum thickness of 1,6mm and shall be fitted with a removable cover plate.

2.2 FLUSH MOUNTED SWITCHBOARDS

Where flush mounted switchboards are required, the recessed switchboard tray shall be built into the brick or concrete wall. All conduits from the floor or roof shall be fully recessed and shall be bonded directly to the tray by means of locknuts on both sides and the ends of the conduits fitted with a brass bush.

2.3 SURFACE MOUNTED SWITCHBOARDS

Where surface mounted switchboards are specified but where the conduits can be fully recessed, the conduit shall be connected to a recessed connection box installed behind the switchboard. An opening with the same dimensions as the connection box shall be cut in the back of the switchboard and fitted with a suitable grommet.

2.4 SPARE CONDUITS

Where conduits from a switchboard run into a false ceiling space above the board, a minimum of two 25mm and two 20mm spare conduits shall be installed into the ceiling space immediately above the board.

2.5 CABLE CONNECTIONS

2.5.1 Where underground cables are to be connected to switchboards, it shall be the responsibility of the Contractor to ensure that metal, earthenware, asbestos-cement or other approved sleeves are built in correctly to enable installation and connection of the cable to the switchboard.

2.5.2 PVC or pitch fibre sleeves are not acceptable - refer to par. 3.10 of the Department's standard specification for "INSTALLATION OF CABLES", Section B6.

2.5.3 Sleeves shall tie installed with a fall from inside to outside of the building to facilitate drainage. The sleeves shall be sealed with a non-hardening compound after installation of the cables to render the installation vermin proof and waterproof.

2.5.4 A metal cable channel with removable metal cover plate shall be installed by the Contractor and shall extend from the switchboard to the floor or into the ceiling void as required. The channel shall

coincide with the position of sleeves. The channel shall be flush mounted except in the case of surface mounted switchboards and then only with the permission of the Department's representative.

2.5.5 The cable channel shall be large enough to permit the installation of cable glands and future cables, particularly where spare sleeves have been provided.

2.5.6 The colour of the channel cover shall match that of the associated switchboard.

2.6 CABLE TRENCHES

Where cables in floor trenches have to be connected to wall mounted switchboards, approved sleeves or conduits shall be installed from the side of the trench to the bottom of the switchboard. These sleeves shall be positioned and fixed before the concrete is cast.

## 3. CONNECTIONS TO MOTOR DRIVEN EQUIPMENT.

3.1 An isolator or starter containing an isolator shall be installed within 2m of motor driven equipment. The requirements of SANS 10142 shall be met. If this isolator cannot be installed on a wall, switchboard or other suitable place, an approved free-standing pedestal shall be provided. The pedestal shall be 1m high and outside normal walkways, access routes, etc.

3.2 The connection to the equipment shall be carried out as follows:

(a) Metal reinforced plastic or PVC-covered flexible metal conduits with individual conductors or a multi-core PVC insulated cable and separate bare earth conductor installed inside the conduit may be used. The flexible conduit shall not exceed 600mm. Screwed conduit shall be used from the end of the flexible conduit to the isolator and/or starter. Refer to the department's standard specification for "FLEXIBLE CONDUIT", Section B1, par. 5.

(b) Multi-core armoured PVC- or rubber-insulated cable and earth conductor. The installation and termination of the cables shall comply with the Department's specification for "INSTALLATION OF CABLES, Section B6.

(c) Cables and flexible conduits shall be provided with sufficient slack to allow positional adjustment of the equipment.

3.3 Supply cables to equipment may not be installed across floors which are for general use.

## 4. CONNECTIONS TO WATER HEATERS

4.1 Each water heater shall be connected to a separate circuit with a separate earth conductor.

4.2 The conduit from the switchboard to the water heater shall terminate in a draw-box within 1 m of the water heater terminals. The connection from the draw-box shall be conductors in conduit or PVC-insulated cable. Only in instances where heaters are mounted out of normal reach may flexible conduit and round boxes with dome lids be used for the final connection.

4.3 Three-phase supplies to fixed storage water heaters shall be in accordance with the wiring diagram, Fig. B10.1.

4.4 The mounting of the water heater and the provision of the water connections will be undertaken by others. The Contractor shall ensure that the elements and thermostats can easily be replaced.

4.5 Before testing a water heater, the Contractor shall confirm with the Plumbing Contractor that the unit is filled with water.

4.6 Unless otherwise specified in the Detail Technical Specification, the wiring of hot water heater circuits not exceeding 4 kW shall consist of 4mm² conductors and 2,5mm² earth conductor.

4.7 Unless it is specified that isolators for water heaters shall be provided in the switchboard, a local isolator shall be provided for each water heater. In the case of water heaters not exceeding 4 kW, a 30 A double-pole metal-clad isolator shall be surface mounted over the flush conduit outlet box.

## 5. CONNECTIONS TO HEATERS, FANS AND AIRCONDITIONING UNITS

5.1 ISOLATORS

A flush mounted suitably rated double-pole isolator shall be provided within 1m of the unit. Where the equipment is mounted out of reach, the isolator shall be installed at 1,5m above floor level. Only where units are mounted in easily accessible positions and where an isolating switch is incorporated in the unit, may this isolator be omitted. Where flush isolators are used, flush conduit shall be installed to link with the equipment outlet point. Flexible cords of sufficient rating may be used for the final connection to the equipment.

5.2 WIRING

The minimum conductor size to be used shall be 4 $mm^2$. Each fan, heater or air-conditioning unit shall be on a separate circuit.

5.3 FLUSH MOUNTED CONVECTION HEATERS

The heater frame or tray shall be built or cast into the wall at a height such that the underside of the heater is at 250mm above floor level. Conduits shall terminate on the frame near the terminals.

5.4 SURFACE MOUNTED EQUIPMENT

5.4.1 Connections to surface mounted equipment shall consist of a draw-box located in the vicinity of the terminals of the unit. In workshops and industrial areas the connections shall be made by means of flexible conduit connected to dome lids on the draw-box. Conductors shall be connected directly to the unit.

5.4.2 In non-industrial applications PVC-insulated 3-core flexible cables may be used for the connection.

5.4.3 Where flexible cables are used, a bush shall be provided at the rear of the unit for cable entry and a bush and clamp (or gripper gland) at the draw-box. The clamp shall tightly grip the outer insulation of the cable to prevent tension on the connections between cable and conductors in the draw-box.

5.4.4 Where heaters or air-conditioning units are situated above power skirting, the isolator shall be installed in the power skirting and the flexible cable or cord to the unit shall be installed in the power skirting through a gripper or compression gland. The cable shall be made as short as practical and shall be neatly saddled to the surface of the wall.

5.5 RADIANT HEATERS

The installation of radiant heaters and asbestos heaters, where specified, shall comply with the requirements of paragraph 5.4, with the exception that they shall be mounted on spacers, 25mm away from the mounting surface.

5.6 FAN HEATERS

5.6.1 The contractor shall allow for the supply, installation and electrical connection of the fan heaters as indicated on the drawings. The fan heaters shall be rated at 3 kW and shall be complete with control units.

5.6.2 The heaters shall be secured by means of approved expansion bolts at 2,4m above floor level in positions as shown, with the control units at 1,5m above floor level, directly below the unit.

5.6.3 The fan heater shall be installed on a box directly behind the unit.

5.6.4 Each connection shall be protected by means of a single-pole circuit-breaker on the associated switchboard.

5.6.5 Brass bushes shall be provided to protect the wiring at the rear cable entries to the control unit and fan connection box.

## 6. CONNECTIONS TO UNDERFLOOR HEATING

6.1 Where underfloor heating cable is specified, the Contractor shall supply the cable and thermostats which shall be purchased from a specialist supplier. The cable shall be laid by the specialist supplier and connected by the Contractor. The Contractor shall also be responsible for testing of the cables prior to their being covered by the screed and immediately thereafter. Details of circuit wiring and control of underfloor heating will be specified in the Detail Technical Specification.

6.2 PVC-insulated heating cable with a rating of not higher than 13 W per linear metre shall be used. Thermal insulation will be provided by the Builder.

6.3 The capacity of the heating cable shall he sufficient to give a 20°C temperature rise with an outside ambient temperature of 5°C.

6.4 The total heating load shall, however, not he more than 135 W/m².

## 7. CONNECTIONS TO INCINERATORS

7.1 GENERAL

This section covers connections to incinerators used for domestic purposes in buildings. Unless specified to the contrary, the supply and installation of incinerators will form part of the electrical installation and shall comply with the Department's quality specification, "INCINERATORS", SECTION C14.

7.2 FLUSH MOUNTED INCINERATORS

Where flush mounted incinerators have been specified, the Contractor shall supply the mounting tray to the Builder in good time for it to be built into the structure.

7.3 MOUNTING HEIGHT

Unless specified to the contrary, incinerators shall be installed with the bottom 1m above finished floor level.

7.4 ISOLATOR

A flush mounted 30 A double-pole isolator shall be installed approximately 1,5m above the finished floor level adjacent to each incinerator. The isolator cover plate shall wholly fall within either the tiled or plastered surface of the wall. Unless specified to the contrary, the cover plate shall be finished in white baked enamel. An engraved label shall be provided at each isolator marked as follows:

"SWITCH OFF TO CLEAN AND REMOVE ASH"
"SKAKEL AF VIR SKOONMAAK EN ASVERWYDERING"

7.5 FLUES

The Contractor shall supply flue pipes to the Builder for installation. Two bends and an "H" piece exhaust canopy shall be allowed for each flue pipe.

7.6 EXHAUST FANS

Where more than 5 incinerators are connected to the same flue or where more than two 90° bends are used in the flue, an exhaust fan shall be installed at the flue outlet. In addition a small fan must be provided at each incinerator.

7.7 WIRING

Single incinerators shall be connected by means of 2 x 4mm² PVC insulated conductors and a 2,5mm² bare copper earth conductor in a 20mm conduit. Each incinerator shall be connected to a separate circuit where a common exhaust fan is not used. Where a common exhaust fan is needed, the following applies:

(a) All fans and incinerators connected to the same flue shall be on the same circuit.

(b) The current rating of the circuit-breaker shall be sufficient to allow the simultaneous operation of all the fans and 50 % of the incinerators.

(c) A 30 A double-pole isolator shall be flush mounted adjacent to each incinerator as described in paragraph 7.4. However if the current rating of the circuit-breaker protecting the circuit is larger than 15A, a 15A fuse and fuse holder shall be installed at each incinerator in addition to the isolator. The draw-box and cover plate for the isolator shall be large enough to accommodate the isolator and fuse. Alternatively, a 15A circuit-breaker may be installed adjacent to each incinerator in lieu of the isolator and fuse.

(d) The circuitry shall be arranged to ensure that all the fans will operate when any one of the incinerators is switched on.

(e) Earth leakage protection shall be installed on all incinerator circuits.

## 8. CONNECTIONS TO COOKING APPLIANCES

8.1 Unless specified to the contrary, the circuit connection to each cooking appliance shall consist of:

(a) 2 x 10mm² PVC-insulated conductors and 6mm² bare copper earth conductor for single phase connections, or

(b) 4 x 4mm² PVC-insulated conductors and 2,5mm² bare copper earth conductor for three phase connections.

8.2 A 60A double pole or 30A triple pole micro-gap isolator flush mounted in a wall outlet box, shall be installed 1,5m above floor level to the left or right of the appliance in accordance with SANS 10142. A white baked enamel cover plate shall be provided, situated wholly on the tiled or plastered surface as applicable.

8.3 The conduit shall terminate 450mm above floor level behind the appliance position. The conduit end shall be approximately 75mm long and shall face downwards. Connections from the conduit end to the appliance shall be installed in accordance with SANS 10142. Sufficient slack shall be provided in the flexible connection to move the appliance 600mm away from its normal position for cleaning or maintenance.

8.4 Alternatively a 45A, 3-pin socket-outlet may be mounted on a round draw-box 450mm above floor level. The connection to the appliance shall consist of a plug and 10mm², rubber-insulated and sheathed cable in accordance with SANS 1520. The cable shall be long enough to enable the appliance to be moved 600mm from its normal position for cleaning or maintenance.

8.5 Crimped or soldered lugs shall be provided on all conductors intended for connection to cooking appliances.

8.6 Each appliance shall be connected to a separate circuit. A separate earth wire shall be provided for each appliance.

# SECTION B11

## B.11 EARTHING

This section covers the earthing of electrical installations in buildings or other structures. The total earthing system of any electrical installation shall be in complete accordance with SANS 10142.

## 1. GENERAL RECOMMENDATIONS ON THE PRACTICAL INSTALLATION OF EARTH ELECTRODES

### 1.1 REQUIREMENTS OF AN EFFECTIVE EARTH

1.1.1 An effective earth must prevent dangerous over voltages arising between metallic structures, frames, supports or enclosures of electrical equipment and the ground during fault conditions.

1.1.2 An effective earth must be able to permit fault currents of sufficient magnitude to flow so as to operate protective devices to isolate the fault before damage can occur.

1.1.3 The ohmic resistance of an effective earth must be low enough to ensure that the step potential on the ground in the vicinity of the earthing point is within safe limits under fault conditions i.e. a voltage gradient not exceeding 40 V/m for fault durations exceeding 1s.

### 1.2 TYPES OF EARTH ELECTRODES

Three types of earth electrodes are suitable:

#### 1.2.1 Trench Earths

Trench earths comprise a bare copper or galvanised iron conductor laid at a minimum of 800mm below ground level, usually when underground cables are installed. This type of earth electrode provides a relatively large contact area between electrode and surrounding ground, makes contact with a variety of types of soil and soils of varying moisture content en route and is economical to install.

#### 1.2.2 Spike Earths

Spike earths comprise rods of bare copper, copper-coated steel, stainless steel or galvanised steel designed for the purpose of penetrating ground to depths of up to several metres. A low resistance earth may sometimes be obtained by driving multiple spikes at some distance from each other in order to provide parallel paths.

In hard or rocky ground, it is usually necessary to drill holes into which earth spikes are inserted and then packed with soft soil.

#### 1.2.3 Foundation Earths

Foundation earths comprise bare copper or galvanised iron conductors laid under the foundations of buildings, miniature substations, distribution pillars, bases of wooden, concrete or steel poles and structures. Because soil under foundations usually retains moisture, foundation earths are located to take advantage of this favourable condition. Furthermore, they are economical to install.

### 1.3 MATERIALS FOR EARTH ELECTRODES

1.3.1 Bare copper, either in stranded, strip or rod form, is considered the most suitable general purpose material for earth electrodes. Its main disadvantage is its cost and susceptibility to theft.

1.3.2 Bare galvanised iron and steel, either in stranded, strip or rod form, has a satisfactory record of survival in non-aggressive soils and is more economical than copper.

1.3.3 Bare aluminium is unsuitable as electrode material.

1.4 CORROSION

Because galvanised ferrous metals corrode sacrificially to copper, galvanised iron and steel electrodes should not be buried in close proximity to bare copper.

## 2. TECHNICAL REQUIREMENTS OF NEUTRAL EARTHING

The following relevant aspects have been extracted from the "AMEU CODE OF PRACTICE FOR THE APPLICATION OF NEUTRAL EARTHING ON LOW VOLTAGE DISTRIBUTION SYSTEMS."

2.1 DISTRIBUTION SYSTEMS

Multiple Earthed Neutral (MEN) and Protective Multiple Earthing (PME) systems.

Distribution equipment associated with transformer substations that are either ground mounted or pole mounted and fed by underground cable or overhead line, with or without an earth continuity conductor, (ECC), should be installed, connected and earthed in accordance with the following requirements:

(a) Where the resistance to earth of the HV equipment earth is 1 ohm or less, it is permissible to earth the LV neutral to the HV earth electrode.

(b) Where the HV equipment earth exceeds 1 ohm the LV neutral shall be earthed at a minimum distance of 6m from the HV equipment earth (i.e. 6m from the HV electrode/s and also from any earthed metalwork connected thereto).

(c) Notwithstanding the requirements of (a) above, where transformers are associated with HV overhead lines, it is considered good practice to separate the HV and LV earth electrodes. The minimum earth separation should be 6m or one LV span.

(d) The overall resistance to earth of the neutral of an LV distributor or distribution system must not exceed 10 ohms.

(e) The LV neutral may be connected to other supply neutrals, earth electrodes, cable sheaths and armouring and these connections used to obtain the required earthing value of 10 ohms or less specified in par. (d). above.

(f) The neutral of underground and overhead LV distributors must be earthed at the remote ends of each distributor.

(g) Where the overall resistance to earth of the neutral of the distribution system exceeds 10 OHMS, the neutral shall be earthed at intermediate positions on the distributor/s to reduce its resistance to earth to below this limit.

(h) The cross-sectional area of the neutral of all LV distributors must not be less than that of a phase conductor.

(i) No circuit-breakers, isolators, fuses, switches or removable links shall be installed in the neutral between the transformer star point and the remote end of any LV distributor or service connection.

(j) All metallic sheathing and armouring of cables and all metalwork associated with meter cabinets, fuse pillars, etc., supporting or enclosing LV cables shall be bonded to the distributor neutral conductor.

(k) Where a Separate Neutral Earth (SNE) cable is part of an MEN or PME system, the armouring and/or metallic sheath and any ECC shall be bonded to the neutral at the supply end of the cable.

(l) To ensure the integrity of the neutral, it is recommended that all connections and joints on or to overhead line conductors be made by compression fittings or, alternatively double bolted connectors.

(m) MEN or PME may be applied to any single LV distributor without alterations to other LV distributors supplied from the same transformer.

2.2 PROTECTIVE NEUTRAL BONDING (PNB) SYSTEM

Since the neutral is earthed at one point only, the question of multiple earthing does not arise and there is therefore no necessity to meet the MEN/PME technical requirements.

2.3 SERVICE CONNECTIONS

2.3.1 MEN System

The following conditions apply to consumers' service connections as well as service connections to traffic signals, road signs, street lighting and other power-consuming equipment installed in public places:

(a) All service connections must be by means of cable with an insulated phase, an insulated neutral conductor and an ECC.

(b) A single phase service connection comprises a live, a neutral and an ECC.

(c) A polyphase service connection comprises two or three phase conductors, a neutral and an ECC.

(d) The service neutral and ECC must be solidly and separately connected to the distributor neutral at the tee-off point.

(e) The consumer's earthing lead is connected to the Supply Authority's earth terminal which is in turn connected to the ECC in the service cable at the consumer's supply point.

(f) The neutral must not be connected to earth at the consumer's supply point.

(g) If required by the Supply Authority, and earth electrode must be installed at the consumer's supply point.

(h) In a service connection to traffic signals, street light and other power-consuming equipment installed in public places, such equipment is earthed to the ECC of the service connection.

2.3.2 PME System

(a) All service connections must be by means of a cable with an insulated phase and an insulated neutral conductor.

(b) A single phase service comprises a live conductor and a neutral.

(c) A polyphase service connection comprises two or three phase conductors and a neutral.

(d) The consumer’s earthing lead is connected to the supplier's neutral and to a mandatory earth electrode at the consumer's supply point.

(e) A label must be attached at the consumers supply point on his premises indicating that the installation is part of a PME system.

Note: It is not recommended that the PME system be applied to supply traffic signals, street signs or other power-consuming equipment installed in public places, because the PME system is inherently unsafe under "broken-neutral" conditions.

## 3. SUBSTATION EARTHING

In order to comply with the requirements of par. 1 and 2 above, an earth resistivity measurement shall be undertaken at the site of a new substation or miniature substation, preferably be a specialist firm. The contractor shall then submit to the Department details of a proposed substation earth indicating whether a

trench earth, spike earth or foundation earth is intended and the proposed interconnections with the installation.

## 4. FENCES OF OUTDOOR SUBSTATIONS

In cases where substations contain transformers or switchgear installed outdoors, the compulsory fence shall be earthed as follows, if no other method is specified :

(a) A 70mm² earth wire shall be installed 400mm below ground level and 500mm from the fence on the outside of the sub-station along the entire length of the fence. This earth wire shall be earthed at each corner by means of a 1,8m earth rod and the rod and earth wire bonded to the fence. The earth wire shall also be bonded, at least at two points, to the main earthing system.

(b) A 70mm² earth wire shall also be buried at a depth of 400mm around each transformer and switch and bonded to the main earthing system.

## 5. EARTHING OF A GENERAL ELECTRICAL INSTALLATION

### 5.1 GENERAL

All earth conductors shall be stranded copper with or without green PVC insulation. The conductors shall comply with the Department's quality specification for "PVC-INSULATED CABLES", Section C4. All earth conductor sizes shall be determined in accordance with SANS 10142, par. 4.6 where the earth does not form an integral part of the cable.

### 5.2 SWITCHBOARDS

A separate earth connection shall be supplied between the earth busbar of the main switchboard and the earth busbar of every sub-switchboard. These connections shall consist of bare or insulated stranded copper conductors installed along the same routes as the supply cables or in the same conduit as the supply conductors. Alternatively armoured cables with earth continuity conductors included in the armouring may be utilised.

### 5.3 SUB-CIRCUITS

The earth conductors of all sub-circuits shall be connected to the earth busbar in the supply switchboard in accordance with SANS 10142.

### 5.4 RING MAINS

Common earth conductors may be used where various circuits are installed in the same wiring channel in accordance with SANS 10142. In such instances the sizes of earth conductors shall be specifically approved by the Department. Earth conductors for individual circuits branching from the ring main shall be connected to the common earth conductor with T-ferrules or soldered. The common earth shall not be broken.

### 5.5 CONNECTIONS

Under no circumstances shall connection points, bolts, screws, etc. used for earthing be utilised for any other purpose. It will be the responsibility of the Contractor to supply and fit earth terminals or clamps on equipment and materials that must be earthed where these are not provided. Unless earth conductors are connected to proper terminals, the ends shall be tinned and lugged. Lugs may be crimped, using mechanical or pneumatic tools designed for this purpose, on condition that evidence is submitted that the method used complies with the performance requirements of BS 4579, Part 1: "COMPRESSION JOINTS IN COPPER."

### 5.6 NON-METALLIC CONDUIT

Where non-metallic conduit is specified or allowed, stranded copper earth conductors shall be installed in the conduits and fixed securely to all metal appliances and equipment, including switch boxes, socket-outlet boxes, draw-boxes, switchboards, luminaries, etc. The securing of earth conductors by means of self-threading screws will not be permitted.

## 5.7 FLEXIBLE CONDUIT

An earth conductor shall be installed in all non-metallic flexible conduit. This earth conductor shall not be installed external to the flexible conduit but within the conduit with the other conductors. The earth conductor shall be connected to the earth terminals at both ends of the circuit.

## 5.8 WATER PIPES

Metal cold water mains shall be bonded to the earth busbar in the Main Switchboard by solid 15 x 2mm copper strapping. All other hot and cold water pipes shall be connected by 12 x 0,8mm perforated or solid copper strapping (not conductors) to the nearest switchboard. The strapping shall be fixed to the pipe work by brass nuts and bolts and against walls be brass screws at 150mm centres. In all cases where metal water pipes, down pipes, flues, etc. are positioned within 1,6 m of switchboards, an earth connection consisting of copper strapping shall be installed between the pipe work and the board. In vertical building ducts accommodating both metal water pipes and electrical cables, all the pipes shall be earthed at each switchboard.

## 5.9 ROOFS

Where service connections consist of overhead conductors, all metal parts of roofs, gutters and down pipes shall be earthed. One bare 10mm² copper conductor shall be installed over the full length of the ceiling void, fixed to the top purlin and connected to the main earth conductor of each switchboard. The roof and gutters shall be connected at 15m intervals to this conductor by means of 12 x 0,8mm copper strapping (not conductors) and galvanised bolts and nuts. Self-tapping screws are not acceptable. Where service connections consist of underground supplies, the above requirements are not applicable.

# SECTION B13

## B.13 SUBSTATIONS SWITCH ROOMS AND GENERATOR ROOMS

This section covers the general building arrangement and special requirements for high and low voltage switch rooms, transformer rooms and generator rooms.

## 1. STANDARD BUILDINGS

The following list indicates the standard substation designs and corresponding standard departmental drawing number which are available.

1.1 High voltage room, transformer room for one transformer up to 800kVA, low voltage room and a generator room for one emergency generator set from 200 to 500kVA ..... EE/136/131A.

1.2 High voltage room, transformer room for one transformer up to 800kVA, low voltage room and a generator room for one emergency generator set from 80 to 200kVA ..... EE3/136/131B.

1.3 High voltage room, transformer room for one transformer up to 800kVA, low voltage room and a generator room for one emergency generator set up to 30kVA ..... EE3/136/131C.

1.4 High voltage room, transformer room for one transformer up to 800kVA and low voltage room ..... EE3/136/131D.

1.5 High voltage room, transformer room for one transformer up to 800kVA, low voltage room and a generator room for two emergency generators up to 200kVA each ..... EE3/136/131E.

1.6 Large high voltage room, transformer room for one transformer up to 800kVA and low voltage room..... EE3/136/131F.

1.7 High voltage room, transformer room for two transformers of up to 800kVA each, large low voltage room and a store room ..... EE3/136/131G.

1.8 Emergency generator buildings..... EE3/136/118.

## 2. OTHER BUILDINGS

If the standard buildings cannot accommodate the equipment required, suitable substation rooms complying with the following constructional details shall be provided:

2.1 The rooms shall have a ceiling height of at least 2,8 m above finished floor level.

2.2 A concrete roof slab shall be provided or alternatively a roof consisting of corrugated iron, or clay or cement tiles with an asbestos ceiling.

2.3 The rooms shall be waterproof, vermin proof and fireproof.

2.4 Door openings shall be 1,85 m wide by 2,5 m high with steel louvered ventilation openings over at least 60 % of the door area. Doors shall open outwards and it shall be possible to readily open them from the inside. Provision shall be made for a night latch and a padlock.

2.5 The floor and transformer base shall be on the same level. Each transformer base shall be able to support a mass of 5 tons on castors.

2.6 Vermin proof steel louvered ventilation openings shall be provided with an area of at least 20 % of the total floor area for transformer and generator rooms and 10 % for switch rooms if not specified to the contrary. 50 % of the ventilation openings shall be installed in the lower part of the walls, not more than 300 mm above floor level and the other 50 % of the ventilation openings shall be installed in the

upper part of the walls, not more than 300 mm below ceiling level to achieve good cross and convection ventilation. Louver's contained in the doors can normally be considered to provide the 50 % required in one of the walls.

2.7 Where possible, windows with an area equal to 5 % of the floor area shall be included to provide natural lighting. It shall not be possible to open these windows. The windows shall be in the upper portion of the walls, as high as possible.

2.8 Corners of transformer bases and cable ducts shall be cut off at an angle of 45° with the splay at least 100mm wide.

2.9 Cable entrance openings shall be at least 600mm wide x 500mm deep and level with the bottom of the cable trenches. Alternatively a separate sleeve for each cable and at least one spare sleeve, shall be provided.

2.10 Cable trenches shall be 600mm wide and 800mm deep unless specified to the contrary.

2.11 The floors of cable trenches shall have a fall of 1:100 to make provision for the natural draining of water.

2.12 At least one light with a switch adjacent to the entrance and one standard 16A 3-pin earth leakage protected socket outlet shall be provided in each room. The illumination level in the substations shall not be less than 200 lux. If a battery supply is available one incandescent light per substation room shall be connected to this supply and the switch in the circuit marked "EMERGENCY LIGHT"/"NOODLIG".

2.13 The floors shall be floated to a smooth finish with a steel trowel.

2.14 Any one of the following interior wall finishes is acceptable:

(a) Plastered and painted white.

(b) Unpainted face brick (preferably light colour brick).

(c) Off-shutter concrete painted white.

## 3. NOTICES

The following notices in both official languages shall be exhibited at all entrances to and suitable places within premises in which are situated generating plant and transforming, switching or linking apparatus:

A notice showing the "Lightning" sign with the wording: Danger-Ingozi-Gevaar.

3.1 A notice prohibiting unauthorised persons from entering such premises.

3.2 A notice prohibiting any unauthorised persons from handling or interfering with electrical apparatus.

3.3 A notice detailing procedure in case of fire.

3.4 A notice containing directions for resuscitation of persons suffering from the effects of electric shock.

## 4. HIGH VOLTAGE SWITCH ROOMS (ABOVE 1 KV)

4.1 The equipment shall be installed and secured to the floor in accordance with the manufacturer's specification.

4.2 Sufficient space shall be provided between the switchboard and the walls of the switch room to allow for the installation, maintenance and operation of the switchboard.

4.3 In the case of switchboards with uninsulated conductors accessible from the back, a clear space of at least 1,2 m shall be provided between the back and sides of the board and the wall.

4.4 In the case of switchboards which are of a totally enclosed construction the minimum clear space between the back and sides of the board and the wall shall be at least 900mm.

4.5 A space of at least 1,2 m shall be provided in front of a switchboard for operating and maintenance personnel. If the circuit breakers are of the withdrawable carriage type this space shall be at least 900 mm when the breaker carriages are in the fully withdrawn position.

4.6 The access door into the room shall be in front of the switchboard.

4.7 The tools and earthing and operating devices for the switchgear shall be contained in a purpose-made sheet metal cupboard secured to the wall of the substation.

4.8 A reticulation diagram displaying sufficient detail to be able to assess problems and trace faults (both on the HV and LV sides of the system) shall be mounted against a wall in the HV switch room behind clear plastic.

## 5. LOW VOLTAGE SWITCH ROOMS (BELOW 1 KV)

5.1 The equipment shall be installed and secured firmly to the floor or wall of the switch room.

5.2 Sufficient space shall be provided between the switchboard and the walls of the switch room to allow for the installation, maintenance and operation of the switchgear. In general this space shall be 900mm at the back and sides of the board and 1,2 m in front of the switchboard.

5.3 In the case of switchboards with uninsulated conductors which are exposed and accessible from the back a clear space of at least 1,2 m shall be provided at the back.

5.4 A LV reticulation diagram displaying sufficient detail of at least the main LV reticulation in order to be able to assess problems shall be mounted against a wall in the LV switch room behind clear plastic.

## 6. TRANSFORMER ROOMS OTHER THAN IN STANDARD BUILDINGS

6.1 Transformer rooms shall be large enough to accommodate the transformer with a 900mm clear space between the walls and the transformer. The minimum dimensions of a transformer room shall in any case be not less than 3,5m wide and 4,0m long.

6.2 The dimensions of the room shall be determined by using the transformer dimensions of TABLE 2 of SANS 780.

6.3 Where natural cross ventilation of the transformer room is not possible, adequate forced ventilation shall be provided to dispose of the transformer's losses and to prevent the air temperature in the transformer room from exceeding 40 C.

6.4 The cable entrances to the transformer room shall be sealed off after the cables have been installed.

## 7. GENERATOR ROOMS OTHER THAN IN STANDARD BUILDINGS

7.1 The ventilation of generator rooms shall be sufficient to dispose of the heat radiated from the engine while delivering full power.

7.2 The heat from the radiator shall be released outside the building via a ventilation duct or an external heat exchanger.

7.3 The exhaust emission shall be released outside the building and shall comply with the local environmental control regulations.

7.4 The fuel storage tank shall be installed in compliance with SANS 10131 and the position shall be approved by the local Fire Department. When the storage tank must be located outdoors, it should be underground to insulate the fuel from severe temperature variations which may impede fuel flow.

7.5 An electrical schematic diagram indicating mains supply and change-over arrangement as well as all standby plant electrical control circuitry, shall be mounted on a wall behind clear plastic.

7.6 An emergency light with automatically rechargeable Nickel-Cadmium batteries shall be installed above the generator set to facilitate manual starting or fault tracing in the event that the set does not start during a power failure.

## 8. CABLES

8.1 Cables shall be installed in cable trenches which shall be provided for this purpose. The installation shall comply with the Department's standard specification for "INSTALLATION OF CABLES", par. 5 of Section B6.

8.2 Under normal circumstances cables shall not be installed directly on the floor.

## 9. COVERING AND SEALING OF CABLE TRENCHES

9.1 All the cable trenches shall be covered with steel chequer plate or a compound wood, bound with a water resistant binder, or an approved fibreglass grating. The following types of compound wood coverings are acceptable:

(a) Five ply marine ply, 12 mm thick.

(b) Exterior grade particle board, 22mm thick.

(c) Tempered hardboard, 12,7mm thick.

9.2 The trench coverings shall be ridged and shall not sag more than 5 mm with two normal persons standing on one section.

9.3 The trench covering shall be in sections not exceeding 1,25 m.

9.4 The trench coverings shall be provided with holes or recessed handles to make it possible to remove and replace the covers easily.

9.5 The trench coverings shall be neatly cut where necessary to accommodate cables.

9.6 The covers shall overlap the trench on both sides and shall be recessed to fit flush with the surface of the floor.

9.7 The cable entrances in the trenches of the switch rooms, transformer rooms and generator rooms shall be closed and sealed after the cables have been installed to prevent the backfill material and water from entering the trenches in the building.

9.8 The cable entrances shall be closed with bricks, without mortar, in such a way as to prevent the weight of the bricks from resting on the cables. These bricks shall be plastered on the inside with a 10:1 ratio of sand and cement.

9.9 If the cables enter the trenches via sleeves, these sleeves shall be plugged on both sides with weak mortar, an asbestos and cement mixture or a non-hardening compound.

# SECTION B15

## B.15 INSPECTIONS, TESTING, COMMISSIONING AND HANDING OVER

### 1. PHYSICAL INSPECTION PROCEDURE

1.1 Once the Contractor has completed the installation, written notice shall be given to the Department in order that a mutually acceptable date can be arranged for a joint inspection.

1.2 During the course of the inspection, the representative of the Department will compile a list of items (if any) requiring further attention. A copy of this list will be provided to the Contractor who will have a period of 7 days in which to rectify the offending items of the installation.

1.3 The Contractor shall then provide written notice that he is ready for an inspection of the remedial work to the offending items.

1.4 This procedure will continue until the entire installation has been correctly completed to the satisfaction of the Department.

### 2. TESTING AND OPERATIONAL INSPECTION PROCEDURE

2.1 In addition to the above the Contractor shall have the complete installation tested and approved by the local authorities where applicable.

2.2 Subsequent to the above testing and approval, the Contractor shall in the presence of the representative of the Department test all circuits with respect to:

(a) Phase balance.

(b) Insulation level.

(c) Polarity.

2.3 Upon completion of the installation and within 3 months of the handover date, the Contractor shall provide and make available a recording voltmeter to record the voltage at three locations in the complex over a period of 48 hours each. These locations will be nominated by the Department.

### 3. "AS BUILT" DRAWINGS

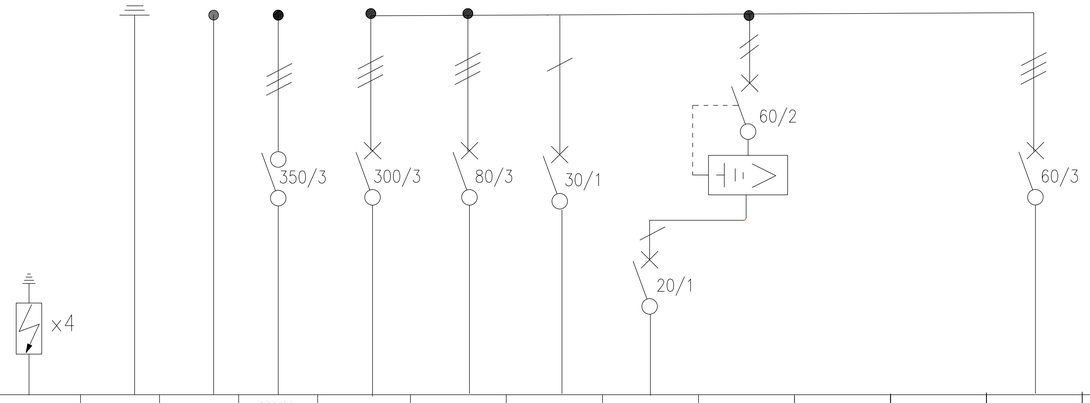
3.1 As each portion of the work is completed, the Contractor shall provide the Department with as-built drawings showing the exact location measured from fixed points of all cables, transmission lines, each outlet point, etc.

3.2 In addition a complete reticulation diagram showing all supply cables and switchboards shall be provided behind a plastic cover in the substation or adjacent to the Main Switchboard if not located in a substation.

3.3 The installation will not be regarded as complete until all of the above requirements listed in 1, 2 and 3 above have been met.

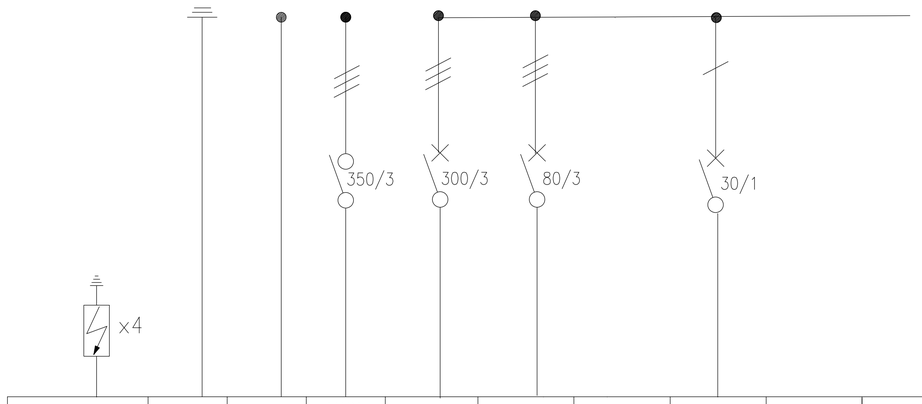
DURING CONSTRUCTION, THE CONTRACTOR MUST ENSURE THAT THE LOAD IS BALANCED BETWEEN THE PHASES.

## PANEL 2 NORMAL




| CIRCUIT NO. | EARTH | NEATRAL | MAIN FEEDER | CB1 | CB2 | IS1 | P1 | SPARE | SPARE | SPARE | CB4 | SPARE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CONDUCTOR SIZE ($mm^2$) | 120 | 185 | 185 | 150 | 25 | 6 | 4 | | | | 10 | |
| REMARKS | FROM MAIN PANEL 1 | | | DB1 | DB2 | AIRCON | SOCKET | SPARE | SPARE | SPARE | DB4 | SPARE |

## PANEL 2–EMERGENCY




| CIRCUIT NO. | EARTH | NEATRAL | MAIN FEEDER | CB1 | CB2 | SPARE | P1 | SPARE | SPARE |
|---|---|---|---|---|---|---|---|---|---|
| CONDUCTOR SIZE ($mm^2$) | 120 | 185 | 185 | 150 | 25 | | 4 | | |
| REMARKS | FROM MAIN PANEL 1 | | | DB1 | DB2 | SPARE | SOCKET | SPARE | SPARE |

| NO. | DATE. | AMENDMENT | D.P.W. |
|---|---|---|---|
| | | | |

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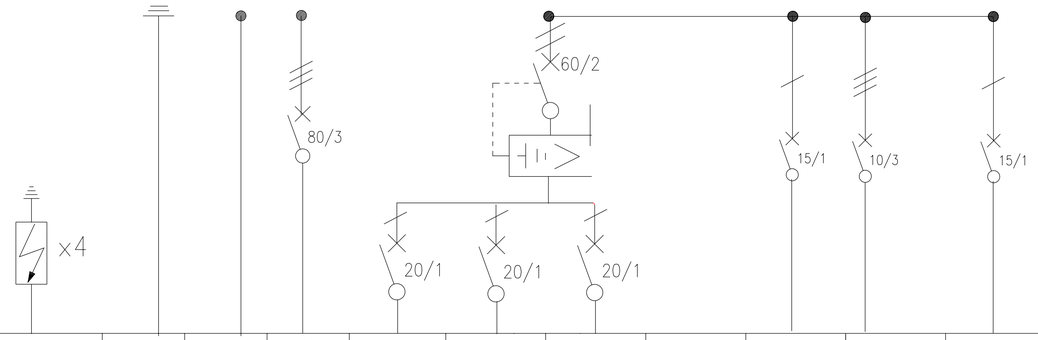
PANEL 2

SINGLE LINE DIAGRAM

ref. no.
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drawn SS
date 08/2013
checked NHM
type number
drawing number L13-01 Drw. 01/1

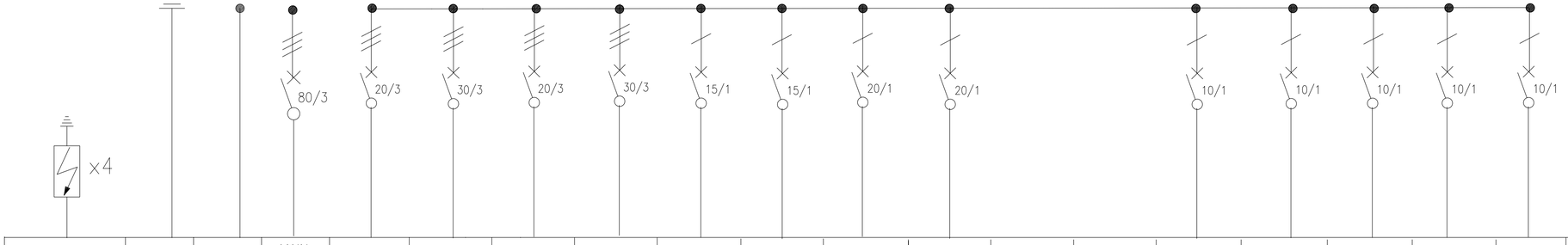
DURING CONSTRUCTION, THE CONTRACTOR MUST ENSURE THAT THE LOAD IS BALANCED BETWEEN THE PHASES.

## DB 2–NORMAL SUPPLY




| CIRCUIT NO. | EARTH | NEATRAL | MAIN FEEDER | P1 | P2 | P3 | SPARE | IS1 | IS2 | IS3 | SPARE | SPARE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CONDUCTOR SIZE ($mm^2$) | 10 | 25 | 25 | 4 | 4 | 4 | | 6 | 6 | 6 | | |
| REMARKS | FROM PANEL 2 | | | SOCKET | SOCKET | SOCKET | SPARE | DEHUMIDIFIER | BAIN MARIE | FOOD WARMER | SPARE | SPARE |

## DB 2–EMERGENCY SUPPLY




| CIRCUIT NO. | EARTH | NEATRAL | MAIN FEEDER | IS–E1 | IS–E2 | IS–E3 | IS–E4 | IS–E5 | IS–E6 | P2 | DP1 | SPARE | SPARE | L1 | L2 | L3 | L4 | EL1 | SPARE | SPARE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CONDUCTOR SIZE ($mm^2$) | 10 | 25 | 25 | 6 | 6 | 6 | 6 | 4 | 4 | 4 | 4 | | | 2,5 | 2.5 | 2.5 | 2.5 | 2.5 | | |
| REMARKS | FROM PANEL 2 | | | CONDENSER COLD ROOM | CONDENSER FREEZER | COMPRESSOR COLD ROOM | COMPRESSOR FREEZER | FOOD WARMER | FOOD WARMER | BREAD SLICER | DEDICATED SOCKET | SPARE | SPARE | LIGHT | LIGHT | LIGHT | LIGHT | LIGHT | SPARE | SPARE |

| NO. | DATE. | AMENDMENT | D.P.W. |
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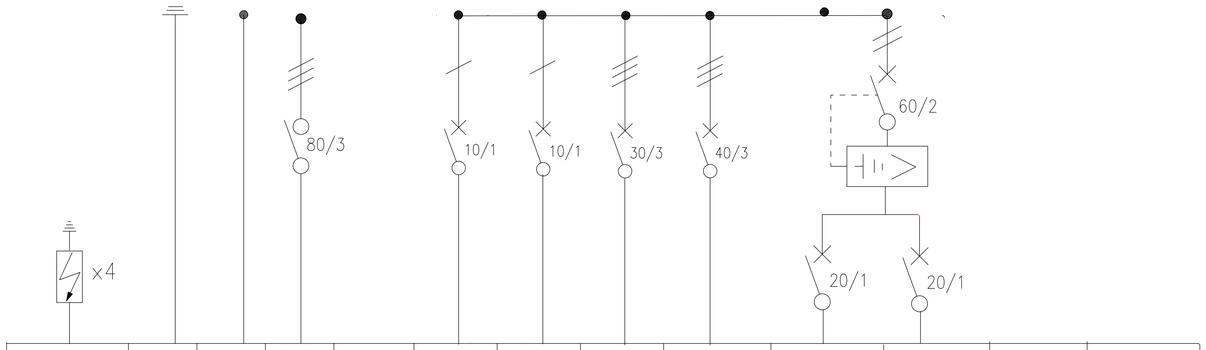
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drawing title
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SINGLE LINE DIAGRAM

| ref. no. | designed | |
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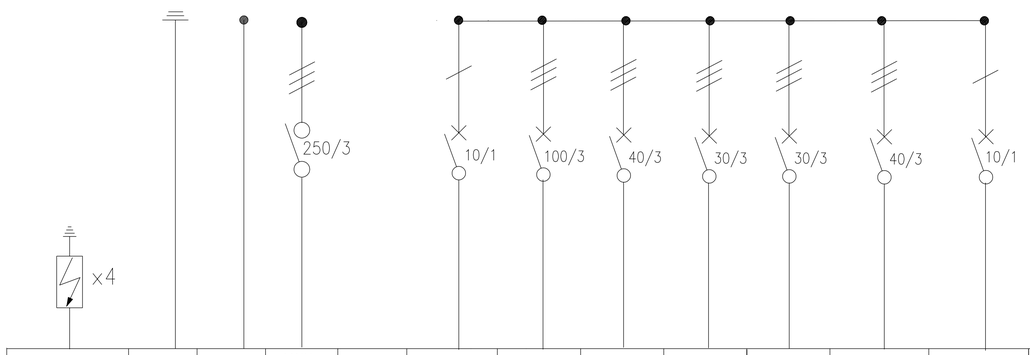
DURING CONSTRUCTION, THE CONTRACTOR MUST ENSURE THAT THE LOAD IS BALANCED BETWEEN THE PHASES.

## DB TK–NORMAL SUPPLY




| CIRCUIT NO. | EARTH | NEATRAL | MAIN FEEDER | SPARE | IS1 | IS2 | IS3 | IS4 | P1 | P2 | SPARE | SPARE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CONDUCTOR SIZE ($mm^2$) | 10 | 16 | 16 | | 6 | 4 | 6 | 10 | 4 | 4 | | |
| REMARKS | DB K | | | SPARE | VEG PREP MACHINE | BAND SAW | FRY PAN | PHUTHU COOKING POT | SOCKET | SOCKET | SPARE | SPARE |

## DB TK–EMERGENCY SUPPLY




| CIRCUIT NO. | EARTH | NEATRAL | MAIN FEEDER | | IS–E1 | IS–E2 | IS–E3 | IS–E4 | IS–E5 | IS–E6 | L1 | SPARE | SPARE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CONDUCTOR SIZE ($mm^2$) | 50 | 95 | 95 | | 4 | 25 | 10 | 6 | 6 | 10 | 2,5 | | |
| REMARKS | DB K | | | | POTATO PEELER | COMBIMASTER | OVEN | FRY PAN | BOILING PAN | PHUTHU COOKING POT | LIGHT | SPARE | SPARE |

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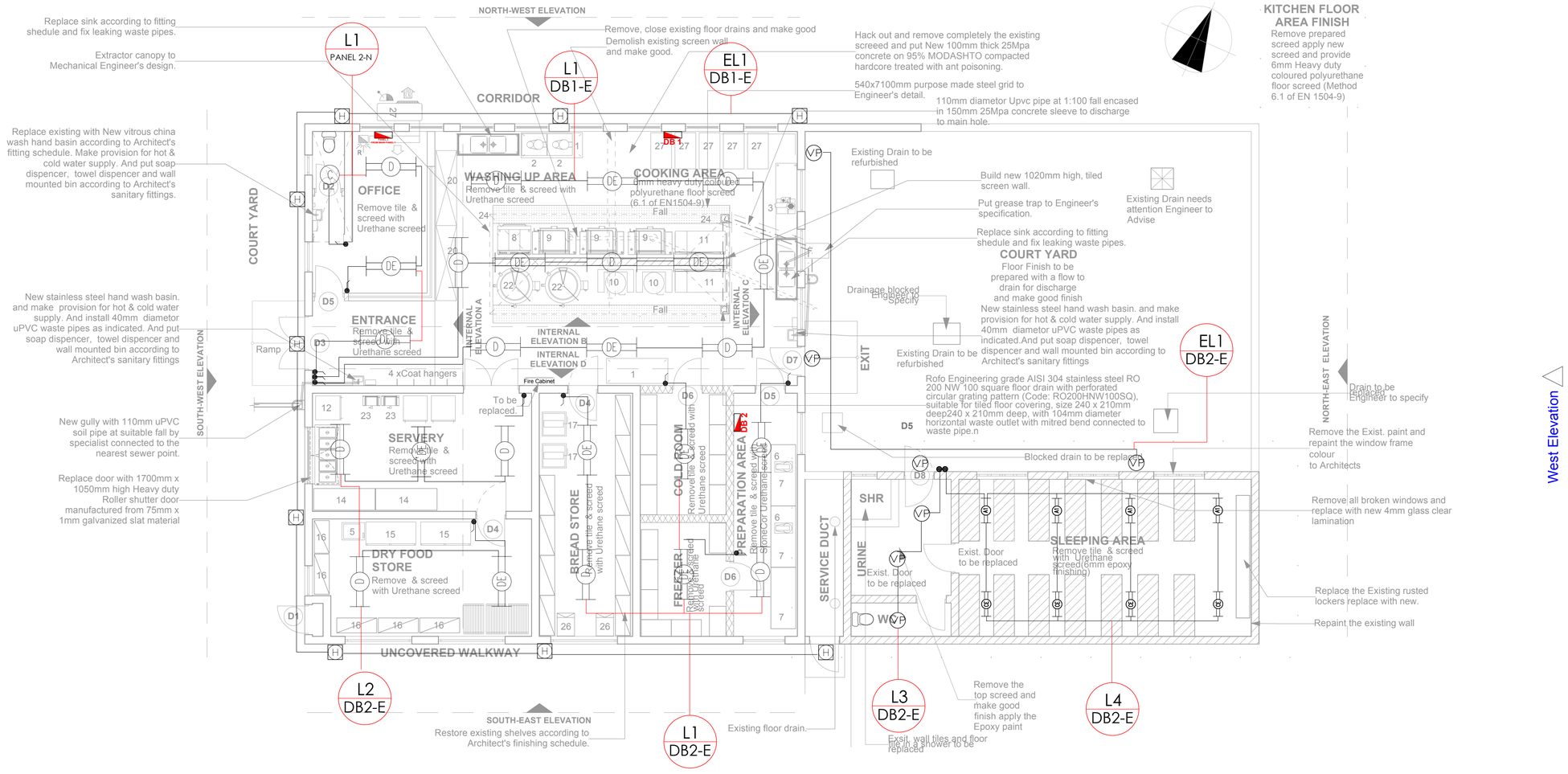
drawing title

TEMPORARY KITCHEN BLOCK
SINGLE LINE DIAGRAM

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designed
scale AS SHOWN
drawn SS
date 08/2013
checked NHM
type number
drawing number L13-01 Drw. 01/1

| LEGEND | | | |
|---|---|---|---|
| | | | |
| | | | DECORATIVE WATERTIGHT CEILING MOUNTED BULKHEAD WITH 2x15W LED LAMP, ALUMINIUM CONTROL GEAR HOUSING AND HIGH PRESSURE DIE CAST ALUMINIUM TRIM RING |
| | | | EMERGENCY SIGNAGE LUMINAIRE COMPLETE WITH HERMETICALLY SEALED NiCd BATTERY |
| | | | DECORATIVE DOWNLIGHTER WITH 1x15W LED LAMP, ALUMINIUM CONTROL GEAR HOUSING AND HIGH PRESSURE DIE CAST ALUMINIUM TRIM RING |
| | | | ONE LEVER LIGHT SWITCH |
| | | | TWO LEVER LIGHT SWITCH |
| | | | TWO WAY LIGHT SWITCH |
| | | | INDICATOR LIGHT |
| | | | MOTION SENSOR |

West Elevation




West Elevation

| NO. | DATE. | AMENDMENT | D.P.W. |
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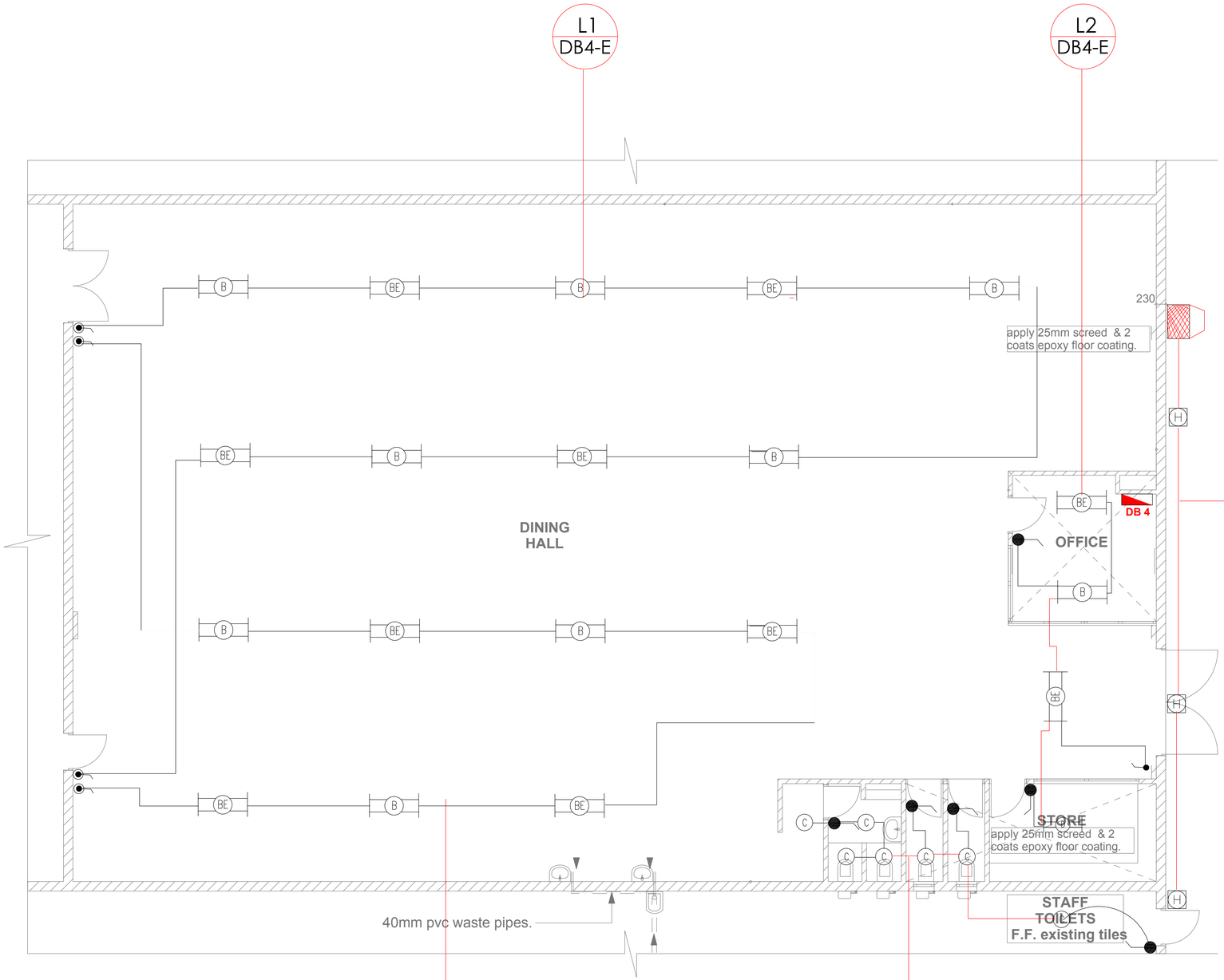
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WCS number
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drawing title
KITCHEN BLOCK
LIGHTING LAYOUT

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| LEGEND | | | |
|---|---|---|---|
| B | | H | |
| BE | | B1 | DECORATIVE WATERTIGHT CEILING MOUNTED BULKHEAD WITH 2x15W LED LAMP, ALUMINIUM CONTROL GEAR HOUSING AND HIGH PRESSURE DIE CAST ALUMINIUM TRIM RING |
| A | | X | EMERGENCY SIGNAGE LUMINAIRE COMPLETE WITH HERMETICALLY SEALED NiCH BATTERY |
| AE | | G | DECORATIVE DOWNLIGHTER WITH 1x15W LED LAMP, ALUMINIUM CONTROL GEAR HOUSING AND HIGH PRESSURE DIE CAST ALUMINIUM TRIM RING |
| D | | | ONE LEVER LIGHT SWITCH |
| DE | | | TWO LEVER LIGHT SWITCH |
| C | | | TWO WAY LIGHT SWITCH |
| A1 | | | INDICATOR LIGHT |
| CE | | | MOTION SENSOR |

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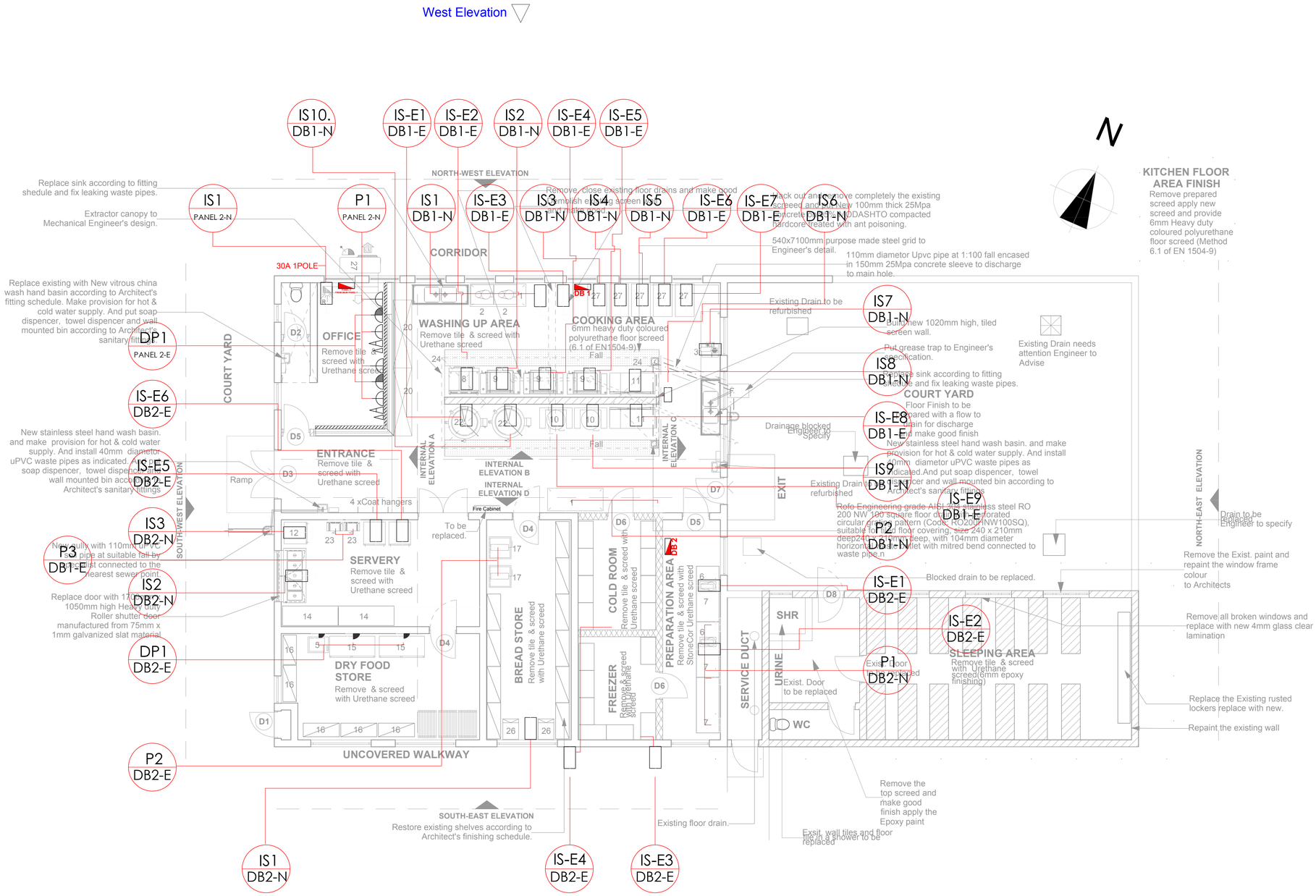
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drawing title
DINING HALL
LIGHTING LAYOUT

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| type number | |
| drawing number | L13-01 Drw. 01/1 |




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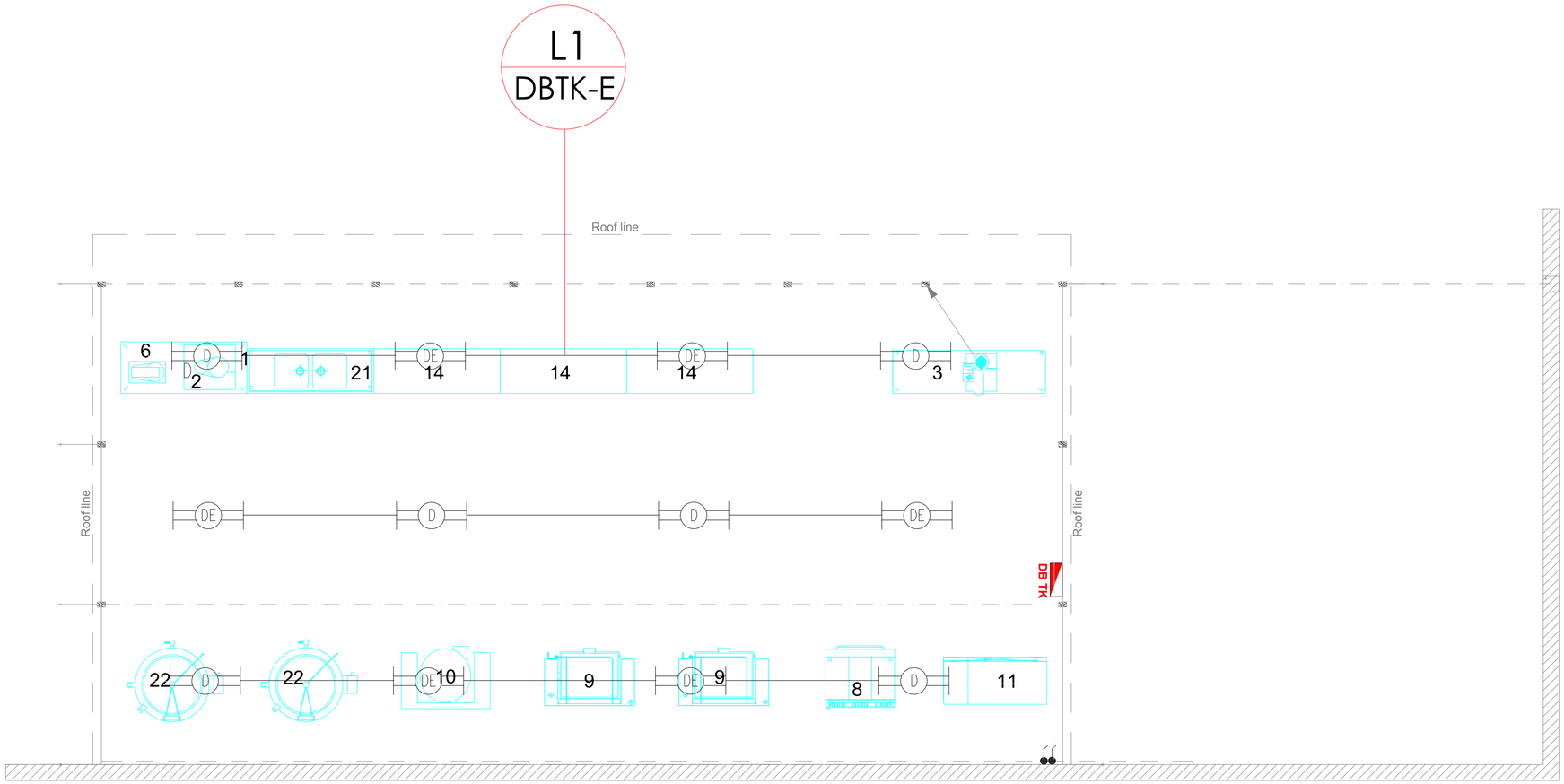
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drawing title

KITCHEN BLOCK

POWER LAYOUT

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| type number | | | |
| drawing number | L13-01 Drw. 01/1 | | |




| LEGEND | | | |
|---|---|---|---|
| D | SURFACE MOUNTED FLUORESCENT LUMINAIRE WITH 2x36W LAMPS | H | |
| DE | DECORATIVE WATERTIGHT CEILING MOUNTED BULKHEAD WITH 2x15W LED LAMP, ALUMINUM CONTROL GEAR HOUSING AND HIGH PRESSURE DIE CAST ALUMINIUM TRIM RING | B1 | |
| A | EMERGENCY SIGNAGE LUMINAIRE COMPLETE WITH HERMETICALLY SEALED NiCd BATTERY | X | |
| AE | DECORATIVE DOWNLIGHTER WITH 1x15W LED LAMP, ALUMINUM CONTROL GEAR HOUSING AND HIGH PRESSURE DIE CAST ALUMINIUM TRIM RING | G | |
| D | | | ONE LEVER LIGHT SWITCH |
| DX | | | TWO LEVER LIGHT SWITCH |
| C | | | TWO WAY LIGHT SWITCH |
| A1 | | | INDICATOR LIGHT |
| CE | | | MOTION SENSOR |

| NO. | DATE. | AMENDMENT | D.P.W. |
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drawing title

TEMPORARY KITCHEN BLOCK

LIGHTING LAYOUT

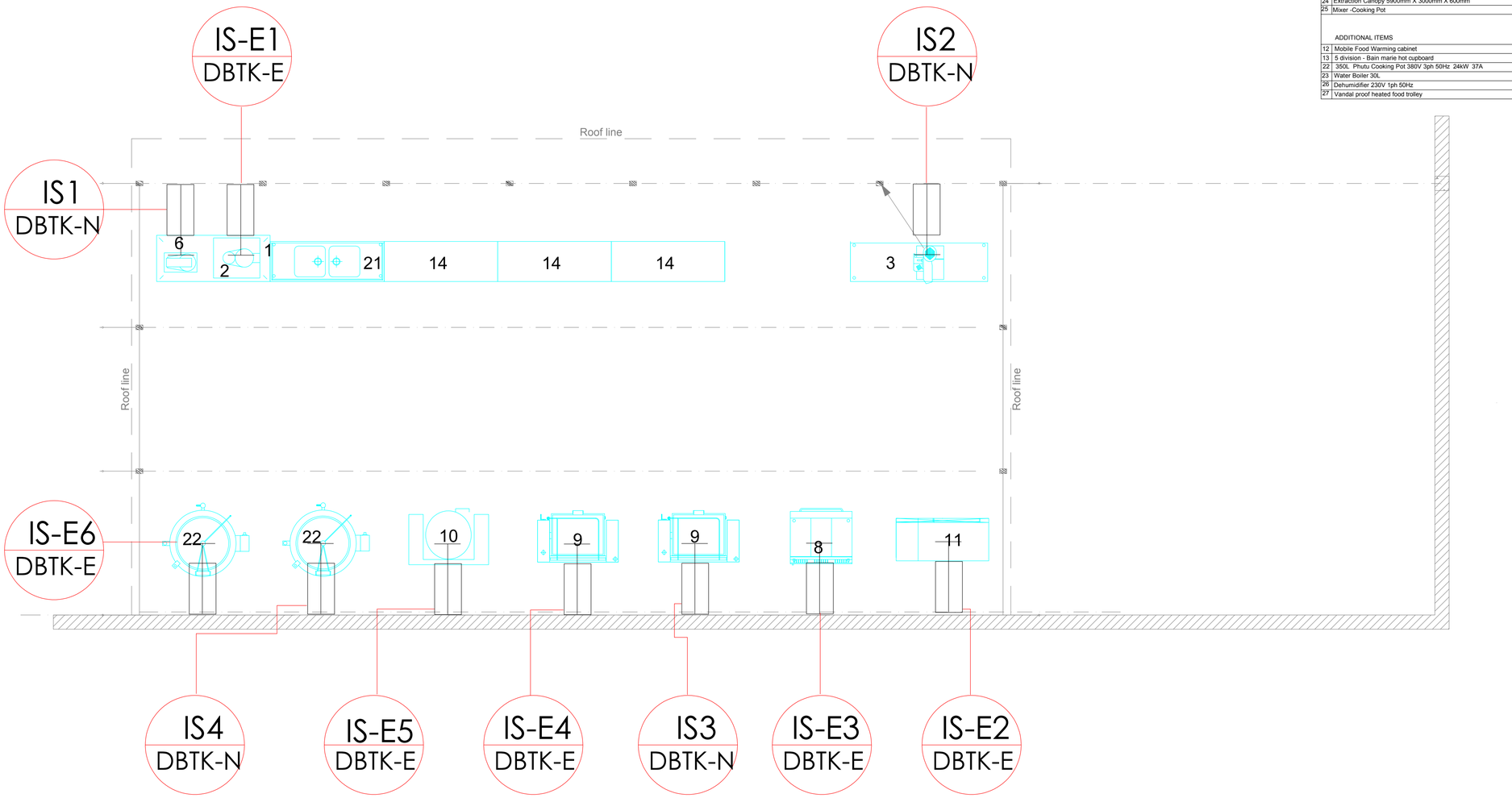
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| type number | | | |
| drawing number | L13-01 Drw. 01/1 | | |

ITEMS TO BE REPLACED

| | |
|---|---|
| 1 | Stainless Steel Table - mobile 1840 x 750mm with galvanized undershelf |
| 2 | 12kg Potato peeler |
| 3 | Band saw, pedestal bandsaw with stainless steel working surgace |
| 4 | 1850 x 650mm Stainless steel Combination sink |
| 5 | 300kg Electronic Platform Scale |
| 6 | RG-200 Vegetable Prep Machine Hallde |
| 7 | Stainless steel Vegetable prep Table with Galvanized undershelf |
| 8 | 1000 x 850 x 910mm high, 3 Solid Top Electrical Range with Oven |
| 9 | Tilting Fry Pan TP-80 |
| 10 | Tilting Boiling Pan 150et (low pressure) |
| 11 | Rational Combimaster plus Steamer 40 Pan unit Model CM202 |
| | |
| | |
| 14 | Stainless Steel Table - mobile 1840 x 650mm with galvanized undershelf |
| 15 | Fridge |
| 16 | Shelving Modular Stainless steel - dry goods |
| 17 | Bread Slicer Model B |
| 18 | Shelving Modular Stainless steel - Bread store |
| 19 | Dunnage Racks |
| 20 | 2250 x 620mm Dump Table with Flat shelf over |
| 21 | 1850 x 650mm Stainless steel Double bowl Pot sink |
| | |
| | |
| 24 | Extraction Canopy 5900mm X 3000mm X 600mm |
| 25 | Mixer -Cooking Pot |

ADDITIONAL ITEMS

| | |
|---|---|
| 12 | Mobile Food Warming cabinet |
| 13 | 5 division - Bain marie hot cupboard |
| 22 | 350L Phutu Cooking Pot 380V 3ph 50Hz 24kW 37A |
| 23 | Water Boiler 30L |
| 26 | Dehumidifier 230V 1ph 50Hz |
| 27 | Vandal proof heated food trolley |



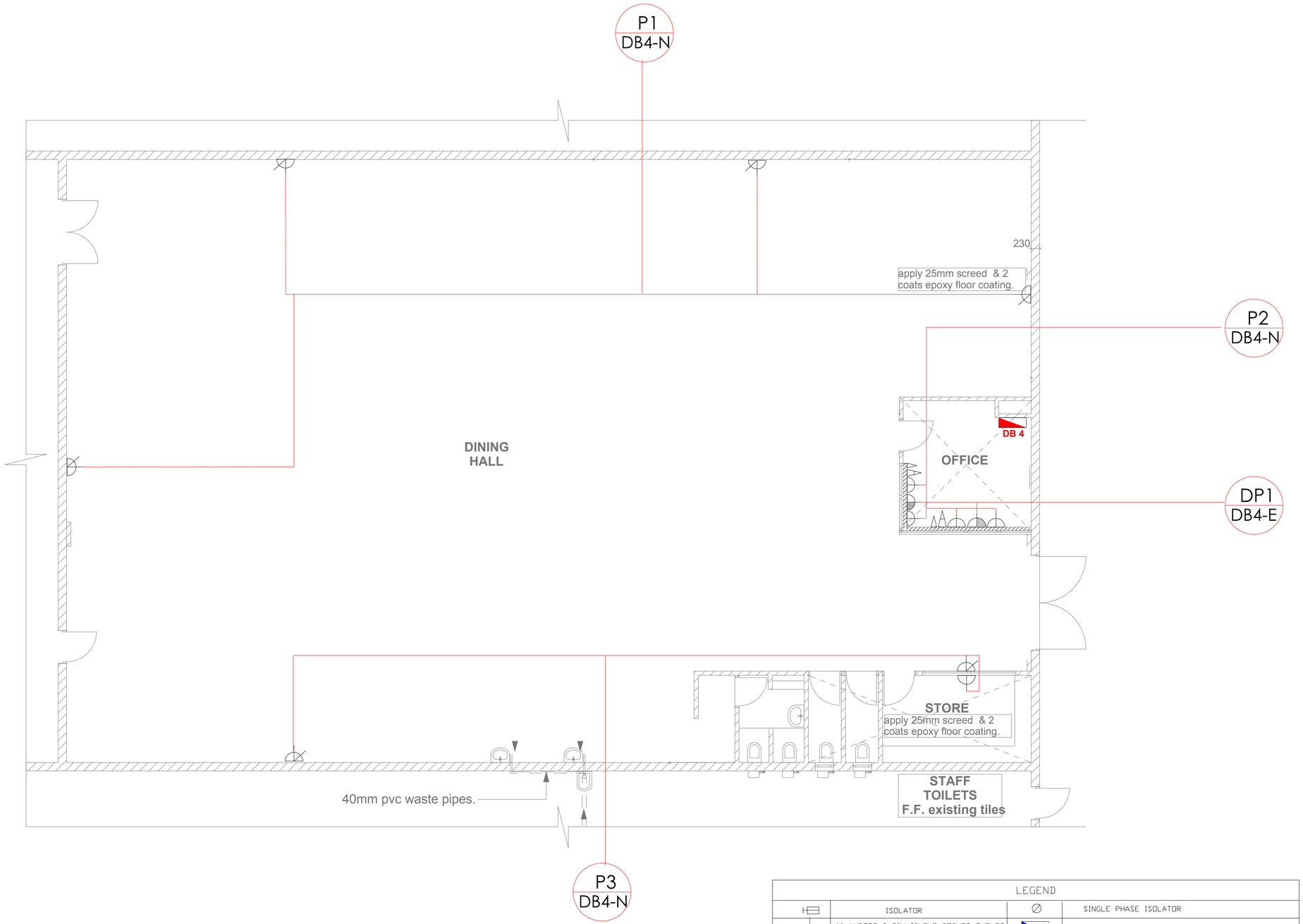

| | | |
|---|---|---|
| DB TK - Normal - IS 1 | 10A, 1ph | Vegetable preparation machine: 230V 1ph 0,75kW |
| DB TK - Normal - IS 2 | 10A, 1ph | Pedestal bandsaw with stainless steel worksurface: 230V 1ph 1,7kW |
| DB TK - Normal - IS 3 | 30A, 3ph | Tilting Fry Pan TP- 80: 400V 3ph 15kW |
| DB TK - Normal - IS 4 | 40A, 3ph | 350L Phutu Cooking Pot: 380V 3ph 24kW |

| | | |
|---|---|---|
| DB TK - Emergency - IS 5 | 30A, 3ph | Tilting Boiling Pan (low Pressure): 15kW |
| DB TK - Emergency - IS 6 | 40A, 3ph | 2x 350L Phutu Cooking Pot: 380V 3ph 24kW |

LEGEND

| | | | |
|---|---|---|---|
| | ISOLATOR | ⊘ | SINGLE PHASE ISOLATOR |
| | 16 AMPERE 3-PIN SINGLE SOCKET OUTLET | | FLUSH MOUNTED DISTRIBUTION BOARD |
| | 16 AMPERE 3-PIN DOUBLE SOCKET OUTLET | | TELEPHONE POINT |
| | 16 AMPERE 3-PIN DEDICATED SOCKET OUTLET | | TELEVISION POINT |
| | WORKSTATION 1xTel, 1xComputer Point, 1xDedicated Plug, 1x Standard Plug | | DATA POINT |
| | DAYLIGHT SWITCH | | TELEPHONE DISTRIBUTION BOARD |
| | POWER SKIRTING (as specified) | | DATA DISTRIBUTION BOARD |

0 0.5 1 2 4m




| LEGEND | | | |
|---|---|---|---|
| | ISOLATOR | | SINGLE PHASE ISOLATOR |
| | 16 AMPERE 3-PIN SINGLE SOCKET OUTLET | | FLUSH MOUNTED DISTRIBUTION BOARD |
| | 16 AMPERE 3-PIN DOUBLE SOCKET OUTLET | | TELEPHONE POINT |
| | 16 AMPERE 3-PIN DEDICATED SOCKET OUTLET | | TELEVISION POINT |
| | WORKSTATION 1xTel, 1xComputer Point, 1xDedicated Plug, 1x Standard Plug | | DATA POINT |
| | DAYLIGHT SWITCH | | TELEPHONE DISTRIBUTION BOARD |
| | POWER SKIRTING (as specified) | | DATA DISTRIBUTION BOARD |

0 0.5 1 2 4m

| NO. | DATE. | AMENDMENT | D.P.W. |
|---|---|---|---|
| | | | |

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cad file name
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SOUTH AFRICAN CORRECTIONAL SERVICES

THOHOYANDOU PRISON
MEDIUM - B KITCHEN

WCS number
050733

drawing title

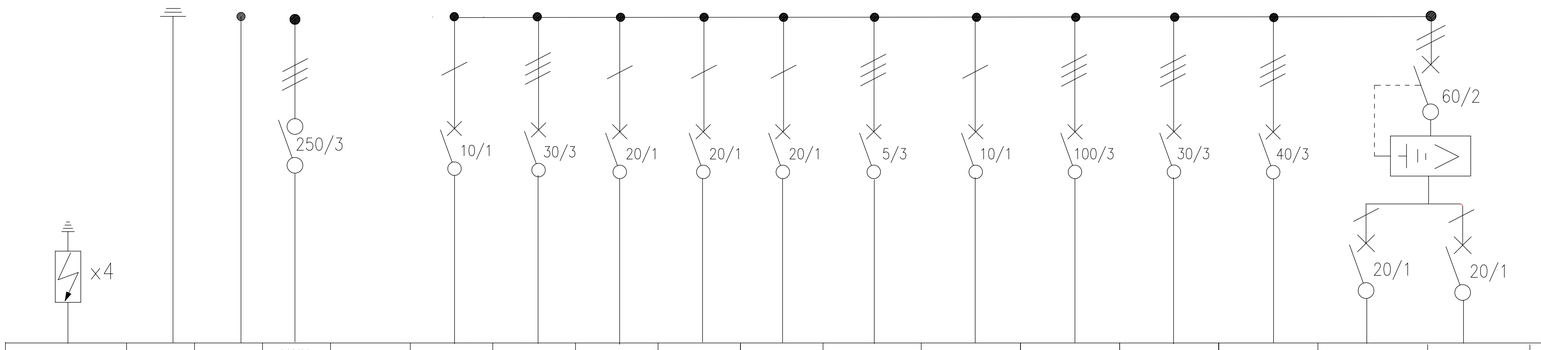
DINING HALL

POWER LAYOUT

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drawn SS
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drawing number L13-01 Drw. 01/1

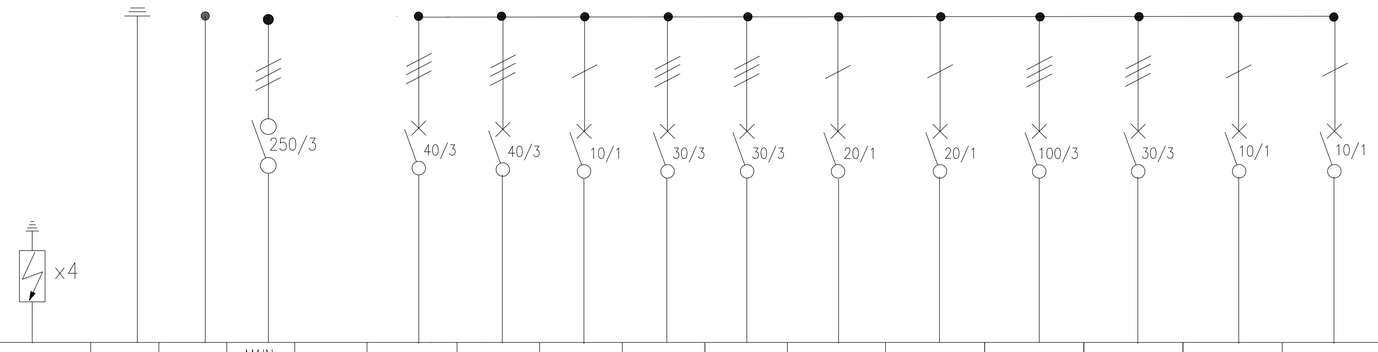
DURING CONSTRUCTION, THE CONTRACTOR MUST ENSURE THAT THE LOAD IS BALANCED BETWEEN THE PHASES.

# DB 1–NORMAL SUPPLY




| CIRCUIT NO. | EARTH | NEATRAL | MAIN FEEDER | SPARE | IS1 | IS2 | IS3 | IS4 | IS5 | IS6 | IS7 | IS8 | IS9 | IS10 | P1 | P2 | SPARE | SPARE | SPARE | SPARE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CONDUCTOR SIZE ($mm^2$) | 70 | 150 | 150 | | 4 | 6 | 4 | 4 | 4 | 4 | 4 | 25 | 6 | 10 | 4 | 4 | | | | |
| REMARKS | FROM PANEL 2 | | | SPARE | POTATO PEELER | FRY PAN | FOOD TROLLEY | FOOD TROLLEY | FOOD TROLLEY | EXTRACTOR FAN | BAND SAW | COMBIMASTER | BOILING PAN | PHUTHU COOKING POT | SOCKET | SOCKET | SPARE | SPARE | SPARE | SPARE |

# DB 1–EMERGENCY SUPPLY




| CIRCUIT NO. | EARTH | NEATRAL | MAIN FEEDER | SPARE | IS–E1 | IS–E2 | IS–E3 | IS–E4 | IS–E5 | IS–E6 | IS–E7 | IS–E8 | IS–E9 | L1 | EL1 | SPARE | SPARE | SPARE | SPARE | SPARE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CONDUCTOR SIZE ($mm^2$) | 70 | 150 | 150 | | 10 | 10 | 4 | 6 | 6 | 4 | 4 | 25 | 6 | 2,5 | 2,5 | | | | | |
| REMARKS | FROM PANEL 2 | | | SPARE | PHUTHU COOKING POT | OVEN | POTATO PEELER | FRY PAN | FRY PAN | FOOD TROLLEY | FOOD TROLLEY | COMBIMASTER | BOILING PAN | LIGHT | LIGHT | SPARE | SPARE | SPARE | SPARE | SPARE |

| NO. | DATE. | AMENDMENT | D.P.W. |
|---|---|---|---|
| | | | |

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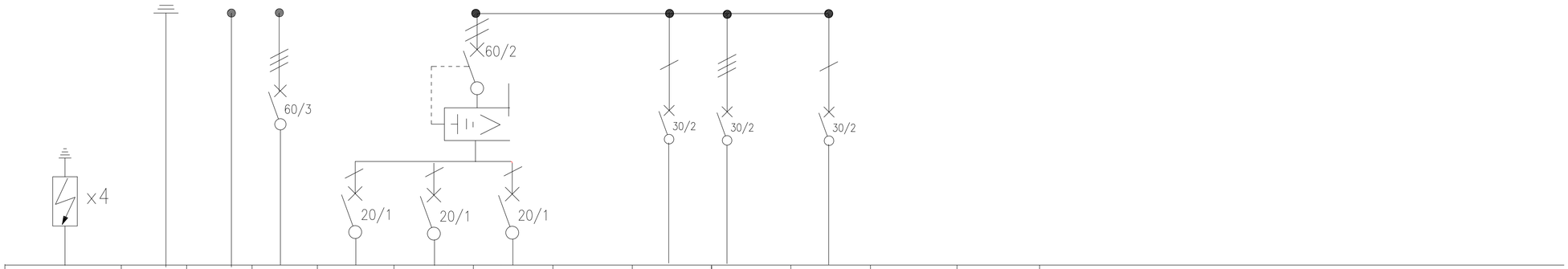
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050733

drawing title
DB 1
SINGLE LINE DIAGRAM

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designed
scale AS SHOWN
drawn SS
date 08/2013
checked NHM
type number
drawing number L13-01 Drw. 01/1

DURING CONSTRUCTION, THE CONTRACTOR MUST ENSURE THAT THE LOAD IS BALANCED BETWEEN THE PHASES.

## DB 4–NORMAL SUPPLY




| CIRCUIT NO. | EARTH | NEATRAL | MAIN FEEDER | P1 | P2 | P3 | SPARE | AC1 | AC2 | AC3 | SPARE | SPARE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CONDUCTOR SIZE ($mm^2$) | 4 | 10 | 10 | 4 | 4 | 4 | | 6 | 6 | 6 | | |
| REMARKS | FROM PANEL 2 | | | SOCKET | SOCKET | SOCKET | SPARE | AIRCON | | | SPARE | SPARE |

| NO. | DATE. | AMENDMENT | D.P.W. |
|---|---|---|---|
| | | | |

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AS SHOWN
drawn
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08/2013
checked
type number
drawing number
L13-01 Drw. 01/1

# MECHANICAL DRAWINGS AND SPECIFICATIONS

# PARTICULAR SPECIFICATION

# PFF KITCHEN EQUIPMENT

## CONTENTS

PFF 01 SCOPE
PFF 02 GENERAL DESCRIPTION OF KITCHEN INSTALLATION
PFF 03 STATUS OF EXISTING KITCHEN INSTALLATION
PFF 04 DETAILS OF REPAIR WORK INCLUDING NEW INSTALLATIONS

## PFF 01 SCOPE

This specification covers the particulars of the installation, repair, maintenance and upgrading work to the kitchen equipment at Thohoyandou Correctional Facility: Medium B. This Particular Specification shall be read in conjunction with Technical Specification FF: Kitchen Equipment and all additional technical specifications compiled as part of this document, in particular the following Additional Specifications:

SA: General Maintenance
SB: Operating and Maintenance Manuals
SC: General Decommissioning, Testing and Commissioning Procedures
SD: General Training
SH: HIV/Aids Requirements
SI: Occupational Health & Safety.

The intended repair, maintenance and upgrading work to this installation will restore the existing installation to a safe, efficiently functional system that complies with all statutory regulations and applicable standards. Maintenance responsibilities shall commence with access to the site. On completion of repair, maintenance and upgrading work the completed installation shall be maintained and serviced by the Contractor for the remainder of the contract period.

All relevant Department of Public Works specifications shall apply even if they are not compiled in this document. The engineer shall provide such specifications from time to time as deemed fit or upon request by the contractor. In the event of any discrepancy between a part or parts of the Standardised or Particular Specifications and the Project Specification, the Project Specification shall take precedence. In the event of a discrepancy between the specifications, (including the Project Specifications) and the drawings and/or the Bill of Quantities, the discrepancy shall be resolved by the Engineer before the execution of the work under the relevant item.

All materials and equipment supplied under this contract shall be new and of high quality and the engineer shall give all necessary approvals. It should be noted that all substandard materials and equipment shall be rejected at the contractor's cost at any given time during the course of the project regardless of whether the materials have been used or not.

## PFF 02 GENERAL DESCRIPTION OF KITCHEN INSTALLATION

**PFF 02.01** The kitchen installation to be repaired, maintained and upgraded under this contract includes the following equipment.

(i) Tilting frying pans
(ii) Bread slicers
(iii) Kitchen worktops and shelving
(iv) Food trolleys
(v) 1 x Extraction Canopy
(vi) 3 x 150 phutu Cooking pots
(vii) 1 x Industrial Stove: 3 solid plate with oven
(viii) 1 x Walk-in Freezer
(ix) 1 x Cold Room
(x) 1 x Convection oven
(xi) 1 x Tilting pan
(xii) 1 x Mixer- Cooker Luna 250E
(xiii) 1 x Band saw: Okto band saw
(xiv) 1 x 12kg potato peeler.
(xv) 1 x Vegetable cutter: RG350 Hallde
(xvi) 1 x Dining Hall Toilet Extraction fan
(xvii) 2 x Dehumidifier 12L/24HR

The main kitchen at 3 meals per day for approximately 3000 prisoners. The Old kitchen close to the laundry is currently not in use and shall be restored as per the request from the DCS. The equipment in the Old kitchen will be inspected and repaired/replaced before being commissioned. Additional equipment required to make it fully functional shall be installed. The staff mess kitchen provides light lunches and dinners for staff members and visitors. The equipment shall form part of this contract. The College kitchen provides meals for students that are enrolled at the college. The equipment will also form part of this contract.

## PFF 03 STATUS OF EXISTING KITCHEN INSTALLATION

(i) The extraction canopy does not cover all the cooking elements that must be under it for the purpose of proper extraction of fumes.
(ii) Cooking pots are leaking heavily and as such there is a lot of water on the floors continually posing a safety risk and also damaging the floors.
(iii) The seal on the walk-in freezer is not sealing anymore and that produces air-gaps which then causes the compressor to run continuously.
(iv) The walk-in freezer is icing around the door
(v) There is missing insulation on refrigerant piping which leads to loses along those sections.
(vi) There is a 30m fire hose reel outside the entrance to the kitchen and two 9Kg fire extinguishers.
(vii) The combi steamer was not working at the time of the investigation. That has serious impact on the capacity of the kitchen in terms of delivery.
(viii) There is no toilet extraction fan at the dining hall. Toilet gases can flow freely into the dining hall because there is no pressure gradient.
(ix) There is no dehumidifier currently installed in the dry food storage area. This is not in line with food hygiene standards because bacteria flourish in humid conditions.

## PFF 04 DETAILS OF REPAIR, MAINTENANCE AND UPGRADING WORK INCLUDING NEW INSTALLATIONS

At the time of compilation of this document the existing kitchen equipment consisted of the equipment listed below with the relevant technical details available.

### PFF 04.01 KITCHEN EXTRACTION SYSTEMS

This part of the specification shall be read in conjunction with the following technical specifications

(i) FD: Heating, Ventilation and Airconditioning Systems
(ii) SC: General Decommissioning, Testing and Commissioning Procedures
(iii) SI: Occupational Health & Safety.

The contractor shall get acquainted with the prevailing site conditions before any works can commence. The engineer shall approve a method statement produced by the contractor on how the decommissioning and installation shall be executed. The contractor shall produce workshop drawings for approval by the engineer before any fabrication on or offsite can be allowed to take place.

### PFF 04.02 CONVECTION OVEN

The contractor shall supply and install a convection oven with the following specifications.

| | |
|---|---|
| Capacity: | 10 x 2/1 GN |
| Dimensions: | 1.069 x 971 x 1042mm (H) |
| Dry Heat Connection: | 36kW |
| Fuse: | 3 x 63A |
| Lengthwise Loading: | 2/1, 1/1 GN |
| Mains Connection: | 3 NAC 400V |
| Moist Heat Connection: | 36kW |
| Number of Meals per Day: | 150 - 300 (Guide only) |
| Water Inlet: | R 3/4” |
| Water Outlet: | DN 50 |
| Water Pressure: | 150 - 600kPa or 0.15 - 0.6mPa |
| Weight: | 182kg |

All Standard Accessories shall be included

### PFF 04.03 TILTING BOILING POT

The contractor shall supply and install a tilting boiling pot with the following specifications

| | |
|---|---|
| Dimensions: | 1120 x 670 x 900mm (H) |
| Litres: | 100L |
| Power: | 12kW |
| Pressure: | 0.08mPa/CM2 |

PFF 04.04 TILTING FRYING PAN

The contractor shall supply and install a tilting frying pan with the following specifications

| | |
|---|---|
| Dimensions: | 1310 x 785 x 915mm (H) |
| Electrical Load: | 15kW, 400V, 3 Phase, Neutral and Earth |
| Pan Capacity: | 80L |
| Pan Interior: | 765 x 590 x 200mm deep |
| Weight: | 155kg |

PFF 04.05 PHUTU COOKING POT

The contractor shall supply and install a static phutu cooking pan with the following specifications

| | |
|---|---|
| Dimensions: | 1310 x 785 x 915mm (H) |
| Electrical Load: | 36kW/phase, 400V, 3 Phase |
| Capacity: | 350L |
| Weight: | 137kg |

PFF 04.06 INDUSTRIAL STOVE

The contractor shall supply and install a heavy duty industrial stove with the following specifications

| | |
|---|---|
| Dimensions: | 1000 x 850 x 910mm (H) |
| Electrical Load: | 18kW, 400V, 3 Phase, Neutral and Earth |
| Weight: | 270kg |

PFF 04.07 BREAD SLICER

The contractor shall supply and install a heavy duty bread slicer with the following specifications

| | |
|---|---|
| CUTTING CAPACITY: | Approximately 350 loaves per hour |
| SWITCH: | Semi-automatic |
| TRANSMISSION: | V-Belt Driven |
| BLADE FRAME WIDTH: | 350mm |
| BLADE FRAME HEIGHT: | 190mm |
| CUTTING THICKNESS: | Optional; 10, 11, 12 or 13mm |
| R.P.M.: | 1450 |
| ELECTRICAL: | Single phase motor – 0.37Kw |
| OVERALL DIMENSIONS: | 570(w) x 540(d) x 1110mm(h) |
| NET WEIGHT: | 100kg |

PFF 04.08 MEAT BAND SAW

The contractor shall supply and install a heavy duty bread slicer with the following specifications

| | |
|---|---|
| Cutting Capacity: | 80kg per day |
| Standard Accessories: | Meat bandsaw blade, fish bandsaw blade and bone dust box |

| | |
|---|---|
| Cutting Clearance: | 420mm vertical x 340mm horizontal |
| Wheel Diameter: | 356mm |
| Blade Length: | 2850mm |
| Blade Cutting Speed: | 800m/min |
| Power Transfer: | Poly V Belt |
| Electrical: | Three phase motor – 1.5Kw, 380Volt (optional 1phase) |
| Overall Dimensions: | 855(w) x 870(d) x 1800mm(h) |
| Nett Weight: | 220kg |
| Applications: | Cutting of bulk meat and/or fish products |

PFF 04.09 SCALES

PFF 04.09.01 The contractor shall supply and install a 300kg electronic platform scale with the following specifications

| | |
|---|---|
| Capacity: | up to 300kg and a 20g readability |
| Power: | 240V, |
| Readout: | seven digit green LCD display |

PFF 04.09.02 The contractor shall supply and install a 30kg electronic scale with the following specifications

| | |
|---|---|
| Capacity: | up to 30kg and a 5g readability |
| Power: | 240V, |
| Readout: | seven digit green LCD display |
| Dimensions: | 250 x 307 x 110mm. |

PFF 04.10 PLANETARY FOOD MIXER

The contractor shall supply and install a Planetary Food Mixer with the following specifications

| | |
|---|---|
| Bowl Capacity | 60 L |
| Gearbox | 3 Speed |
| Weight | 270kg |
| Power | 1½ HP\|Single or 3 phase |
| Width | 630mm |
| Height | 1300mm |
| Depth | 720mm |

Standard Accessories shall be included such as vegetable cutter, flat beater, stainless steel wire whip, spiral dough hook and 60L stainless steel bowl.

PFF 04.11 POTATO PEELER

The contractor shall supply and install a heavy duty floor standing 30kg potato peeler with the following specifications.

| | |
|---|---|
| Capacity: | 30 Kg per load |
| Output: | Up to 600kg per hour |
| Peeling time: | Varies from 2 to 5 minutes per 30kg according to grade and size of potatoes. |
| Motor: | 1.5Kw, 220V |

PFF 04.12 STAINLESS STEEL DOUBLE BOWL SINK

The contractor shall supply and install a heavy duty floor standing 30kg potato peeler with the following specifications.

Bowl Dimensions: 505 x 505 x 250mm (D)
Dimensions: 1850 x 650 x 910mm (H
Weight: 51kg

- 430 type stainless steel
- Cold pressed bowl AISI 304CR NI grade stainless steel with 40mm waste outlet hole
- 150mm high splash back to rear
- Stainless steel legs with adjustable foot pieces
- Heavy duty backing sheet with bitumastic sound deadening

PFF 04.13 DOUBLE BOWL POT SINK

The contractor shall supply and install a heavy duty floor standing 30kg potato peeler with the following specifications.

Bowl Dimensions: 605 x 505 x 280mm (D)
Dimensions: 1850 x 650 x 910mm (H)
Weight: 57kg

- 430 type stainless steel
- Cold pressed bowl AISI 304CR NI grade stainless steel with 40mm waste outlet hole
- 150mm high splash back to rear
- Stainless steel legs with adjustable foot pieces
- Heavy duty backing sheet with bitumastic sound deadening

PFF 04.14 FOOD WARMING CABINET

The contractor shall supply and install a robust food warming cabinet with the following specifications.

- Stainless steel exterior with two Dutch doors and a horizontal transport handle on each end of the cart
- Cabinet is controlled with an On/O power switch, adjustable, electronic thermostat which includes a heat indicator light, temperature set button, and temperature increase and decrease buttons
- The thermostat has a temperature range of 200°F (93°C) to 60°F (16°C) and includes a digital display indicating the air temperature within the cabinet
- Four (4) chrome plated wire shelves are included
- A full-perimeter, wall-friendly bumper is included, along with four (4) 6” (154mm) heavy duty casters, 2 rigid and 2 swivel with brake
- Flexible choice of preplated meal service: This banquet cart will also hold covered meals without plate carriers
- Additional shelves will equip cart to hold preplated meals without covers, trays, and bulk food items in pans

Capacity: 190kg
Dimensions: 954 x 773 x 1714mm (H)
Electrical Load: 230V, 1 Phase, Neutral and Earth

PFF 04.15 BAINE MARIE HOT-CUPBOARD

The contractor shall supply and install a robust 5 division bain marie cupboard with the following specifications.

| | |
|---|---|
| **Dimensions:** | 1785 x 775 x 910mm (H) |
| **Electrical Load:** | 2.5kW, 230V, 1 Phase Neutral and Earth |
| **Weight:** | 48kg |

- Stainless steel casing and tubular legs
- Bain Marie well manufactured from AISI type 304 CR-NI stainless steel
- Surround and closure panels 430 stainless steel
- Thermostatically controlled immersion element 0˚C - 110˚C with low water cut-out
- Full bore drain valve
- Stainless steel riser shelf, combination riser shelf sneeze guard, galvanised under shelf, swivel castors, tubular stainless steel tray slide

PFF 04.16 COLD ROOM AND FREEZER ROOM

This part of the specification shall be read in conjunction with the following technical specifications

(i) FD: Heating, Ventilation and Airconditioning Systems
(ii) SC: General Decommissioning, Testing and Commissioning Procedures
(iii) SI: Occupational Health & Safety.

The contractor shall get acquainted with the prevailing site conditions before any works can commence. The engineer shall approve a method statement produced by the contractor on how the decommissioning and installation shall be executed.

PFF 04.17 CONVENTIONAL FIRE FIGHTING EQUIPMENT

PFF 04.17.01 FIRE EXTINGUISHERS

The contractor shall supply and install fire extinguishers with the following specifications.

(i) 9kg DCP Fire Extinguisher fitted with a high pressure discharge hose and discharge nozzle which locates onto a L-shape nozzle holder fixed to the foot ring of the extinguisher. Suitable for Class A, B or C fires, or a combination of these types. Must conform to the minimum fire ratings as specified in SANS 1910:2009.

| | |
|---|---|
| Height: | 580mm |
| Diameter: | 175mm |
| Mass empty: | 3.9kg |
| Mass full: | 12.9kg |
| Charge: | >12sec |
| Working pressure: | 1400kPa |
| Test pressure: | 2100kPa |
| Burst pressure: | >5500kPa |
| Safety valve: | +/- 2200kPa |

(ii) 2kg Aluminium Alloy CO2 Fire Extinguisher CE0036 TUV approved. Specifically designed for fires involving flammable liquids and electrical hazards, Class C and Class B fires. SANS 1567:2003 certified carbon dioxide fire extinguishers cased in steel or aluminium, and purposefully

designed to be user-friendly. The body and components constructed to provide easy, safe maintenance to SABS 1475 specification. The total mass of a fully equipped, fully charged extinguisher (excluding the bracket) shall not exceed 23 kg and shall be equal to that marked on the extinguisher subject to a tolerance of ±5%. The $CO_2$ extinguishers should be suitable for commercial environment such as hospitals, supermarkets, hotels and restaurants, paint shops, fast food chains, clothing and industrial units, office etc.

| | |
|---|---|
| CYLINDER HEIGHT | 475mm |
| DIAMETER | 111mm |
| TARA MASS | 3.8kg |
| MASS FULL | 6.0kg |
| DISCHARGE | >8sec |
| EFFECTIVE RANGE | 1-3m |
| DISCHARGE NOZZLE | Swivel Horn |
| WORKING TEMPERATURE | -30/+60°C |
| Cylinder Max Working Pressure | 174Bar |
| Cylinder Approval Mark | TUV / SANS1567 |
| Valve Brass spec | CZ 122 Die Forging Brass (HPB59-1) |
| Valve Max Pressure | 22.5MPa+-2.25MPa |
| Valve Body | Forged & Nickel plated side outlet |

PFF 04.17.02 FIRE BLANKET

The contractor shall supply and install a fire blanket with the following specifications.

The Fire blanket should be compact, easy to install, accessible but not too close to the risk and should have clear instructions. It should have excellent insulation properties.
The fire blanket should be suitable for fires that cannot be extinguished with water such as stove pan fires, electrical fires and a person's clothing. The Fire blanket should be capable of smothering the fire, and not burn, melt, drip and cling to fire damage skin.

| | |
|---|---|
| Size: | 1.8m x 1.8m |
| Weight (min): | 430 gr/m² |
| Weight: | 1.94kg |
| Ignition Time: | 13 min |
| Max temp: | 550°C |

PFF 04.18 GREASE TRAP

The contractor shall supply and install a 7 l/s grease trap with the following specifications.

- The grease trap shall be designed for commercial applications
- Manufactured in 304 and 316 grade stainless steel 1.2mm
- Plastic lid handle
- Excellent corrosion resistance
- Hygienic
- Supplied with collection basket
- No direct access to the sewer line during routine maintenance
- Comes with 110Ø inlet and outlet

The engineer shall issue installation drawings on site. The contractor shall submit workshop drawings to the engineer before any fabrication can commence on or offsite. All works shall proceed after written approvals have been given to the contractor by the engineer.

PFF 04.19 STAINLESS STEEL TABLES

The contractor shall supply and install stainless steel tables with the following specifications.

- 304 stainless steel top
- Stainless steel legs with adjustable foot pieces
- Heavy duty galvanised backing sheet with bitumastic sound deadening
- 150mm high splash back to rear
- Solid 430 stainless steel undershelf
- castors - set of four, swivel with brakes

(i)

**Dimensions:** 1840 x 650 x 910mm (H)
**Weight:** 60kg

(ii)

**Dimensions:** 1650 x 650 x 910mm (H)
**Weight:** 51kg

(iii)

**Dimensions:** 1050 x 650 x 910mm (H)
**Weight:** 38kg

PFF 04.20 STAINLESS STEEL MODULAR SHELVING

The contractor shall supply and install stainless steel modular shelving with the following specifications.

- Fully Modular
- Fully adjustable
- Robust construction
- Easily assembled
- Easy to clean
- Uprights must have holes punched to fix shelves at the following centres from floor level: 211, 616, 886, 1021, 1156, 1426, 1696 and 1966mm.

(i) Type 1 stainless steel shelving
Please note that six shelves are required per module

| | |
|---|---|
| Description: | End frame |
| Dimensions: | 1982mm (H) |
| Finish: | Stainless steel |
| Weight: | 6kg |

| | |
|---|---|
| Description: | Shelf |
| Dimensions: | 850 x 500mm |
| Finish: | Stainless steel |
| Weight: | 5kg |

(ii) Type 2 stainless steel shelving
Please note that six shelves are required per module

| | |
|---|---|
| Description: | End frame |
| Dimensions: | 1982mm (H) |
| Finish: | Stainless steel |
| Weight: | 6kg |

| | |
|---|---|
| Description: | Shelf |
| Dimensions: | 1150 x 500mm |
| Finish: | Stainless steel |
| Weight: | 5kg |

PFF 04.20 DUNNAGE RACK

The contractor shall supply and install stainless steel dunnage racks with the following specifications.

- Ideal for storage of dry goods and bagged or boxed vegetables
- Robust construction
- AISI 304 CR-NI stainless steel uprights 45mm diameter
- 20mm galvanized tubes to form storage platforms

PFF 04.21 ELECTRIC INSECT KILLER

The contractor shall supply and install an electric insect killer with the following specifications.

| | |
|---|---|
| WIDTH | 650 mm |
| HEIGHT | 320 mm |
| Power: | 40W. |
| Indoor Use | Yes. |
| Effective Area: | 50m2 Shock Mechanism. |
| Hanging Chain. | Yes |
| Cable | 1100mm Cable and 5A Plug Top. |
| On/Off Switch. | Yes |
| Spare Lamp: | G315BP. |

PFF 04.22 ELECTRIC GEYSER

This part should be read in conjunction with Technical Specification AA: Plumbing and Drainage
The contractor shall supply and install a 250L electric geyser with the following specifications.

| | |
|---|---|
| CAPACITY | 250 L |
| ORIENTATION | Vertical |
| WARRANTY | 5-year |
| ACCREDITED PLUMBER | Must conform with SANS 1025 installation |

FEATURES
• High pressure electric water heater
• The inner cylinder is manufactured from 1.6mm steel and thermofused porcelain enamelled for cylinder longevity and hygiene.

• The polyurethane insulation between the inner cylinder and the outer galvanised casement is 128% thicker, resulting in the hourly standing heat loss decreasing from 108 watts per hour to 50 watts per hour.
• A lower energy loss, a more efficient electric water heater.
• Renewable energy ready for a solar retrofit system or a heat pump.

PFF 04.23 WATER BOILER

This part should be read in conjunction with Technical Specification AA: Plumbing and Drainage
The contractor shall supply and install a 30L electric water boiler with the following specifications.

| | |
|---|---|
| Capacity: | 30L |
| Dimensions: | 520 x 360 x 575mm |
| Power: | 3kW |
| Taps: | 2 |
| Voltage: | 220 - 240V |

Features
- Interior and exterior construction - 304 stainless steel
- Safe and hygienic
- Modern design, easy to clean and maintain
- LED temperature display
- Automatic water refill
- Layered heating system saves energy and water boiling time
- Easy to install either on a bench top or wall mounted

PFF 04.24 HEATED FOOD TROLLEY

The contractor shall supply and install a heated food trolley with the following specifications

| | |
|---|---|
| Dimensions: | 685 x 855 x 910mm (H) |
| Electrical Load: | 2kW, 230V, 1 Phase, Neutral and Earth |
| Weight: | 83kg |

Features
- Electrically heated
- Pan AISI 304 CR-NI grade stainless steel
- Outer 430 stainless steel
- Fully insulated body
- Heavy duty castors
- Removable drip tray
- Capacity 14 x 1/1 GN x 50mm or 7 x 2/1 GN x 50mm deep inserts
- Holder for 2 x 1/1 GN lids
- Cord wrap-fitted

# TECHNICAL SPECIFICATION

# FF KITCHEN EQUIPMENT INSTALLATION

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## FF 01 SCOPE

This specification covers the general installation, repair and maintenance of kitchen equipment, which include the following:

(a) Cooking pots
(b) Tilting frying pans
(c) Industrial stoves
(d) Convection ovens
(e) Deep fryers
(f) Potato peelers
(g) Vegetable shredders
(h) Meat saws
(i) Bread slicers
(j) Pressure cookers
(k) Dishwashers
(l) Bain-maries
(m) Kitchen worktops and shelving
(n) Food trolleys
(o) Bakery equipment
(p) Extract canopies

The following kitchen equipment is covered under other Technical Specifications as indicated:

- Cold/Freezer rooms, cabinet fridges, counter fridges: Technical Specification FG: Refrigeration Equipment;
- Sinks, wash-hand basins, grease traps: Technical Specification AA: Plumbing and Drainage.

This specification also addresses training of
- User Client's operators, and
- maintenance staff.

This specification shall form an integral part of the project contract document, and shall be read in conjunction with the additional and particular specifications compiled as part of this document.

This specification shall act as a guideline to the Particular Specification and, in the event of any discrepancies between the Technical Specification and the Particular Specification, the latter shall take precedence.

## FF 02 STANDARD SPECIFICATIONS

### FF 02.01 GENERAL STANDARD SPECIFICATIONS, REGULATIONS AND CODES

The latest edition, including all amendments up to date of tender of the following specifications, publications and codes of practice shall be read in conjunction with this specification and shall deemed to form part thereof

### FF 02.01.01 SABS and other specifications and codes

| | | |
|---|---|---|
| SABS 0400 | - | The applications of the building regulations |
| SABS 0142 | - | Code of practice for the wiring of remises |
| SABS 0140 | - | Identification colour marking |
| CKS 332 | - | Specifications for industrial V-belts |
| SABS 044 | - | Parts I to IV: Welding |
| SABS 0103 | - | The measurement and rating of environmental noise with respect to annoyance and speech communications |

SABS Specifications listed on page 3 of the DPW specification OW 371
Atmospheric Pollution Prevention Act No 45 of 1965

| | | |
|---|---|---|
| SABS 153 | - | Cookers |
| SABS IE 60335-2-36 | - | Cooking appliances, commercial, electrical safety |
| SABS 153 | - | Cooking appliances, cookers |
| SABS IEC 60335-2-6 | - | Cooking appliances, electrical safety |
| SABS 158 | - | Cooking appliances, food warmers, liquids |
| SABS 447 | - | Cooking appliances, gas |
| SABS 154 | - | Cooking appliances, hobs, hotplates (cookers) |
| SABS 157 | - | Cooking appliances, toasters, performance |
| SABS IEC 60335-2-39 | - | Cooking pans, commercial, electrical safety |
| SABS 158 | - | Cooking vessels |
| CKS 115 | - | Cooking vessels, aluminium |
| CKS 86 | - | Cooking vessels, double boilers, aluminium |
| CKS 391 | - | Cooking vessels, frying pans, aluminium |
| CKS 392 | - | Cooking vessels, kettles, aluminium |
| SABS IEC 60335-2-58 | - | Dishwashing machines, commercial, electrical safety |
| SABS 1281 | - | Dishwashing machines, detergents, rinse aid |
| SABS IEC 60335-2-5 | - | Dishwashing machines, electrical safety |
| SABS 232 | - | Dishwashing machines, industrial, detergents |
| CKS 391 | - | Frying pans, aluminium |
| CKS 634 | - | Frying pans, electrical equipment |
| SABS IEC 60335-2-13 | - | Frying pans, electrical safety` |
| SABS 153 | - | Grills (cooking) |
| SABS IEC 60335-2-38 | - | Grills (cooking), commercial, electrical safety |
| SABS IEC 60335-2-48 | - | Grills (cooking), electrical safety |
| SABS IEC 60335-2-9 | - | Grills (cooking), electrical safety |
| SABS IEC 60335-2-15 | - | Pressure cookers, electrical safety |
| SABS 1040 | - | Pressure cookers, household equipment |
| SABS 974-3 | - | Pressure cookers, sealing rings |
| SABS 1062 | - | Pressure gauges |

| | | |
|---|---|---|
| SABS 1237 | - | Pressure regulators, liquefied petroleum gas (LPG) |
| SABS 1243 | - | Pressure stoves |
| SABS 0227-2 | - | Pressure vessels, inspectorates, certification (approval), modified or repaired pressure vessels. |

**FF 02.01.02 Department of Public Works Specifications**

OW 371 - Specification of materials and methods to be used (Fourth revision, October 1993)

Standard Specification for electrical installations and equipment pertaining to mechanical installations

**FF 02.01.03 Occupational Health and Safety Act of 1993**

All regulations and statutory requirements as laid down in the latest edition of the Occupational Health and Safety Act, 1993 (Act 85 of 1993) shall be adhered to.

**FF 02.01.04 Manufacturers' specifications, codes of practice and installation instructions**

All equipment and materials shall be installed, serviced and repaired strictly in accordance with the manufacturers' specifications, instructions and codes of practice.

**FF 02.01.05 Municipal regulations, laws and by-laws**

All municipal regulations, laws, by-laws and special requirements of the Local Authority shall be adhered to unless otherwise specified.

## FF 03 VARIATIONS AND ADDITIONS TO STANDARD SPECIFICATIONS

The following additional general specifications and requirements shall be read in conjunction with this specification and shall be adhered to unless otherwise specified in the Particular Specification.

### FF 03.01 GENERAL REPAIR AND INSTALLATION REQUIREMENTS

(a) All materials and equipment supplied and installed, shall be new and of high quality and manufactured to the relevant specifications, suitable for providing efficient, reliable and trouble-free service.

(b) All work shall be executed in a first-class workman-like manner by qualified tradesmen.

(c) All equipment, component parts, fittings and materials supplied and/or installed, shall conform in respect of quality, manufacture, test and performance to the requirements of the applicable current SABS specifications and codes, except where otherwise specified or approved by the Engineer in writing.

(d) All materials and workmanship which, in the opinion of the Engineer, is inferior to that specified for the work will be condemned. All condemned material and workmanship shall be replaced or rectified as directed and approved by the Engineer.

(e) The Contractor shall submit a detailed list of the equipment and material to be used to the Engineer for approval before placing orders or commencing installation.

(f) All new equipment, materials and systems shall be installed and positioned such as not to impede on access routes, entrances and other services. The Contractor shall coordinate these items taking other services and equipment into account.

(g) All control equipment and serviceable items shall be installed and positioned such that they will be accessible and maintainable.

(h) The Contractor shall make sure that all safety regulations and measures are applied and enforced during the repair and construction periods to ensure the safety of the public and the User Client.

(i) Repair work shall be programmed in accordance with Additional Specification SC: General Decommissioning, Testing and Commissioning Procedures, to ensure the shortest possible down-time of any service, and the least inconvenience to the User Client and the public. The Contractor shall make sure that the necessary notifications and notices are timeously put into place for these activities.

## FF 04 OPERATING AND MAINTENANCE MANUALS

The Contractor shall be responsible for the compilation of an inventory list and operating and maintenance manuals and system data sheets.

This shall be done in accordance with Additional Specification SB: Operating and Maintenance Manuals.

All information shall be recorded and reproduced in electronic format as well as supplying the Department with three sets of hard copies.

Over and above what is specified in Additional Specification SB: Operating and Maintenance Manuals, the operating and maintenance manual to be compiled shall be structured to include at least the following:

(a) System description

Complete description and the working of the equipment.

(b) Commissioning data

Complete commissioning, test and inspection data of equipment.

(c) Operating data

(i) Equipment running checklist and frequency of servicing required;
(ii) Safety precautions to be implemented;
(iii) Manual and automatic operation;
(iv) Operator’s duties (logging requirements);
(v) Lubricating oils and service instructions;
(vi) Pre-start checklist for individual equipment;
(vii) Starting and stopping procedures.

(d) Mechanical equipment

(i) Description of all major items with the make, model number, names, addresses and telephone numbers of the suppliers, manufacturers or their agents;
(ii) Design capacities of all equipment, including selection parameters, selection curves, capacity tables, etc;
(iii) Manufacturer's brochures and pamphlets;
(iv) Schedule of spares with part numbers recommended to be held as stock.

(e) Maintenance instructions

(i) Schedule of maintenance particulars, frequency of services and replacements;
(ii) Trouble-shooting guide;
(iii) Part numbers of all replacement items and spares;
(iv) Capacity curves of pumps, fans and compressors, etc;
(v) Serial numbers of all items of equipment.

(f) Electrical equipment

(i) Schedule of equipment, indicating manufacturer, type, model number, capacity and addresses and telephone numbers of suppliers;
(ii) Maintenance instructions;
(iii) Manufacturer's brochures and pamphlets;
(iv) Complete as-built circuit diagrams and diagrammatic representation of interconnections of all electrical equipment.

(g) Instrumentation and control

(i) Description of each control system;
(ii) Schedule of control equipment, indicating manufacturer, type, model number, capacity and addresses and telephone numbers of suppliers;
(iii) Maintenance instructions;
(iv) Manufacturer's brochures and pamphlets.

(h) Drawings

(i) Paper prints of all as-built mechanical and electrical drawings;
(ii) Wiring diagrams of each individual control panel shall be put inside the panel, and a set provided to the maintenance supervisor.

## FF 05 TRAINING OF OPERATORS FOR THE OPERATION OF THE INSTALLATION AND EQUIPMENT

In addition to the requirements of Additional Specification SD: General Training, the Contractor shall allow and provide for training of the kitchen equipment operators as specified and set out in this specification. The objective of this training will be to ensure that the following be achieved:

(a) High standard of operator skills;
(b) High equipment operating efficiencies to reduce operating costs;

(c) Reduce the maintenance cost of the equipment to an acceptable level, and maintain the cost at this level in so far as it is affected by the operating conditions;

(d) Prevent mal-operation of the equipment.

The training course to be utilised for the evaluation of the kitchen operating staff shall include at least the following:

(a) Equipment and component recognition.

(b) How to operate the equipment, including the following:

(i) Starting the equipment;
(ii) Manual and automatic controlling;
(iii) Shut-down of equipment for short periods;
(iv) Cleaning of equipment;
(v) Normal shut-down.

(c) Emergency procedures to be followed in the case of power failure, water shortage, etc.

(d) Safety precautions to be followed and implemented.

(e) The identification, reporting and recording of faults and operation of equipment.

(f) The logging of equipment operation, readings and settings.

## FF 06 LOGGING AND RECORDING PROCEDURES

The Contractor shall under this repair and maintenance contract institute a logging and recording system as part of his maintenance control plan as defined in Additional Specification SA: General Maintenance. This shall consist of a log and record book which shall be utilised to log and record all operations, faults, system checks, breakdowns, maintenance visits, inspections, readings, etc.

The logbook shall be kept in a safe place inside the kitchen supervisor's office and shall only be utilised by the supervisor, the Contractor and the Engineer. Copies of the monthly entries and recordings into this logbook shall be submitted by the Contractor together with his monthly report to the Engineer.

The logbook shall be structured to include at least the following:

(a) Daily inspection and maintenance actions;
(b) Monthly inspection and maintenance actions;
(c) Six-monthly inspection and maintenance actions;
(d) Breakdown reports;
(e) Daily equipment operating conditions, observations, recordings and measurements (including steam pressure, water meter readings and number of meals prepared);
(f) Statutory inspection and test comments and reports.

The Contractor shall also institute an attendance register, which shall be kept in a safe place inside the kitchen supervisor's office. This register shall be completed by all persons handling the kitchen equipment, including:

(a) Contractor and maintenance personnel
(b) Engineer
(c) User Client
(d) User Client associates.

The register shall state the date, time-in, time-out, name, company and reason for visit. A copy of the register shall be submitted by the Contractor together with his monthly report.

## FF 07 TESTS AND INSPECTIONS ON COMPLETION OF REPAIR WORK

Except where otherwise provided in the Contract, the Contractor shall provide all labour, materials, power, fuel, accessories and properly calibrated and certified instruments necessary for carrying out such tests. The Contractor shall make arrangements for such tests and he shall give at least 72 hours written notice to the Engineer before commencing the test.

In the event of the equipment not passing the test, the Employer shall be at liberty to deduct from the Contract amount all reasonable expenses incurred by the Employer or the Engineer attending the repeated test.

Whenever any equipment is operated for testing or adjusting as provided for above, the Contractor shall operate the entire system for as long a period as may be required to prove satisfactory performance at all times in the occupied space served by that system for up to twenty-four hours a day continuously until the system is handed over.

The Contractor shall provide all labour and supervision required for such operation and the Department may assign operating personnel as observers, but such observation time shall not be counted as instruction time.

After completing the installation or system, all equipment shall be tested, adjusted and readjusted until it operates to the satisfaction and approval of the Engineer.

The Contractor shall submit certificates of tests carried out to prove the efficiency of all equipment, as well as certificates to be obtained from all relevant authorities and statutory bodies, etc.

The Contractor shall only utilise Departmentally approved inspection authorities for all inspections and tests to be conducted. This will be done and approved in writing between the relevant parties.

## FF 08 QUALITY ASSURANCE SYSTEM

The Contractor shall institute an approved quality assurance (QA) system which shall be submitted to the Engineer for approval. The records of this QA system shall be kept throughout the duration of the Contract and submitted to the Engineer at regular intervals as required.

## FF 09 COMMISSIONING AND RECOMMISIONING OF EQUIPMENT

### FF 09.01 GENERAL

On completion of the repair work and/or the installation of new equipment the equipment shall be put into operation after all tests and adjustments have been carried out to the satisfaction of the Engineer. Where new equipment is installed the Contractor shall run and operate the equipment for a period of time as specified by the Engineer and train the staff of the User Client to operate and maintain the system.

Logging of the operation of the installations shall commence immediately upon start-up.

The Contractor shall submit a full commissioning report.

**FF 09.02 RECOMMISSIONING OF EQUIPMENT**

On completion of the inspections and tests of major repairs the Contractor shall recommission the equipment. This operation shall be done strictly in accordance with the manufacturer's specification and shall be witnessed by the Engineer. The operation shall include but not be limited to the following:

(a) All required precommissioning mechanical checks

(i) Check all steam, water and drain connections.
(ii) Check all moving points.
(iii) Check all seals.
(iv) Reinstall all covers and doors and check that they are properly secured.
(v) Check and record that all lubrication to equipment and components has been done in accordance with manufacturer's specification.
(vi) Check and ensure that all valves and safety valves are correctly installed and in the correct operating position. Safety valves are to be set in accordance with the required blow-off pressure for the installation.

(b) All required precommissioning electrical checks

(i) Check all wiring connections for tightness and repair any hot connections.
(ii) Check that all electrical equipment has been properly reconnected in accordance with the manufacturer's specification.
(iii) Perform and record all required electrical insulation tests on equipment.
(iv) Check and test all controls without livening up electrical equipment.
(v) Check all motor-driven equipment for correct rotational directions.
(vi) Check and test the operation of all indication and warning lights.
(vii) Check, set, record and readjust all equipment control and set points in accordance with manufacturer's specifications.
(viii) Run all motor-driven equipment for a period to ensure free movement and correct operation, feed pumps only to be operated for a short interval to check rotation.

(c) Commissioning of equipment

On completion of the precommissioning checks the Contractor shall proceed with the commissioning of the equipment. This shall be done strictly in accordance with the manufacturer's specification and shall include but not be limited to the following:

(i) During the commissioning process all level and warning system checks are to be performed on the water-level control system where applicable.
(ii) During load conditions the equipment shall be readjusted and finally switched to automatic operation on completion of all automatic control functions for correct operation where applicable.

The Contractor shall visit, inspect, test and readjust the installation during the 30-day period following the recommissioning to ensure the correct functioning of the equipment and its associated equipment.

## FF 10 GUARANTEE OF INSTALLATION AND EQUIPMENT

The Contractor shall provide guarantees obtained from the manufacturer(s) and/or supplier(s) to the effect that each piece of new equipment, supplied and installed under the repair contract, complies with the required performance and will function as part of the complete system.

All new equipment including the complete new installations and the systems as a whole shall be guaranteed for a period of 12 (twelve) months commencing on the day of issue of a certificate of completion for repair work of the installation.

## FF 11 REPAIR WORK TO INSTALLATIONS, SYSTEMS AND EQUIPMENT

### FF 11.01 GENERAL

During the repair and maintenance contract all the systems, installations and equipment shall be repaired as specified in the Particular Specification. This repair work shall include but not be limited to the specified Particular Specification details.

All repair work shall be executed with approved materials and equipment suitable to the systems and/or installations they serve. The said repair work shall be executed in accordance with the relevant codes of practice, standards, regulations, municipal laws and by-laws, manufacturer's specifications and codes of practice and all additional and particular specifications included in this document.

The repair work items are listed in tabular form in the Particular Specification with all relevant details such as capacity, size, manufacturer, model number, etc.

All repair work shall be executed within the specified durations as listed in the Appendix to Tender. All new equipment, materials and systems shall be furnished with a written guarantee of a defects liability period of 12 months from date of issue of a certificate of completion for the repair work. These guarantees shall be furnished in favour of the Department of Public Works. On completion of the required and specified repair work the systems, installations and equipment shall be commissioned and handed over to the satisfaction of the Engineer.

Repair work items for the kitchen equipment are categorised under the following headings:

(a) Cooking pots
(b) Pressure cookers
(c) Stoves
(d) Convection ovens
(e) Deep fryers
(f) Bakery ovens
(g) Dough mixers
(h) Potato peelers
(i) Vegetable shredders
(j) Tilting frying pans
(k) Kitchen worktops and shelving
(l) Dishwashers

(m) Extract canopies.

**FF 11.02 COOKING POTS**

(a) Repair lid handles, hinges and catches.
(b) Repair leaking valves (steam, water, drain).
(c) Repair side panels.
(d) Repair leaks on pots.
(e) Repair oil (oil jacket pots).

**FF 11.03 PRESSURE COOKERS**

(a) Repair leaking seals on lids.
(b) Replace pressure gauges.
(c) Replace thermometers.
(d) Repair discharge flute seal.
(e) Reset/repair steam pressure-reducing valve to 290 kPa.
(f) Replace mountings and anti-vibration pads.

**FF 11.04 STOVES**

(a) Repair plate temperature controllers (electric and gas stoves).
(b) Repair oven doors.
(c) Repair Sprague tubing (electric stoves).
(d) Replace circuit breakers (electric stoves).
(e) Replace regulator (gas stoves).

**FF 11.05 CONVECTION OVENS**

(a) Replace blown elements.
(b) Repair door hinges and handles.
(c) Repair shelf stays.
(d) Replace blown indicator bulbs.

**FF 11.06 DEEP FRYERS**

(a) Repair temperature controllers.
(b) Repair frying baskets.
(c) Repair Sprague tubing.
(d) Replace circuit breakers.

**FF 11.07 BAKERY OVENS**

(a) Repair water and drain connections.
(b) Repair ventilation systems.
(c) Repair control panel.
(d) Repair door hinges and latch.

**FF 11.08 DOUGH MIXERS**

(a) Repair bowl and mixer drivers.
(b) Repair electrical wiring.

**FF 11.09 POTATO PEELERS**

(a) Repair water and drain connections.
(b) Repair mounting stand.
(c) Repair hatches.
(d) Repair peeling disk.
(e) Repair electrical connections.

**FF 11.10 VEGETABLE SHREDDERS**

(a) Repair water and drain connections.
(b) Repair mounting stand.
(c) Repair hatches.
(d) Repair shredding cutters.
(e) Repair electrical connections.

**FF 11.11 TILTING FRYING PANS**

(a) Repair tilting handle.
(b) Repair lid hinges.
(c) Repair temperature controllers.
(d) Repair electrical connections.

**FF 11.12 KITCHEN WORK TOPS, SHELVING AND TROLLEYS**

(a) Repair coasters on trolleys.
(b) Repair shelves (flatten) and stands.
(c) Repair work tops (flatten) and stands.

**FF 11.13 DISHWASHERS**

(a) Repair water supply and drainage connections.
(b) Repair dish baskets.
(c) Repair cutlery baskets.
(d) Repair door mechanisms.
(e) Repair electrical connections.
(f) Repair control panel.
(g) Repair washing system.

**FF 11.14 EXTRACT CANOPIES**

(a) Check and reset fire dampers.
(b) Clean filters/replace damaged filters.

## FF 12 MAINTENANCE TO INSTALLATIONS AND EQUIPMENT

**FF 12.01 GENERAL**

Monthly maintenance responsibilities for each installation including all units and components as specified, shall commence with access to the site. A difference shall be made in payment for the maintenance prior to and after practical completion of repair work.

Maintenance responsibilities of the completed installation shall commence upon the issue of a certificate of practical completion for repair work, and shall continue for the remainder of the 36-month contract period.

This part of the Contract shall include:

(a) Routine preventative maintenance;
(b) Corrective maintenance, and
(c) Breakdown maintenance,

as defined in Additional Specification SA: General Maintenance, for the specified installations described under FF 01 of this specification.

The maintenance work to be performed and executed shall be done strictly in accordance with Additional Specification SA: General Maintenance, and as specified in Particular Specification PFF and this specification.

The said maintenance work shall be executed in accordance with the relevant codes of practice, statutory regulations, standards, regulations, municipal laws and by-laws and the manufacturers' specifications and codes of practice.

The maintenance schedules and frequency shall be developed under the maintenance control plan to be instituted by the Contractor, as specified in Additional Specification SA: General Maintenance.

All new equipment, components and materials supplied and installed under the maintenance contract shall be furnished with a prescribed manufacturer's guarantee.

The maintenance work and items are to be categorised by the Contractor for each maintenance activity under the following headings:

(a) Cooking pots
(b) Pressure cookers
(c) Stoves
(d) Convection ovens
(e) Deep fryers
(f) Bakery ovens
(g) Dough mixers
(h) Potato peelers
(i) Vegetable shredders
(j) Tilting frying pans
(k) Kitchen worktops and shelving
(l) Dishwashers
(m) Extract canopies.

The Contractor shall be remunerated monthly, based on his performance, for maintaining the complete installation in a perfect functional condition.

## FF 12.02 DEFINITION AND QUALIFICATION OF ACTIONS

### FF 12.02.01 Daily maintenance actions

Daily actions are the responsibility of the User Client. These are to be performed by the responsible staff in the kitchens.

(a) Operating checks

(i) Check water connections and supply.
(ii) Check steam connections, supply and pressure.
(iii) Check drain connections.
(iv) Check operation of temperature controllers.
(v) Check operation of all doors, hatches, lids.
(vi) Check operations of mechanical movement.
(vii) Check operation of ventilation systems.
(viii) Do a visual check for steam leaks.

These daily checks shall be logged at the facility, ie by the kitchen supervisor.

**FF 12.02.02 Monthly maintenance actions**

Monthly maintenance actions are the responsibility of the Contractor.

(a) General maintenance on all kitchen equipment

(i) Check all safety valve settings and operation.
(ii) Check all steam traps, sight glasses and steam/condense piping including lagging and pipe supports.
(iii) Clean out all strainers.
(iv) Check all overload settings and safety devices on electric control panels.
(v) Lubricate all bearings, gear boxes and check oil levels and top up where required.
(vi) Check, and replace if worn or damaged, all seals on lids, hatches.
(vii) All daily maintenance schedules shall be included in the monthly schedules.

(b) Cooking pots

(i) Check lid handles, hinges and catches.
(ii) Check, and repair if required, all valves.
(iii) Check extract system on cooking pots, including the fan rotation, bearings, V-belts and pulleys.
(iv) Fasten all cover panels.
(v) Check all steam, water and drain connections.
(vi) Check for steam and water leaks.

(c) Pressure cookers

(i) Check all steam, water and drain connections.
(ii) Check all covers, lids, hatches for proper operation and sealing.
(iii) Check operation of all valves.
(iv) Check all electrical control panels.
(v) Check and lubricate all moving parts.
(vi) Check operation of outlet funnel.
(vii) Check operation of all pressure and temperature gauges.
(viii) Check operation of scale.

(d) Stoves

(i) Check operation of oven doors and latches.
(ii) Check the operation and calibration of temperature controllers (electric and gas).
(iii) Check the operation of plates.
(iv) Check the electrical connections including cables.
(v) Check the operation of the circuit breakers.

(e) Convection ovens

(i) Check rotation and operation of thermo fans.
(ii) Check all electrical elements.
(iii) Check operation of door hinges and latches.
(iv) Check operation of temperature controllers.
(v) Check all electrical connections and cables.
(vi) Check the operation of the control panel.

(f) Deep fryers

(i) Check operation of the temperature controllers.
(ii) Check operation of the heating elements.
(iii) Check operation of the moving mechanical parts and lubricate where required.
(iv) Check the condition of the oil pots.
(v) Check the condition of the frying baskets.

(g) Bakery ovens

(i) Check all water and drain connections.
(ii) Check the operation of the humidifier.
(iii) Check the operation of the rotating shelves.
(iv) Check the operation of the extract fan and thermo fan.
(v) Check the control panel.
(vi) Check the electrical connections.

(h) Dough mixers

(i) Check the operation of the mixers.
(ii) Check the movement of the mixing bowl and tilt system.
(iii) Check the electrical connections.

(i) Potato peelers

(i) Check the water and drain connections.
(ii) Check the peeling disk and peeling pads.
(iii) Check the passageways.
(iv) Check the peel strainer.
(v) Check the electrical connections and cable.
(vi) Check the rotation of the electric motor.
(vii) Clear the air passageways of the electric motor.

(j) Vegetable shredders

(i) Check the operation and rotation of the shredding cutters.
(ii) Check the operation of the feeder.
(iii) Check the electrical connections and cables.
(iv) Check the passage ways.
(v) Clear air passageways of electric motor.

(k) Tilting frying pans

(i) Check operation and lubricate tilt wheel and worm.
(ii) Check electric connections and cabling.
(iii) Check temperature controller.
(iv) Check operation and balance of lid.

(l) Kitchen work tops, shelving and trolleys

(i) Flatten all work tops.
(ii) Lubricate/service all casters on mobile equipment.
(iii) Set all tops level.
(iv) Straighten all shelves and tray guides.

(m) Dishwashers

(i) Check all water, drainage and electrical connections.
(ii) Check all detergent levels.
(iii) Clear all detergent feeder piping.
(iv) Clean out strainers.
(v) Lubricate covers and door hinges.
(vi) Check control panel.
(vii) Check all tray guides.

(n) Extract canopies

(i) Clean filters.
(ii) Check operation of fire dampers.
(iii) Check operation of extract fan.
(iv) Check control panel.
(v) Check all electrical connections.
(vi) Clean all grease cups.

**FF 12.02.03 Biannual maintenance actions**

Biannual maintenance actions are the responsibility of the Contractor.

(a) General

(i) Check all electric motor bearings.

(ii) Check all electric motor for phase balance (three-phase).

(iii) Check staking and running amps on all electrical equipment.

(iv) Check and reset overload, over and under voltage settings on control equipment.

(v) Check and reset all timers.

(vi) Rotating equipment inside ovens:
(1) Clean equipment;
(2) Lubricate bearings/lushes;
(3) Realign.

(vii) Clean all strainers.

(viii) Check all connections (water, steam and drainage).

(ix) All electrical connections must be re-tightened.

(x) Reset and check all pressure-reducing valves and safety valves.

Note: The above annual actions shall include the daily and monthly actions.

(b) Specific equipment requirements

(i) Cooking pots: Check jackets for leaks.

(ii) Pressure cookers, reset and check blow-off valves and replace vessel seal.

(iii) Stoves and convection ovens: Clean ovens and deep fryers and tilting frying pans, surfaces and bakery ovens.

# ADDITIONAL SPECIFICATION

# SD GENERAL TRAINING

## CONTENTS

SD 01 SCOPE
SD 02 BASIC METHOD REQUIREMENT
SD 03 TRAINING OF USER CLIENT PERSONNEL
SD 04 TRAINING OF MAINTENANCE PERSONNEL
SD 05 MEASUREMENT AND PAYMENT

## SD 01 SCOPE

The Contractor shall be responsible for providing diverse training to various groups, including operating and maintenance personnel. The Contractor shall develop and facilitate initial training sessions for all parties, as well as training sessions at specified intervals to revive and supplement the initial training. An accredited trainer shall present all training sessions.

This specification includes all requirements for methods to be employed, the syllabus required by the User Client, the syllabus required for maintenance managers and workers and the method of measurement and payment.

## SD 02 BASIC METHOD REQUIREMENT

The Contractor shall be responsible for conducting a complete investigation of the groups that have to be trained in order to compile a proper training plan.

The investigation shall cover at least the following aspects:

(a) Assess likelihood of conformance to task-specific requirements *(status quo)* of capabilities.

(b) Identify minimum pre-qualification criteria in terms of existing knowledge and skill levels in relation to reaching target requirements.

(c) Evaluate personnel in terms of pre-qualification criteria and tasks to be performed (skills profile).

(d) Identify training needs.

(e) Develop appropriate and accredited training courses and material in terms of task-specific activities and identified training needs, and compile the training syllabus per installation.

The Contractor shall identify an accredited trainer to assist in the above investigation and finalise the compilation of a training plan and syllabus. Approval of the syllabus shall be a condition for issue of a Certificate of Practical Completion for repair of an installation. Once the training plan and syllabus have been approved the Contractor shall liaise with the Engineer to establish a date and appropriate training venue that would be conductive to learning to perform training.

The training shall be revived within one month after initial training to determine its effectiveness. Further regular training sessions shall be scheduled according to the effectiveness of initial maintenance and operating activities.

The Engineer will be responsible for recording all training sessions and shall keep an attendance register. The Engineer will also examine the trainees officially with each training session and issue certificates of trainees' acquired skills on satisfactory completion of the training.

## SD 03 TRAINING OF USER CLIENT PERSONNEL

The Contractor's training shall include training of the User Client's operators on biannual basis to acquaint them with operating of installations (especially electrical and mechanical systems). The training sessions shall comprise lectures and on-site (hands-on) demonstrations, and shall be conducted over two-day periods. The Contractor shall liaise with the Engineer to prepare for the correct number of trainee operators.

The content of training courses for operators shall include the essential features of operating the installation, as also described in the Operating and Maintenance Manuals.

Completion of an installation shall, in terms of the Contract Data, be subject to successful completion of training. The training course shall also be based on the Operating and Maintenance Manuals. No training shall commence without the Engineer's approval of the final draft Operating and Maintenance Manual for the particular installation.

## SD 04 TRAINING OF MAINTENANCE PERSONNEL

The Contractor shall train either his own employees, or local labourers, with regard to maintenance of the installation.

The training of maintenance managers shall include the following aspects:

(a) Awareness of safety, health and personal hygiene in terms of the requirements of the Occupational Health and Safety Act, 1993 (Act 85 of 1993);

(b) functioning of the installation, including all its systems, services, parts of buildings and infrastructure;

(c) all specific tasks related to routine preventative maintenance;

(d) interpretation and understanding of Operating and Maintenance Manuals with specific reference to requirements in cases of corrective and breakdown maintenance, and

(e) repair/reconditioning and installation/construction of equipment and materials forming part of an installation.

## SD 05 MEASUREMENT AND PAYMENT

**SD.01** **DEVELOPMENT OF A SYLLABUS FOR TRAINING OF OPERATORS** ....Unit: sum

The unit of measurement shall be the sum for the compilation of a training syllabus for each installation that shall be measured separately in the Bill of Quantities.

The sum bid shall include full compensation for identification of pre-qualification criteria and training needs, staff assessment and evaluation prior to training, all technical research, development and compilation of an accredited training course and course material, and all other actions necessary for commencement of official training sessions in accordance with the specification.

The sum bid shall also include full compensation for the compilation of a draft syllabus and for incorporation of all the Engineer's comments and corrective requirements.

**SD.02** **PRESENTING A TRAINING COURSE FOR OPERATORS ..... Unit: number**

The unit of measurement shall be the number of training courses presented based on the approved syllabus.

The bid rate shall include full compensation for presenting a two-day training course, including lectures, demonstrations, on-site training and hands-on development and improvement of operators' skills to enable the operators to operate installations safely and efficiently.

The bid rate shall include full compensation for the Contractor's time, appointment of the accredited trainer for the course, and for all material expenses such as paper hand-outs and slides for the whole group of trainees, the number of which shall be determined during development of the training course.

**SD.03** **PRESENTING A TRAINING COURSE FOR MAINTENANCE PERSONNEL..... Unit: number**

The unit of measurement shall be the number of training courses presented.

The bid rate shall include full compensation for presenting a two-day training course, including lectures, demonstrations, on-site training and hands-on development, and improvement of maintenance personnel's skills to enable them to maintain and repair installations safely and efficiently at the satisfactory functional condition specified.

The bid rate shall include full compensation for the Contractor's time, appointment of the accredited trainer for the course, and for all material expenses such as paper hand-outs and slides for the whole group of trainees, the number of which shall be determined during development of the training course.

# ADDITIONAL SPECIFICATION

## SC GENERAL DECOMMISSIONING, TESTING AND COMMISSIONING PROCEDURES

## CONTENTS

SC 01 SCOPE
SC 02 PHASED REPAIRS AND UPGRADING OF THE INSTALLATION
SC 03 DETAILED COMMISSIONING PROGRAMME
SC 04 COMMISSIONING COMMUNICATION CHANNELS
SC 05 COMMISSIONING RISK CONTROL AND PENALTIES
SC 06 DELAYS TO SCHEDULED SHUTDOWNS
SC 07 MATERIAL AND EQUIPMENT PROCUREMENT AND PROTECTION
SC 08 TESTING OF EQUIPMENT PRIOR TO RECOMMISSIONING
SC 09 TESTING OF MATERIAL AND EQUIPMENT SPECIFICATIONS AND WORKMANSHIP
SC 10 DECOMMISSIONING
SC 11 RECOMMISSIONING, COMMISSIONING AND COMPLETION OF INSTALLATIONS
SC 12 MEASUREMENT AND PAYMENT

### SC 01 SCOPE

This specification encompasses all aspects of the repairs of systems and services that form part of an installation, including the factory and on-site testing, decommissioning, installation and commissioning of all equipment, instrumentation and materials reconditioned, supplied and installed as part of an installation as defined in Additional Specification SA: General Maintenance.

The specified procedures are the minimum requirements to be supplemented by various technical and particular specifications in this document. These requirements shall apply to all commissioning work scheduled as part of the initial repair work on installations, as well as commissioning work that is part of the routine preventive and corrective maintenance.

### SC 02 PHASED REPAIRS AND UPGRADING OF THE INSTALLATION

When an installation consists of parallel systems or components, the complete installation and all its components shall be repaired without taking the complete installation out of commission at any time, unless otherwise specified in the Technical Specifications.

In order to schedule the repairs of an installation, all work shall be done in phases as specified in the Technical Specifications and illustrated in detail on the Drawings. Repairs of each part shall terminate with the successful reconditioning of that part.
Each part of the system shall be decommissioned and recommissioned in the sequence specified in the Technical Specifications and on the Drawings.

The Contractor shall install all the necessary temporary specials, spool pieces, supporting frames and brackets to provide a functional link between each repaired and upgraded part of the system and the part of the installation that has not yet been repaired and upgraded during recommissioning. Electrical and instrumentation Contractors and subcontractors shall ensure that the system remains operational as specified, using either existing or newly installed instruments, cables and controls.

Payment is based on the successful recommissioning of a specific part of the installation.

## SC 03 DETAILED COMMISSIONING PROGRAMME

No work of any kind on any part of the existing installation shall take place prior to the Engineer's approval of a detailed commissioning programme. This programme shall be submitted in addition to the general programme for planning and monitoring contract progress, at least two weeks prior to any programmed shutdown. The programme shall be the coordinated product of the Engineer and the User Client. Commissioning programmes shall take all process requirements into account. The detailed commissioning programme shall indicate all actions necessary for:

(a) Decommissioning

(b) Recommissioning of parts of the installation

(c) Commissioning of the installation as a whole.

All work deemed necessary for practical completion of the installation shall be indicated on the commissioning programme.

The programme shall indicate the milestones to be achieved before shutdown and decommissioning as activities of zero duration, all of which shall be prerequisites linked to the "start" of decommissioning.

The following specific actions shall be included in the programme, clearly indicating the time allowed for:

(a) Communication, including the time for confirmation of the official shutdown;

(b) Draining parts of the installation to sumps, where available, or to other storage facilities provided by the Contractor;

(c) Installation of temporary blanked flanges or other means of isolation where necessary;

(d) Partial decommissioning and removal of existing material and equipment to perform work, including protection of pipework against hot work, cutting into pipework, loosening bolts, flanges and all other work necessary for recommissioning;

(e) Installation of temporary functional links (pipe specials) between any two parts of the installation;

(f) Each individual field weld, subject to the Engineer's approval;

(g) Non-destructive testing of materials, for manufacturing/construction quality and for producing test results;

(h) Installation of all instruments and their connection to SCADA systems;

(i) Installation and connection of all power cables;

(j) De-aeration of all pipe sections;

(k) Communication between the Contractor, the Engineer, the Employer and the User Client;

(l) Start-up of the complete system, indicating start-up procedures.

Inspection of the prefabricated installation, testing of all equipment prior to final commissioning, pressure testing and non-destructive testing shall be clearly scheduled in the project progress programme.

Day 30 tests and instruction/training sessions with the User Client shall be scheduled in the project progress programme.

## SC 04 COMMISSIONING COMMUNICATION CHANNELS

The Contractor shall communicate with the User Client's operating and maintenance managers via the Engineer to finalise start-up after decommissioning in accordance with the specified procedures.

The following key parties shall be involved before and during shutdown and decommissioning of any part of the system:

Contractor: Site Agent

Engineer: Resident Engineer

Employer: Representative of Area Manager

User Client: Operating and Maintenance Manager.

## SC 05 COMMISSIONING RISK CONTROL AND PENALTIES

(a) The safety instructions stipulated by the Occupational Health and Safety Act, 1993 (Act 85 of 1993) shall be adhered to at all times.

(b) The Contractor shall not be allowed to work on any part of the installation without obtaining a commissioning check permit on the day of shutdown. A typical example of a commissioning check permit is included in this document, referring to the minimum required milestones to be achieved prior to decommissioning.

(c) Payment reductions for exceeding the maximum permissible down-time during maintenance shall apply as stipulated in the General Conditions of Contract and the Contract Data. This stipulation does not include shutdowns during programmed routine preventive maintenance work.

## SC 06 DELAYS OF SCHEDULED SHUTDOWNS

Specific dates on which an installation shall be shut down for decommissioning shall be finalised during coordination meetings of all the parties involved, including the Engineer, the Employer, the User Client and the Contractor.

Although a date for each shutdown will be scheduled at the coordination meetings, the actual date of the shutdown shall be determined by the process requirements and user demands, allowing for a window of seven (7) calendar days from the date of the planned shutdown.

Prospective bidders shall make allowances in their bid rates for the shutdown to occur at any time during this seven-day period. No additional payment shall be due if the shutdown occurs within this seven-day period.

If the Contractor fails to commence with the shutdown and decommissioning of the installation within the scheduled period, all additional costs arising from the shutdown at a later stage shall be for the Contractor's account.

## SC 07 MATERIAL AND EQUIPMENT PROCUREMENT AND PROTECTION

It is the responsibility of the Contractor to ensure the functionality of all units of new equipment prior to decommissioning, before installation of any specific part of the system. If the equipment, whether free-issued or not, does not conform to the functionality specifications during pre-installation testing, the Contractor shall notify the Engineer in writing without delay.

## SC 08 TESTING OF EQUIPMENT PRIOR TO RECOMMISSIONING

The equipment shall be tested for functionality after pre-installation of equipment in parts of the installation.

(a) The Contractor shall inform the Engineer well in advance of his intention to perform the first tests and start-up of equipment in order to allow a representative of the Engineer to witness the tests. The extent of all precommissioning tests and checks shall be agreed with the Engineer prior to commencement.

(b) The Contractor shall first conduct his own tests of the equipment. When he is satisfied that the equipment complies with the specifications, he shall notify the Engineer that he is ready for the official tests on completion. The Contractor shall not conduct an official test without the Engineer's presence or approval. All equipment shall conform to the specified requirements.

(c) Before starting up any part of the installation or filling the tanks and sumps with liquid, the Contractor shall clean out the tanks, pipes, fittings, equipment or structures and, if necessary, make arrangements with other Contractors to remove their building rubble form the structures, check that all safety devices and alarms have been set and activated, all nuts have been tightened correctly, that all the equipment is complete and ready for start-up, that the plant has been installed correctly, and that copies of the operating manuals have been handed to the Engineer.

(d) The Contractor shall start up each section of equipment after ensuring that oil fillings, lubrication, vibration monitoring, cable termination and so on have been correctly completed. He is also responsible for the first refilling of all lubricating oils and for adjusting the plant to operate according to the specifications. Before any equipment is started or energised, the Contractor shall ensure that it is safe in terms of the personnel and equipment on the site to do so. The Contractor's tendered rates and sums shall allow for these costs.

All equipment shall be tested according to the relevant specifications that form part of this document.

No shutdown or decommissioning of any part of the system shall take place unless all the equipment to be installed have been tested by the Contractor and approved by the Engineer.

## SC 09 TESTING OF MATERIAL AND EQUIPMENT SPECIFICATIONS AND WORKMANSHIP

All results of the required non-destructive, precommissioning and manufacturing testing shall be submitted to the Engineer well in advance of testing the equipment on recommissioning. All such test results shall be submitted before Day 1 commissioning tests and no certificate of practical completion shall be issued prior to receipt of the required test results.

## SC 10 DECOMMISSIONING

The decommissioning period shall commence on the instant of the entire system shutdown. The recommissioning period shall start in parallel with decommissioning.

Shutdown and decommissioning shall not proceed without compliance with all the milestones in the detailed commissioning programme. The list of milestones in this document is not complete but indicates the minimum requirements. Milestones to be

achieved prior to shutdown and decommissioning may be added to the programme at the Engineer's discretion.

The Contractor is responsible for the safe decommissioning of all material, equipment, components and instrumentation to avoid damage to parts or components of the installation.

## SC 11 RECOMMISSIONING, COMMISSIONING AND COMPLETION OF INSTALLATIONS

### SC 11.01 RECOMMISSIONING

Recommissioning means the commissioning of all sections or systems that form part of the installation to meet the required functional specifications for the individual section or system prior to commissioning of the repaired and upgraded installation.

The Contractor is responsible for the recommissioning of all parts of the system and he shall perform the tasks listed below.

(a) Prior notice shall be given to and proper arrangements shall be made for recommissioning with the Employer, the Engineer, the User Client and the suppliers of equipment that is affected by recommissioning and testing.

(b) If plant and equipment supplied by others are to be commissioned, the supplier's specific permission together with all requirements related to commissioning shall be obtained prior to recommissioning without in any way altering the General Conditions of Contract and the Contract Data with reference to the Contractor's liability in terms of defects.

(c) The new and reconditioned parts of the installation shall be thoroughly inspected by a responsible representative of the Contractor to ensure that manufacture/construction and installation work have been completed according to the specifications.

### SC 11.02 COMMISSIONING AND COMPLETION OF REPAIRS AND UPGRADING WORK

Commissioning means commissioning of the repaired and upgraded installation as a whole to perform in perfect working order.

(a) The commissioning period for each installation as a whole:

(i) Commences with the Day 1 tests of the complete repaired and upgraded installation;

(ii) Includes commissioning of all sections and systems that have been recommissioned prior to the Day 1 tests;

(iii) Includes training of the User Client's operating personnel and the maintenance teams;

(iv) Terminates with a Day 30 test in compliance with the commissioning report.

(b) The purpose of the Day 1 tests is to ensure that:

(i) The electronic, electrical and mechanical equipment and materials are functional and in perfect working order with respect to each other and the installation as a whole;

(ii) The commissioning period, including training, commences on successful completion of the Day 1 tests;

(iii) The Contractor is entitled to a certificate of practical completion for the repairs and upgrading of the installation on successful completion of the Day 1 tests;

(iv) The Contractor becomes responsible for maintenance of the installation and is entitled to performance-based payments in compliance with Additional Specification SA: General Maintenance.

(c) Commissioning shall be undertaken over a trouble-free period up to Day 30. During this period the Contractor shall train the User Client's operators and his maintenance team for operating and maintaining the installation. This training shall allow for all possible operational conditions, including emergency conditions, the correct servicing of every part, the type of oil or grease to be used, and similar tasks. The training shall take place by means of demonstrations, and the operating and maintenance manuals shall be referred to for this purpose.

(d) Day 30 commissioning tests shall be performed thirty calendar days after the successful completion of the Day 1 tests. The commissioning period of the installation terminates upon the successful completion of the Day 30 tests.

(e) The Contractor shall conduct all the tests required to satisfy the Engineer that the installation is performing according to specification, and shall make allowance for these tests in his bid rates and prices. These tests shall be conducted to certify that the installation, as repaired, upgraded and installed, is in perfect working order in terms of the specified functional requirements. The Contractor shall note that all equipment is to be tested as part of an installation, where appropriate, and will not be passed if all protection devices, interlocking with other equipment, etc, are not fully functional.

(f) The Engineer shall provide commissioning sheets to the Contractor at least three weeks before the commissioning period commences, for all the equipment supplied, reconditioned and installed by the Contractor. The Contractor shall complete the commissioning sheets during the commissioning period and all items listed shall be entered. No completion certificate will be issued for an installation of which the equipment has incomplete commissioning reports. Information that is not available or applicable, or instances where certain tests have not been carried out, are subject to the Engineer's decision.

(g) Commissioning of the plant (which includes the thirty days between the Day 1 and Day 30 tests) includes operating under conditions that adequately prove that all the specifications have been met. All safety devices, standby plant, automatic controls and protection devices shall be adequately tested for reliability and correct functioning. The Contractor may be called upon to repeat testing during the maintenance period if the performance of the equipment is suspected to be substandard. Costs related to such tests shall be for the Contractor's account and shall comply with the specified requirements. Copies of updated commissioning reports shall be provided to the Engineer within two days after a test has been performed.

(h) The Contractor is responsible for providing all labour and materials (including testing equipment) during the commissioning period and shall carry out all the servicing and adjustments to ensure that the installation operates as specified. Valid calibration certificates shall be available for all testing equipment on the site during the commissioning period.

(i) Programmes for the Day 1 tests, Day 30 tests and instruction/training sessions with the User Client's operators and maintenance team shall be prepared by the Contractor and submitted to the Engineer at least two weeks before the commissioning period commences. The Contractor shall provide weekly updates of these schedules for the duration of the commissioning period.

(j) The Contractor shall note that if any equipment fails during the commissioning period, the equipment shall be repaired or replaced by the Contractor, and testing and commissioning shall commence from scratch.

(k) Successful commissioning of an installation entitles the Contractor to a certificate of completion for the installation.

## SC 12 MEASUREMENT AND PAYMENT

### SC.12.01 DECOMMISSIONING AND REMOVING PARTS OF THE INSTALLATION ..... Unit: sum

The unit of measurement shall be a sum.

The sum bid shall include full compensation for all actions and labour required for shutdown and decommissioning of the entire installation as specified to enable decommissioning and removal of parts of the installation as listed in the Bill of Quantities.

The sum bid shall include full compensation for the decommissioning and removal of the parts and components of an installation as listed individually in the Bill of Quantities, including actions and/or costs resulting from such work, to enable the recommissioning of parts of the repaired and/or upgraded installation.

The sum bid shall include full compensation for final dismantling of decommissioned materials and equipment and the removal of all such items to stores on site, as directed by the Engineer.

### SC.12.02 COMMISSIONING AND TESTING OF PARTS OF THE INSTALLATION ..... Unit: sum

The unit of measurement shall be a sum.

The sum bid shall include full compensation for commissioning and testing parts of the installation to be operational while still incomplete in relation to the entire repaired and/or upgraded system or installation.

Separate payment items shall be billed for separate parts of the system.

### SC.12.03 COMMISSIONING AND TESTING OF THE INSTALLATION ..... Unit: sum

The unit of measurement shall be a sum.

The sum bid shall include full compensation for commissioning the upgraded installation as a whole and for all costs and expenses related to labour, removal, repair, reinstallation and testing of material and equipment during the commissioning period for each part of the installation. The sum bid shall include full compensation for the final commissioning and testing, including Day 1 and Day 30 tests, of all parts and components of the installation to the specified functional condition.

Payment shall be based on successful completion of the Day 30 tests.

**SC.12.04** **PROVISION FOR SAFETY AND HOT WORK REQUIREMENTS DURING SHUTDOWN** ..... Unit: number

The unit of measurement shall be the number of shutdowns during which all the required safety and hot work requirements are provided.

The bid rates shall include full compensation for all the required safety and hot work requirements and arrangements in accordance with the specifications during a shutdown period, including all labour, personnel, equipment, materials and consumables required.

# TECHNICAL SPECIFICATION

# AA PLUMBING AND DRAINAGE INSTALLATIONS

## CONTENTS


AA 01 SCOPE
AA 02 STANDARD SPECIFICATIONS
AA 03 GENERAL REPAIRS AND MAINTENANCE
AA 04 OPERATING AND MAINTENANCE MANUALS
AA 05 TESTS AND INSPECTIONS ON COMPLETION OF REPAIR WORK
AA 06 QUALITY ASSURANCE SYSTEM
AA 07 OPERATING AND COMMISSIONING OF PLANT AND INSTALLATION
AA 08 GUARANTEE OF EQUIPMENT AND MATERIAL
AA 09 DETAILS OF REPAIR WORK
AA 10 MAINTENANCE TO INSTALLATIONS, SYSTEMS AND EQUIPMENT


## AA 01 SCOPE

This specification covers the general repair and maintenance of plumbing and drainage installations, which include the following:

(a) Rainwater disposal systems
(b) Soil and wastewater drainage systems
(c) Domestic water distribution and reticulation systems
(d) Sanitary and brassware equipment
(e) Fire water piped reticulation networks.

This specification shall form an integral part of the repair and maintenance contract document, and shall be read in conjunction with the additional and particular specifications compiled as part of this document.

This specification shall act as a guideline to the Particular Specification and, in the event of any discrepancies between the Technical Specification and the Particular Specification, the latter shall take precedence.

## AA 02 STANDARD SPECIFICATIONS

### AA 02.01 GENERAL STANDARD SPECIFICATIONS, REGULATIONS AND CODES

The latest edition, including all amendments up to date of tender, of the following specifications, publications and codes of practice shall be read in conjunction with this specification and shall deemed to form part thereof:

#### AA 02.01.01 SABS Specifications and codes

| | | |
|---|---|---|
| SABS 0254 | - | The installation, maintenance, replacement and repair of fixed electric storage water heating systems |
| SABS 0400 | - | The applications of building regulations |
| SABS 1200 DB | - | Earthworks (pipe trenches) |
| SABS 1200 LB | - | Bedding (pipes) |
| SABS 1200 | - | Medium-pressure pipelines |
| SABS 1200 LD | - | Sewers |
| SABS 0252. Part 1 | - | Water supply installations for buildings |
| SABS 0252. Part 2 | - | Drainage installations for buildings |

SABS Specifications listed on page 3 of the DPW Specification OW 371

**AA 02.01.02 Department of Public Works Specifications**

OW 371 - Specification of materials and methods to be used. (Fourth revision, October 1993)
Guide for architects concerning drainage, water supply and stormwater drainage
PW 343 - Building specifications for regional offices
FPO/G61/3E - Guide to architects
Drainage details.

**AA 02.01.03 Occupational Health and Safety Act of 1993**

All regulations and statutory requirements as laid down in the latest edition of the Occupational Health and Safety Act, 1993 (Act no 85 of 1993) shall be adhered to.

**AA 02.01.04 Manufacturers' specifications, codes of practice and installation instructions**

All equipment and materials shall be installed, serviced and repaired strictly in accordance with the manufacturers' specifications, instructions and codes of practice.

**AA 02.01.05 Municipal regulations, laws and by-laws**

All municipal regulations, laws, by-laws and special requirements of the Local Authority shall be adhered to unless otherwise specified.

## AA 03 GENERAL REPAIRS AND MAINTENANCE

The following specifications shall be adhered to unless otherwise specified in the Particular Specification.

### AA 03.01 GENERAL REPAIR AND INSTALLATION REQUIREMENTS

(a) All materials and equipment supplied and installed shall be new, high quality and designed and manufactured to the relevant specifications and suitable for providing efficient, reliable and trouble-free service.

(b) All work shall be executed in a workman-like manner by qualified registered plumbers.

(c) All equipment, component parts, fittings and materials supplied and/or installed, shall conform in respect of quality, manufacture, test and performance to the requirements of the applicable current SABS specifications and codes, except where otherwise specified or approved by the Engineer in writing.

(d) All materials and workmanship which, in the opinion of the Engineer, are inferior to that specified for the work will be condemned. All condemned material and workmanship shall be replaced or rectified as directed and approved by the Engineer.

(e) The Contractor shall submit a detailed list of the equipment and material to be used to the Engineer for approval before placing orders or commencing installation.

(f) All new piping shall be installed and positioned so as not to impede on access routes, entrances and other services. The Contractor shall coordinate these new pipe routes taking other services and equipment into account.

(g) All control equipment and serviceable items shall be installed and positioned so that they will be easily accessible and maintainable.

(h) The Contractor shall make sure that all safety regulations and measures are applied and enforced during the repair and maintenance work to ensure the safety of the public and the User Client.

(i) Repair and maintenance work shall be programmed in such a manner as to ensure the shortest possible downtime of any service and the least inconvenience to the User Client and the public. The Contractor shall make sure that the necessary notifications and notices are timeously put into place for these activities.

## AA 03.02 GENERAL REQUIREMENTS FOR REPAIR AND INSTALLATION OF DOMESTIC WATER INSTALLATIONS

(a) All pipes are to be carefully examined for defects and flaws before installation and shall be neatly fitted. They shall be installed in such manner as to prevent the formation of air locks. Automatic air vents shall be installed on all high points of the installation.

(b) The ends of all the pipes are to be clean, free from burrs, and rough edges, and joined together tightly. Where applicable such as with galvanised piping, an approved pipe jointing compound may be sparingly used with best quality hemp. All surplus or exposed hemp is to be thoroughly cleaned off joints before the painting of pipes. Pipes to be installed underground shall comply with the requirements of SABS 1200L and SABS 1200LB as far as bedding, excavation and backfilling are concerned.

(c) All vertical pipes must be securely fixed with brackets and supports of approved type, into the wall and not more than 40 mm from the wall. These fixings must be strictly adhered to.

(d) Pipes installed in service ducts and ceiling voids are to be perfectly plumbed and secured with approved brackets, fixed securely at distances not exceeding the specified distances and not more than 40 mm away from the face of the walls or soffits. Pipes must be free to move in the brackets. Pipes inside buildings and where specified shall be chased into walls, wrapped with building paper and properly secured and covered.

(e) Pipes passing through walls and concrete floors are to be provided with suitable pipe sleeves extending 10 mm beyond finished floor or wall surfaces. All pipe fixings and throughways shall be free to allow movement for expansion and contraction. Any pipe fitting used to join a pipe which is rigidly secured by a structural element shall be securely anchored to prevent any stress developing between the fitting and the structural element.

(f) Chromium or nickel-plated metal covering plates are to be provided and fixed securely to pipes passing through the ceilings and walls. This requirement is not applicable to concrete floors and ceilings.

(g) Pipes passing through the ceilings or floors shall be offset from the wall to the front of the cornice with sufficient clearance to allow for the clear fixing of a ceiling plate. Pipes shall not be installed directly through the cornice. In multi-storey buildings where wall thickness varies, the same shall apply.

(h) All offsets are to be evenly and symmetrically set, the offsets being as near to the ceiling as possible.

(i) Pipes shall be installed in such a manner to allow for contraction and expansion.

(j) During construction all pipe ends shall be kept plugged to prevent any ingress of dirt, rubble, etc.

(k) Damages, chases, holes, etc, in brickwork, concrete and other finishes resulting from repair, replacement and service work shall be made good to match the existing and shall include plaster, concrete work, brickwork, paint, tiling, ceilings and all required materials for the remedial action.

(l) The work shall be of a high quality and executed by qualified tradesmen in accordance with the relevant specifications.

## AA 03.03 GENERAL REQUIREMENTS FOR REPAIR AND INSTALLATION OF SOIL AND WASTEWATER INSTALLATIONS

The following requirements shall apply to this installation unless otherwise specified.

### AA 03.03.01 Underground sanitary drainage installations

(a) All manhole covers and frames shall be cast into the concrete cover slabs.

(b) Manholes in trafficable areas shall be provided with type 1A heavy-duty cover and frame and surrounded by concrete slabs.

(c) Fittings in the ground and below floor slabs shall be without access eyes.

(d) Sewer pipes in the ground with a slope steeper than 1:5 and/or under surface beds shall be encased in concrete as detailed.

(e) The sewer outside the boundary of a building complex shall be constructed strictly in accordance with the details and specifications of the local authorities.

(f) Existing drainage invert levels and positions are to be checked against invert levels given on the drawings before commencing the work. The Contractor shall inform the Engineer immediately of any discrepancy.

(g) All affected existing services are to be located and exposed before commencing the proposed repair work.

(h) The drainage system shall be tested according to the specifications laid down by the NBRI. This shall be carried out in the presence and to the satisfaction and approval of the Engineer.

(i) During construction all pipe ends are to be suitably plugged to prevent any ingress of dirt, rubble, etc.

(j) Modern technology video surveying equipment and detection equipment shall be utilised if so approved by the Engineer to establish blockage problems and indicate the positions of such problems. The Engineer's Representatives has no authority to approve the use of such surveying equipment.

(k) Any drainage pipe within the 45° range below building foundations shall be encased in concrete or soilcrete as specified.

**AA 03.03.02 Above ground sanitary drainage installations**

(a) All accessible waste and soil fittings above ground level shall have inspection eyes. Inspection eyes shall not be underneath any fittings.

(b) All single wash hand basins shall be connected to a 40 mm internal diameter waste pipe.

(c) All groups of wash hand basins and sinks shall be connected to a 50 mm internal diameter waste pipe, unless otherwise indicated.

(d) All traps up to and including 50 mm diameter shall be of the "deep reseal" (75 mm) type.

(e) The maximum bend on any single fitting shall be 45°, with the exception of ventilation pipes where bends of up to 90° may be used.

(f) Drainage pipes and fittings running below concrete slabs and along walls and columns shall be suspended by means of approved type hangers, holderbats, etc, placed at appropriate intervals, to provide a rigid, proper suspended system as required by the manufacturer.

(g) All ventilation pipes shall be finished off with a suitable durable grating.

(h) All S-trap WC pans shall have plugged anti-siphon horns fitted to provide for cleaning access.

**AA 03.04 PRESSURE TESTING OF WATER PIPES**

(a) All new pipe installations under the repair Contract shall be pressure tested before being taken into use. The Engineer shall witness this pressure test. Tests shall be carried out both on surface-mounted and buried pipework. Buried pipes shall be backfilled except at fittings and joints before being tested.

(b) Completed sections of the pipe installation shall be filled with water after all branches have been plugged, sealed or closed.

(c) The section of pipe shall be hydraulically pressure tested by means of a suitable manually-operated or mechanically-driven pressure pump.

(d) A pressure of at least 1,5 times the working pressure of the class rating of pipes or fittings shall be applied for a period of time specified in the specifications or as recommended by the manufacturers. (Refer to SABS 1200 L for minimum and maximum test pressures.)

(e) Tests shall not be performed against closed valves.

(f) Leakage which occurs shall be measured and calculated and checked against the allowable losses, as specified in SABS 1200 L.

(g) If the completed section of pipe complies with all specifications and passes the tests and inspection, to the approval of the Engineer, and the Contractor shall backfill the open sections of trench at the joints and connections, where applicable.

(h) The Contractor shall then proceed to build all the valve chambers, inspection chambers, etc, for underground installations and shall close-off around pipes in walls, voids and ducts for above ground installations.

## AA 03.05 STERILISING OF WATER PIPES

(a) Before any repaired and new pipeline is taken into use, the pipeline shall be sterilised over its complete length, including the fittings. The pipe shall be filled with potable water chlorinated to a concentration of 15 mg of chlorine per litre of water, which shall remain in contact with the inner surface of the pipeline for a period of not less than 24 hours. The pipeline shall be filled for sterilising in such a manner that no water-hammer shock is created or air is trapped in the pipeline.

(b) The Contractor shall submit full details of the proposed method of sterilising the pipeline to the Engineer for approval at least fourteen days prior to the commencement of sterilising.

(c) The cost of water for filling the pipeline for sterilising shall be borne by the Contractor.

(d) The Contractor shall provide all necessary materials, tools, equipment and labour required for sterilising the pipeline. After sterilising the pipeline the Contractor shall, at no extra cost, empty the pipeline and dispose of the water in a manner approved by the Engineer.

The Contractor may use the following products as a source of chlorine:

- chloride of lime to SABS 295 yielding 33 % free chlorine by mass;
- calcium hypochlorite to SABS 295 yielding 70 % free chlorine by mass;
- chlorine gas applied by chlorinator.

After sterilisation, an approved water quality test shall be carried out to a minimum number of 10 % of the total water points, randomly selected, evenly spread and marked on drawings. These tests shall include a full bacteriological test as per SABS 241 and the results shall be submitted to the Engineer for approval. All tests shall be for the Contractor's account.

### AA 03.05.01 Bacteriological requirements

When tested the water shall comply with the limits given in table AA 03.05.01/1.

TABLE AA 03.05.01/1

| PROPERTY | RECOMMENDED MAXIMUM LIMIT | MAXIMUM ALLOWABLE LIMIT |
|---|---|---|
| Total coliform bacteria count per 100 millilitre | Nil* | 5 |
| Faecal coliform bacteria count per 100 millilitre | Nil | Nil |
| Standard plate count per millilitre | 100 | Not specified |

*(a) If any coliform bacteria are found in a sample, a second sample must be taken immediately after the tests on the first sample have been completed. This sample shall be free from coliform bacteria.

(b) Not more than 5 % of the total number of water samples (from any one reticulation system) tested per year may contain coliform bacteria.

The Engineer shall witness the sterilising of the pipes.

The Contractor shall ensure that during the sterilising procedure the necessary safety precautions are instituted to prevent the intake of water by the user and/or public from the system. On completion the system shall be properly flushed out.

## AA 03.06 AIR TEST FOR SEWER AND DRAINS

The following air test requirements are specified in the NBRI information sheet X/BOU 2-34 and are reproduced here. They shall be applicable to all air tests on new sewers and drains installed under the repair work phase, and shall be executed by the Contractor and witnessed by the Engineer.

### AA 03.06.01 Method of air testing

All openings in the pipeline are plugged by means of sewer testing plugs. The sewer plug at the lowest end of the pipeline is connected to an air supply hose, which is attached to a mechanically driven air blower, compressor or hand pump. Air is pumped into the pipeline at a pressure of approximately 375 mm water gauge. The pressure is held at this level for a period of two minutes to allow the air temperature to become constant. Subsequently the air supply is closed off and the time recorded for the air pressure to drop from 250 to 125 mm water gauge. If the recorded time is less than the value given in table AA 03.06.01/1 below, it means that the pipeline leaks and does not comply with the required standards of tightness. The apparatus required for the air test is commercially available.

The following requirements have to be taken into account when performing the air test:

(a) Air-permeable pipelines such as vitrified clay or asbestos cement should preferably be tested when moist or wet.

(b) The trench should be partially backfilled before the test is carried out. This is to stop possible temperature variations and to prevent damage to the pipeline during subsequent backfilling operations.

(c) The testing equipment should be shielded from the direct rays of the sun.

(d) Flexible joints are recommended for sewer and drain pipelines. Good quality flexible joints are superior to cement caulked joints and they also provide the pipeline with flexibility to prevent cracking due to subsequent soil movement.

(e) The test method is very sensitive to flaws in the pipeline, such as cracks or leaking joints. The actual positions of flaws along the pipeline can be determined by using special equipment.

(f) If the pipeline is below the water table and subjected to external water pressure, the test method should be modified so that the final pressure value are higher than that of the external water pressure acting on the lowest part of the pipeline.

TABLE AA 03.06.01/1: MINIMUM TIMES FOR PRESSURE DROP OF 250 mm TO 125 mm WATER GAUGE

| PIPE (DIAMETER (mm) | MINIMUM TIME (min - s) | CRITICAL LENGTH OF PIPELINE (m) (58 $m^2$ INTERNAL SURFACE AREA) | MINIMUM TIME (S) FOR LONGER LENGTH (L) OF PIPELINE |
|---|---|---|---|
| 100 | 1 - 58 | 184,6 | 0,640 L |
| 150 | 2 - 57 | 123,1 | 1,439 L |
| 200 | 3 - 56 | 92,3 | 2,559 L |
| 225 | 4 - 26 | 82,1 | 3,239 L |
| 250 | 4 - 55 | 73,8 | 3,998 L |
| 300 | 5 - 54 | 61,5 | 5,757 L |
| 375 | 7 - 23 | 49,2 | 8,996 L |
| 450 | 8 - 51 | 41,0 | 12,954 L |
| 525 | 10 - 20 | 35,2 | 17,632 L |
| 600 | 11 - 49 | 30,8 | 23,030 L |

## AA 04 OPERATING AND MAINTENANCE MANUALS

The Contractor shall be responsible for the compilation of an inventory list and operating and maintenance manuals.

This shall be done in accordance with Additional Specification SB: Operating and Maintenance manuals.

All information shall be recorded and captured in electronic format and the Department shall be provided with three sets of hard copies.

## AA 05 TESTS AND INSPECTIONS ON COMPLETION OF REPAIR WORK

Except where otherwise provided in the Contract, the Contractor shall provide all labour, materials, power, fuel, accessories and properly calibrated and certified instruments necessary for carrying out such tests. The Contractor shall make arrangements for such tests and he shall give at least 72 hours notice to the Engineer, in writing, prior to commencing test.

In the event of the installation not passing the test, the Engineer shall be at liberty to deduct from the Contract price all reasonable expenses incurred by the Engineer attending the repeated test.

Whenever any installation or equipment is to be operated for testing or adjusting as provided for above, the Contractor shall operate the entire system for as long a period as may be required to prove satisfactory performance at all times in the occupied space served by that system for up to twenty-four hours a day continuously until the system is handed over.

The Contractor shall provide all labour and supervision required for such operation and the Department may assign operating personnel as observers, but such observation time shall not be counted as instruction time.

After completing the installation or system, all equipment shall be tested, adjusted and readjusted until it operates to the satisfaction and approval of the Engineer.

The Contractor shall submit certificates of tests carried out to prove the soundness of all installations.

## AA 06 QUALITY ASSURANCE SYSTEM

The Contractor shall institute an approved quality assurance (QA) system which shall be submitted to the Engineer for approval. The records of this QA system shall be kept throughout the duration of the Contract and be submitted to the Engineer at regular intervals as required.

## AA 07 OPERATING AND COMMISSIONING OF PLANT AND INSTALLATION

On completion of the repair work and/or the installation of new pipe systems and items of equipment the system and equipment shall be put into operation after all tests have been carried out to the satisfaction of the Engineer. The Contractor shall operate the system for a period of time as specified by the Engineer and train the staff of the User Client to maintain the system. This period of time shall not exceed one month.

Logging of the operation of the installations shall commence immediately upon commencement of their use.

The Contractor shall submit a full commissioning report.

## AA 08 GUARANTEE OF EQUIPMENT AND MATERIAL

The Contractor shall provide and obtain guarantees from the manufacturer(s) and/or supplier(s) to the effect that each new fitting, pipe or other item of material and equipment supplied and installed under the repair contract, shall comply with the application.

## AA 09 DETAILS OF REPAIR WORK

### AA 09.01 GENERAL

During the repair and maintenance Contract all the systems, installations and equipment shall be repaired as specified in the Particular Specification. This repair work shall include but not be limited to the specified Particular Specification details.

All repair work shall be executed using approved materials and equipment suitable to the systems and/or installations they serve.

All materials and equipment shall comply fully with the requirements as specified for each installation.

The said repair work shall be executed in accordance with the relevant codes of practice, standards, regulations, municipal laws and by-laws, manufacturer's specifications and codes of practice and all additional and particular specifications included in this document.

The repair work items shall be listed in tabular form in the Particular Specification with all relevant details, such as capacity, size, manufacturer, model number, etc.

All repair work shall be executed within the specified durations listed in the Appendix to Tender. All new equipment, materials and systems shall be furnished with a written guarantee with a defects liability period of 12 months

from date of issue of a certificate of completion for the repair work. These guarantees shall be furnished in favour of the Department of Public Works. On completion of the required and specified repair work the systems, installations and equipment shall be commissioned and handed over to the satisfaction of the Engineer.

Repair work items for the plumbing and drainage installations shall be categorised under the following headings:

(a) Rainwater disposal systems
(b) Soil and wastewater drainage systems
(c) Domestic water distribution and reticulation networks
(d) Sanitary and brassware equipment
(e) Fire water piped reticulation networks.

## AA 09.02 RAINWATER DISPOSAL SYSTEMS

### AA 09.02.01 General

Repair work to the rainwater disposal system shall be detailed in the Particular Specification and shall include but not be limited to the following:

(a) Replacement of damaged, broken, leaking and corroded pipework and fittings;

(b) Replacement of damaged, broken and missing rainwater outlets, stormwater catch pit gratings, manhole covers and frames and floor drains;

(c) Repair work to damaged manholes, catch pits, curb inlets, channel drains and drain points including builder's work and benching;

(d) Initial unblocking and clearing of all rainwater drainage pipes, manholes, catch pits, drain points, channel drains and gutters;

(e) Repair and upgrading of drainage system where necessary;

(f) Provision of additional rainwater drainage points where outlets are insufficient and ponding occurs;

(g) Prevention of the ingress of any unauthorised effluent into this drainage system;

(h) Realign and fix gutters to correct falls where necessary, including additional brackets where required.

(i) Reinstatement and making good of walls, tiling, floors, concrete, road surfaces, etc, to approved acceptable levels where any repair, upgrading and/or service work has been executed;

### AA 09.02.02 Material and equipment specification for rainwater disposal systems

Materials and equipment to be used for repair items shall be suitable and/or adaptable to the existing installation and shall comply with the following:

(a) Vitrified clay pipe and fittings

Vitrified clay pipes shall only be used for underground installations. The pipes and fitting shall strictly conform to SABS 559. The pipes and fittings shall have a minimum crushing strength of 45 kN/m.

The joining method to be used shall be polypropylene couplings with integral rubber seal similar or equal to Vitrosleeve in accordance with SABS 974 allowing up to 2,5° angular movement per joint and 5 mm line displacement per joint. The joint shall retain an effective water seal with regard to above conditions with a 6 m water head.

Pipes shall be cut using an approved pipe cutter and the ends shall then be trimmed by means of a pipe trimmer to remove any sharp edges.

The piping system shall be tested as indicated in this specification under subclause AA 03.06 above.

(b) Supercast cast-iron pipe and fittings

Supercast cast-iron pipes can be used for underground and above ground installations. Plain-ended cast-iron pipes and fittings, manufactured from 150, grade A grey iron in accordance with SABS 1034 shall be used. Fittings and pipes shall be free of pinholes, blowholes, blemishes, flash and foundry sand and have a smooth bore. All pipes and fittings shall be sand-blasted and coated on the inside and outside by submersion in a corrosion inhibiting oxide primer or bitumen paint.

The pipes and fittings shall be joined by means of stainless steel neoprene couplings as supplied by the manufacturer of the pipe system. The coupling shall be installed according to the manufacturer's specification and tightened with a torque wrench to a torque of 6,8 Nm.

(c) uPVC pipe and fittings above ground

uPVC pipes and fittings shall be used for above ground installations.

For pipe sizes larger than 160 mm diameter uPVC class 6 pressure pipe to SABS 966 shall be used with prefabricated uPVC bends and junctions. Prefabrication shall be done by means of hot-air welding of fittings to be covered with three layers of fibreglass reinforced lining over welded sections. The resin to be used shall be as specified by the manufacturer for usage with PVC. Bends shall be manufactured out of 3 to 4 sections per bend. Pipe jointing shall be done by means of couplings fixed with solvent cement for PVC piping. This joint shall be reinforced with a fibreglass lining of three layers.

Piping has to be supported and bracketed with properly sized and designed brackets consisting of two half sections clamped over the pipe and shall with two hanger rods.

Pipes be pressure tested in sections as specified in this specification.

(d) Galvanized steel piping and fittings above ground

Galvanized steel piping shall be used for above ground rainwater drainage systems. The pipe to be used shall be plain ended medium gauge uncoated pipe to SABS 62 galvanized to SABS 763. All fittings are to be manufactured from the same material welded with flanged ends or rolled ends to fit clambon fittings. Fittings are only to be galvanized after manufacturing. All joints to be either flanged or equipped with clambon couplings. All fittings and junction to be 45° sections.

The pipe system shall be properly secured and bracketed at regular intervals with correctly sized and designed galvanized brackets.

Pipes are to be pressure tested in sections as specified in this specification under subclause AA 03.06 above.

(e) Geberit HDPe pipe and fittings

Geberit HDPe pipes and fittings can be used for underground and above ground installations where specified. Pipes shall be plain ended and only Geberit HDPe bends and fittings shall be used. Jointing of pipes and fittings shall be done by butt welding, electro-sleeve couplings and/or flanged joints. Pipes and fittings shall only be installed by Geberit approved installers and the Contractor shall furnish a certificate to this effect. Pipes and fittings shall be installed strictly according to the Geberit application technique.

Pipes to be pressure tested in sections as specified in this specification.

(f) Roof outlets

Where waterproofing is installed, as for roof slabs, an adjustable roof outlet/drainage point to be used consisting of a cast-iron unit with cast-iron ring clamp to fit over waterproofing edge and an adjustable height outlet to fit in with the screed level. For surfaces such as paving and walkways a flat grating of brass or cast iron shall be used with a catch basket. Within paving blocks a square top frame shall be used. For roof outlets a domed grating is to be used. Where roofs are to be covered with stones, a mesh shall be installed to prevent any stones from entering the rainwater system.

Two-way side outlets shall be used in cases where required.

Floor and roof outlets to be fitted to cast-iron pipe by means of SSN couplings.

## AA 09.03 SOIL AND WASTEWATER DRAINAGE SYSTEM

### AA 09.03.01 General

Repair work to the soil and wastewater drainage system shall be detailed in the Particular Specification and shall include but not be limited to the following:

(a) Replacement of damaged, broken, leaking, corroded above and underground pipework and fittings;

(b) Replacement of damaged, broken and missing gully gratings, manhole covers and frames, cleaning eye covers, screws and bolts, inspection eye covers, end caps and vent cowls;

(c) Repair work to damaged manholes, gullies, cleaning eyes, floor drains, etc, including builder's work and benching;

(d) Initial unblocking only of all blocked drainage pipework, traps, floor drains, gullies and the cleaning of sanitary ware equipment;

(e) Video surveying of all underground drainage pipework when so authorised by the Engineer (but not by the Engineer's Representative) to establish root ingress, damaged pipework, fat build-up, blockages, incorrect falls, sagging and as-built information. This survey shall be utilised to establish the extent of repair and upgrade work to be executed;

(f) Repair and upgrading of soil and wastewater drainage systems where necessary;

(g) Repair work to bracketing systems including fixing and repair of existing brackets and the introduction of additional brackets where required;

(h) Repair, re-fix and bracket sanitary ware equipment to walls, floors, etc, where required;

(i) Repair, replace and clean out sanitary ware and equipment traps;

(j) Test pipe system, traps and equipment for leakage;

(k) Empty, clean out separators, clean out strainers, and test for leak tightness, repair and recommission oil and grease separators. Check the conformance of the capacities of the oil and grease separators in relation to the facilities they serve; where necessary these shall be upgraded and where no separators have been provided, new separators shall be provided;

(l) Reinstatement of walls, tiling, floors, concrete finishes, holes, chases, surfaces, etc, to an approved acceptable level where any repair, upgrade and/or service work has been executed;

(m) Prepare, paint and repaint pipework and equipment where necessary, in accordance with Technical Specification BH: Fittings.

**AA 09.03.02 Material and equipment specification for soil and wastewater drainage systems**

Materials and equipment to be used for repair items shall be suitable and/or adaptable to the existing installation and shall comply with the following:

(a) Vitrified clay pipe and fittings

As specified in subclause AA 09.02.02(a) above.

(b) Supercast cast-iron pipe and fittings

As specified in sublause AA 09.02.02(b) above.

Where cast-iron stub stack overflow gullies are used with pipe materials such as PVC a rubber O-ring shall be used to fit over the PVC pipe into the cast-iron fitting. The joint shall be grouted up afterwards.

Above ground piping shall be bracketed with properly sized and designed brackets according to the manufacturer's specification at correct intervals.

The piping system shall be tested in accordance with the NBRI information sheet X/BOU 2-34 as specified in subclause AA 03.06 above.

(c) uPVC soil and waste pipe and fittings

UPVC soil, vent and waste pipe systems can be used for underground and above ground drainage installations. This piping shall conform in all respects to SABS 971 for underground systems and to SABS 967 for above ground systems.

All underground pipes, as well as soil pipes above ground, shall be joined by means of rubber ring seal couplings and fittings in accordance with the manufacturer's specification. All waste and vent pipes shall be joined by means of solvent weld fittings and couplings. The solvent weld

glue to be used shall be as specified by the pipe manufacturer, allowing for thermal contraction and expansion.

The piping system shall be pressure tested in accordance with the NBRI information sheet X/BOU 2-34 as specified in subclause AA 03.06 above

(d) Structural wall uPVC pipes and fittings

Structural wall uPVC drainage pipe shall be used for underground drainage systems. This piping system shall be used with standard underground uPVC pipe fittings, equipped with rubber ring joints. The pipe shall be equipped with z-lock type rubber ring joints.

The piping system shall be pressure tested in accordance with the NBRI information sheet X/BOU 2-34 as specified in subclause AA 03.06 above.

(e) Geberit HDPe pipes and fittings

As specified in subclause AA 09.02.02(e) above.

(f) Stainless steel floor traps and floor channels

Stainless steel floor traps and channels shall be manufactured from 304 stainless steel with a load capacity of 1 500 kg. The floor traps shall have a flow capacity of 3 litre/second.

The units shall be fitted with a double water seal, large sludge box and shall be easily dismantable for cleaning purposes. Tiling keys and waterproofing flanges shall be provided where required. Side inlets with diameter of 50 mm shall be provided for waste connections to other equipment where required.

(g) Cast-iron floor traps

Cast-iron floor traps shall be manufactured from cast iron and shall be fitted with a water seal and a large sludge box and lid to be easy removable for maintenance purposes. The unit shall be designed such as to provide access to the drainage system and to be used as a cleaning point.

## AA 09.04 DOMESTIC WATER DISTRIBUTION AND RETICULATION NETWORKS

### AA 09.04.01 General

Repair work to the domestic water distribution and reticulation networks shall be detailed in the Particular Specification and shall include, but not be limited to the following:

(a) Replacement of damaged, broken, leaking, corroded above and underground pipe work, fittings and equipment;

(b) Repair, replace and service valves, which shall include new gaskets, gland packings, seals, bolt and nuts, etc;

(c) Where valves do not close properly, all these valves shall be refurbished, descaled or replaced where necessary;

(d) Repair, clean and service all strainers, including the replacement of strainer elements where corroded and installation of new gaskets;

(e) Repair, service, test and readjust pressure-reducing valves. Pressure gauges are to be recalibrated and checked. Up and downstream pressures are to be logged. Downstream pressure has to be adjusted to an acceptable level, taking into account the allowable working pressure of the system and its components;

(f) Repair, service and check the proper functioning of all non-return valves;

(g) Repair, service, readjust and calibrate all safety and expansion relief valves;

(h) Repair, service and clean out all air release valves and vacuum breakers;

(i) Repair work to bracketing systems including fixing and repair of existing brackets and provision of additional brackets where required;

(j) Hot-water pipe lagging and cladding shall be inspected, repaired, sealed and replaced where required;

(k) Repair, service and log readings of water meters including cleaning of integral strainers;

(l) Water storage tanks are to be emptied, cleaned out, repaired, sealed and put back into operation. Ball float and/or filling valves to these tanks are to be serviced and repaired where required;

(m) Water pipes are to be sampled for corrosion and scaling. The Engineer will evaluate the actions to be taken if the results of this sampling indicate that attention is required;

(n) Water supply has to be sampled and chemically analysed for the suitability to the systems and materials it serves;

(o) Domestic geysers are to be repaired and serviced in accordance with the manufacturer's specification and SABS 0254 shall include descaling, replacement of elements, testing for any leaks, checking of safety valve operation (replace if required), testing of the thermostat operation and set point (replace if necessary);

(p) Pressure test and sterilise repaired new installation and equipment;

(q) Reinstatement and making good of walls, tiling, floors, concrete, finishes, holes, chases, surfaces, etc, to an acceptable level where repair, upgrade and/or service work has been executed.

**AA 09.04.02 <u>Material and equipment specification for domestic water distribution and reticulation networks</u>**

Materials and equipment to be used for repair items shall be suitable and/or adaptable to the existing installation and shall comply with the following requirements:

(a) <u>Copper pipe installation</u>

(i) The installation of copper piping systems shall be done in accordance with the manufacturer's instructions and all relevant codes, standards and regulations.

(ii) Copper pipes shall only be installed downstream of galvanized mild steel pipes when applicable.

(iii) Where dissimilar metals are joined, dielectric or isolating couplings shall be used. This is not required where copper and brass dezincified alloys join.

(iv) Copper pipes shall be of the hard drawn type Class 0 in accordance with SABS 460 and shall be joined by means of capillary soldered type fittings. No compression type fittings shall be allowed unless otherwise specified.

(v) Copper capillary soldered type fittings shall be used in accordance with ISO 2016, SABS 1067, DIN 2856 or BSS 864.

(vi) The soldering flux to be used shall be water based and easily flushed out, withstand temperatures above 240 °C and shall contain no ammonia. The flux shall be non-toxic when dissolved in water.

(vii) The solder to be used shall be in accordance with SABS 24 and shall consist of a material containing 97 % tin and 3 % copper. Solders containing lead, resin core and acid core shall not be used.

(viii) The heat source to be used shall be propane gas with induction air, at a temperature not higher than 240 °C. The pipe ends and fittings shall be cleaned and waxed with an approved solder flux, before soldering. The pipe and fittings shall then be fitted together and heated to the correct temperature before the solder is applied. Care must be taken not to add too much or to little solder to the joint. Immediately after setting of the solder the joint shall be wiped clean with a wet cloth. Pipes shall be washed out as soon as possible after jointing and all traces of flux shall be removed.

(ix) All bronze or brass equipment and fittings shall be of the dezincification resistant (DZR) type.

(x) Copper pipes and fitting shall be installed strictly to the manufacturer's specification which shall include the following:

(1) No labour bends;

(2) Provision for thermal contraction and expansion of pipes;

(3) Pipe brackets shall be installed at appropriate positions where pipes are installed on surface level;

(4) Pipes chased or built into walls or floors shall be wrapped with two layers of building paper or similar approved material. Hot and cold water pipes running next to each other shall be at least 50 mm apart;

(5) Equipment fixed to copper pipe outlets, where the pipes are surface mounted or built into walls, shall be done by means of copper wall plate fittings on the copper pipes, properly secured to the structure to prevent structural damage to soldered joints.

(xi) Pipe hangers and brackets shall be of copper, copper alloy or non-conductive materials. No piece of copper pipe shall touch any other conductive surface. Brackets shall be designed to structurally support and fix the pipe system, and shall allow

enough clearance from walls, soffits, etc, to insulate hot-water pipes and maintain equipment.

(xii) Pipe hangers and brackets shall be installed according to the manufacturer's specification on the following maximum spacings:

| PIPE DIAMETER (mm) | HORIZONTAL (metre) | VERTICAL (metre) |
|---|---|---|
| 15 | 1,3 | 1,9 |
| 22 and 28 | 1,9 | 2,5 |
| 35 and 42 | 2,5 | 2,8 |
| 54 | 2,5 | 3,9 |
| 67 – 108 | 2,8 | 3,9 |

(xiii) All copper pipes open to structural damage, shall be protected by steel sleeves or a structurally designed cover.

(xiv) All pipework shall be pressure tested and sterilised as specified.

(xv) Where flanged fittings are used, cadmium-plated bolts, nuts and spring washer shall be used to join these flanges.

(xvi) All hot-water pipes shall be lagged as specified.

(xvii) Shut-off valves shall be installed on all branch pipes and ball-o-stop valves shall be installed on all connectors to basin pillar cocks, sink mixers, cistern type WCs and other fittings.

(xviii) All pypes shall be marked in accordance with SABS 0140 or as specified by the Engineer.

(xix) Approved type expansion bellows shall be installed where required for expansion and contraction to prevent excessive strain on fittings and soldered joints.

(b) Galvanized steel pipe installations

(i) All galvanized steel pipes shall be medium gauge mild steel screwed and socketed pipes to SABS 62 and shall be normalised and marked as such by the manufacturer. Pipes shall be hot-dip galvanized to SABS 763.

(ii) All fittings shall be malleable cast-iron fittings to SABS 509 and galvanized to SABS 763.

(iii) All 80 mm diameter and larger pipes shall be joined with Class 16 flanged couplings to SABS 1123/1600. The bolts, nuts and spring washers to be used on these joints shall be cadmium-plated.

(iv) In pipe ducts and elsewhere pipes shall be fixed onto walls, soffits, etc, with approved type of supports, holderbats, clamps, etc. Brackets shall be designed to structurally support and fix the pipe system and shall have enough clearance from walls, soffits, etc, to insulate hot-water pipes and maintain equipment.

(v) Pipes shall be supported according to the manufacturer's specifications with approved brackets at the following maximum intervals:

| PIPE DIAMETER (mm) | HORIZONTAL (metre) | VERTICAL (metre) |
|---|---|---|
| 15 dia to 20 dia | 1 200 | 1 830 |
| 32 dia to 40 dia | 1 830 | 2 450 |
| 50 dia to 150 dia | 2 450 | 3 050 |

(vi) Pipes shall be installed in such a manner as to prevent air locks. A minimum rise of 1:250 shall be maintained to high points, which shall be fitted with suitable air release valves.

(vii) All pipes shall be marked according to SABS 0140 or as specified by the Engineer. All surface pipes shall be painted.

(viii) Pipes shall be installed flush with brick walls before plastering unless otherwise instructed by the Engineer.

(ix) Provision shall be made for thermal contraction and expansion.

(x) The type of pipe joint compound shall be approved by the Engineer and used sparingly with good quality hemp. For pipes larger than 80 mm diameter a jointing compound such as Epidermix 32 shall be used.

(xi) Any pipe buried shall have at least 900 mm cover and be coated and wrapped to SABS 1117 and tested in the presence of the Engineer.

(xii) All exposed hot-water pipes shall be lagged as specified.

(xiii) All pipework and fittings shall be pressure tested and sterilised as specified

(xiv) Valves shall be installed on all branch pipes and ball-o-stop valves on all connectors to basin pillar cocks, sink mixers, cistern type WCs and other fittings.

(xv) Approved type expansion bellows shall be installed where required for expansion and contraction to prevent excessive strain on fittings and pipe joints.

(c) <u>uPVC underground pipe installations</u>

(i) uPVC piping shall conform to SABS 966 with rubber ring type joints.

(ii) All bends shall be uPVC type fittings with rubber ring joints.

(iii) All other fittings such as T-pieces, reducers, flanges, etc, shall be bitumen-dipped cast-iron rubber ring jointed fittings to SABS 546.

(iv) No solvent weld type fittings will be allowed.

(v) All cast-iron fittings shall be coated and wrapped to SABS 1117.

(vi) All pipes shall be laid on a 100 mm sand-bedding cradle and covered with 300 mm sand before backfilling.

(vii) All backfilling shall be in accordance with SABS 1200 DB and to the Engineer's approval.

(viii) Pipe trenching and bedding:

| AREA | MINIMUM COVER | BEDDING TYPE | MAIN FILL |
|---|---|---|---|
| Vehicle traffic | 1 100 | Flexible pipe bedding as per SABS 1200 LB | Soilcrete |
| Under surface bed | 600 | | Soilcrete |
| Other areas | 900 | | 90 % of modified AASHTO density |

(ix) All thrust blocks shall be cast between the pipe and the undisturbed trench material.

(x) No concrete shall come into direct contact with the UPVC pipe. At the thrust blocks the bend shall be wrapped with a Densopol 80 HT Tape or similar approved.

(xi) HDPe pipe connections to uPVC pipes up to 50 mm can be done by means of SG Iron manufactured saddles with the appropriate gaskets and cadmium-plated bolts and nuts.

(xii) All pipe crossings under roads and parking areas shall be backfilled as specified in subclause CA 04.04.02(b).

(xiii) All pipework shall be pressure tested with all joints uncovered, to the satisfaction of the Engineer.

(xiv) Suitably sized air release valves built into valve chambers shall be installed at all high points of the pipeline.

(d) <u>HDPe underground pipe installations</u>

(i) HDPE piping shall be Type 4 HDPe pipe to SABS 533.

(ii) All fittings shall be of Plasson compression type and shall conform to ISO/DIS 3458.

(iii) All pipes shall be laid on a 100 mm sand bedding cradle and covered with 300 mm of sand of selected material.

(iv) All backfilling shall be in accordance with SABS 1200 DB and to the Engineer’s and approval.

(v) Pipe trenching and bedding:

| AREA | MINIMUM COVER | BEDDING TYPE | MAIN FILL |
|---|---|---|---|
| Vehicle traffic | 1 100 | Flexible pipe bedding as per SABS 1200 LB | Soilcrete |
| Under surface bed | 600 | | Soilcrete |
| Other areas | 900 | | 90 % of modified AASHTO density |

(vi) No concrete shall come into direct contact with the HDPe pipe. At these points the fittings shall be wrapped with Densopol 80 HT tape or similar approved.

(vii) All pipe crossings under roads and paring areas shall be backfilled as specified in subclause CA 04.04.02(b).

(viii) All pipework shall be pressure tested with all joints uncovered to the satisfaction of the Engineer.

(ix) Suitably sized air release valves built into valve chambers shall be installed at all high points of the pipeline.

(e) Valves

(i) Gate valves underground in valve chambers to connect to uPVC piping (65 mm NB and larger)

Gate valves are to be equipped with non-rising spindle, spherical graphite iron body to SABS 936 Grade 42, cast-iron nitrile butadiene rubber covered gate, stainless steel spindle, nitrile butadiene rubber O-rings and seals, cast-iron bonnet and gunmetal thrust collar to BS 1400 LG2.

The valves shall conform to SABS 664 and/or 665 and shall be capable of withstanding a working pressure of 1 600 kPa.

The valves shall be fitted with a square key spindle top to close the valves in clockwise direction and socket ends to SABS 665 to fit into uPVC Class 12 pipe and shall be installed to details provided.

(ii) Gate valves underground in valve chamber to connect to HDPe piping

The gate valves shall be of the dezincified brass type with brass gate, brass body, non-rising spindle and BSP threaded socket ends. The valves shall conform to SABS 776 Class 125. The valves shall be able to withstand a working pressure of 1 600 kPa. The valve shall be fitted with a hand wheel on an extended spindle shaft of 700 mm to close in a clockwise direction and shall be installed to details provided.

(iii) Gate valves above ground for temperatures up to 40 °C to connect to steel piping (65 mm NB and larger)

Gate valves are to be equipped with non-rising spindle, spherical graphite iron body to SABS 936 Grade 42, cast-iron nitrile butadiene rubber covered gate, stainless steel spindle, nitrile butadiene rubber O-rings and seals, cast-iron bonnet and gunmetal thrust collar to BS 1400 LG2.

The valves shall conform to SABS 664 and/or 665 and shall be capable of withstanding a working pressure of 1 600 kPa.

The valves shall be fitted with flanged ends to SABS 1123, table 16, hand wheel to close the valves in a clockwise direction and installed in an upright position or sideways to a maximum 90 ° from upright.

(iv) Gate valves above ground for temperatures above 40 °C to connect to steel piping (65 NB mm and larger)

Gate valves shall be equipped with non-rising spindle, spherical graphite iron body to SABS 963 Grade 42, cast-iron gate,

gunmetal seat and gate rings, high-tensile bronze spindle, cast-iron bonnet and gunmetal thrust collar to BS 1400 LG2.

The valves shall conform to SABS 665 and shall be capable of withstanding a working pressure of 1 600 kPa and a temperature of 90 °C.

The valve shall be fitted with flanged ends to SABS 1123, table 16, hand wheel to close the valve in a clockwise direction and installed in an upright position or side ways to a maximum 90° from upright.

(v) Gate valves above ground to fit to copper pipes (65 mm NB and larger)

Gate valves shall be equipped with non-rising spindle, gunmetal bronze or dezincified brass body, gunmetal or dezincified brass gate and graphite asbestos packing in the gland.

The valve shall be fitted with a hand wheel to close in a clockwise direction and installed in an upright position or sideways to maximum 90° from upright.

The valve shall be equipped with flanges to SABS 1123, table 16, hand wheel to close the valve in a clockwise direction and installed in an upright position or sideways to a maximum 90° from upright.

(vi) Gate valves above ground for temperatures up to 100 °C (up to 50 mm NB)

The gate valves shall be of the dezincified brass type with brass gate, brass body, non-rising spindle and BSP threaded socket ends. The valve shall conform to SABS 776, Class 125.

The valves shall be able to withstand a working pressure of 1 600 kPa.

The valve shall be equipped with a hand wheel to close in a clockwise direction.

The valve shall be installed in an upright position or sideways to a maximum 90° from upright and shall be so placed with other fittings to be removable without cutting the pipework.

(vii) Ball-O-Stop valves (15 mm diameter - 25 mm diameter)

These valves shall be full-way ballcock type with BSP threaded ends. The valves shall conform to SABS 1056, Part 3, shall be rated for a test pressure of 2 000 kPa, and shall be chrome-finished where exposed.

(viii) Angle regulating valves

These valves shall be 15 mm chromium-plated angle regulating valves with a 350 mm chromium-plated copper tube and cap nuts where required.

(f) Strainers

(i) Strainers for connection to steel or UPVC pipes (65 mm NB and larger)

These strainers shall be of the Y-type with cast-iron body, stainless steel or bronze strainer element and shall be equipped with flanged ends to SABS 1123, table 16. The hole sizes of the strainer element shall be maximum 1 mm diameter and be removable without dismantling of pipework. The strainer shall be suitable for a temperature of up to 90 °C at a 1 000 kPa pressure rating and installed with the element facing downwards or a maximum of 45° sideways.

(ii) Strainers for connection to copper pipes (65 mm NB and larger)

These strainers shall be of the Y-type with bronze or dezincified brass body, stainless steel strainer element and must be equipped with flanged ends to SABS 1123, table 16. The hole sizes of the strainer element shall be maximum 1 mm diameter. The strainer element shall be removable without dismantling of pipework. The strainer shall be suitable for a temperature of up to 90 °C at a 1 000 kPa pressure rating and installed with the element facing downwards or a maximum of 45° sideways.

(iii) Strainers for connection to steel and copper pipes (up to 50 mm NB)

These strainers shall be of the Y-type with bronze or dezincified brass body, stainless steel strainer element and must be equipped with BSP threaded socket ends. The hole sizes of the strainer element shall be maximum 0,8 mm diameter. The strainer shall be suitable for a temperature of up to 90 °C at a pressure rating of 1 000 kPa and installed with the element facing downwards or a maximum of 45° sideways.

(g) Non-return valves

(i) Non-return valves for cold water (65 mm NB and larger)

The non-return valve shall be of the spring-loaded dual flap plate type fitted between two flanges (wafer).

The non-return valve shall be equipped with a cast-iron body, aluminium bronze plates, stainless steel springs and neoprene seals on the plates. The valves shall be suitable for a working pressure of 1 000 kPa.

(ii) Non-return valves for hot water (up to 100 mm NB and cold water (up to 50 mm NB)

These non-return valves shall be of the spring-loaded piston type, with bronze or dezincified brass body, stainless steel spring and bronze disc with neoprene seal fitted with BSP threaded socket ends. The valve shall be suitable for a working pressure of 1 000 kPa and a temperature of up to 90 °C. All valves shall be installed as to be removable without extensive pipework removal.

(h) Air release valves and vacuum breakers

(i) Double orifice double-acting air release valves with sizes from 50 mm NB to 200 mm NB

This air release valve shall be fitted with small and large orifice. The air release valve shall be fitted with a cast-iron body, stainless steel or fibreglass balls, integral shut-off valve and flanged ends to SABS 1123, table 16.

The valve shall be suitable for maximum pressure of 1 600 kPa.

(ii) Single orifice air release valves for main water lines with sizes from 25 mm NB to 50 mm NB

This air release valve shall be fitted with a small orifice, cast-iron body, fibre glass or stainless steel ball float and BSP threaded inlet.

When the valve is installed a shut-off valve shall be installed on the inlet side.

The valve shall be suitable for maximum pressure of 1 600 kPa.

(iii) Single orifice double purpose air release valves for domestic water lines up to 15 mm NB

This air release valve shall be fitted with a stainless steel float, brass or cast steel body with an integral shut-off valve fitted.

The valve shall be capable to withstand a working pressure of 1 000 kPa at 110 °C.

(iv) Vacuum breaker up to 40 mm diameter

The vacuum breaker shall be fitted with neoprene seal, spring-loaded disc in a dezincified brass or bronze body. The valve shall seal watertight and shall be designed to withstand a working pressure of 1 000 kPa and a temperature of 90 °C.

(i) Pressure-reducing valves

(i) Combination pressure-reducing stations

Where a high peak flow as well as a small flow can occur and the small flow is out of the range of the large pressure-reducing valve, a small pressure-reducing valve is installed in parallel with the large pressure-reducing valve. The two pressure-reducing valves in parallel shall be set according to the manufacturer's specification.

(ii) Large pressure-reducing valves (65 mm NB and larger)

This pressure-reducing valve shall be equipped with a cast-iron body, neoprene nylon-reinforced diaphragm, bronze seal disc washer, stainless steel shaft and flanged ends. The valve shall be pilot operated and shall be designed to handle high flows at a minimum head loss.

The valve must be adjustable to handle a wide range of incoming pressures at a constant downstream pressure.

The valve shall be equipped with flanged ends to SABS 1123, table 16.

(iii) Small pressure-reducing valves (15 mm NB to 50 mm NB)

This pressure-reducing valve shall be equipped with brass body, balanced single seat and integral strainer. The valve shall be able to handle a wide range of incoming pressures while the downstream pressure stays constant with maximum inlet pressure of 1 000 kPa and a maximum water temperature of 40 °C.

The valve shall be equipped with BSP male threaded brass union couplings.

(j) Water meters

(i) Combination water meters

Where high peak flow, as well as a small flow, can occur and the small flow is out of the registration range of the large water meter, a small water meter shall be installed in parallel with the large water meter to cater for the small flows with integral automatic change-over valves. These valves shall be designed to have a minimum pressure drop at operating point.

(ii) Water meters (50 mm NB and larger)

These water meters shall be of the dry type with all gears and transmission and roller counters in a dry head, and shall be equipped with flanged ends to SABS 1123, cast-iron body with high quality corrosion-proof coating. The meter shall be protected from magnetic fields and sealed to prevent tampering with adjustments. The meter must be able to work up to a pressure of 1600 kPa under a maximum water temperature of 40 °C. The scale of meter must be in cubic metre ($m^3$) and equipped with needle indicators reading in litres. Accuracy of meter shall be not less than 98 %.

The meters shall be installed with leading and trailing lengths of pipes to the manufacturer's specification.

(iii) Water meters (up to 50 mm NB)

The meter shall be of the volumetric rotary piston type with brass body equipped with union couplers. The meter reading must be in kilolitres. The meter shall have an accuracy of not less than 98 %. The meter must be able to operate up to a water pressure of 1000 kPa at a water temperature of 40 °C.

The meters shall be installed with leading and trailing lengths of pipes to the manufacturer's specification.

(k) Adjustable balancing valves

Adjustable balancing valves shall be supplied and installed as indicated on the applicable drawings. A portable differential pressure meter shall be used, with all the necessary pipes, shut-off valves and air release valves to set the balancing valves. A graph chart shall be supplied to indicate the flow units against the valve adjustment and as the pressure differential over the valve.

The pressure gauge shall be calibrated according to the current accepted SI units.

The calibrated adjustable balancing valves shall be of the angle valve type equipped with bronze valve body, bronze disc, internal seals with BSP threaded ends. The valve shall be fitted with stop-cock connection ends on inlet and outlet onto which the differential pressure gauge can be coupled. The valve shall be equipped with an indicator on the valve handle to show the position of the valve opening. The valve shall be suitable for operating at a temperature of 90 °C against a pressure of 1 000 kPa.

(l) Semi-conductive reheating tape for hot-water pipes

Semi-conductive reheating tape shall be strapped to the hot-water pipes under the thermal insulation. This reheating tape shall be installed strictly according to the manufacturer's specification.

The system shall be fitted with all the necessary end seals, tee splices, straps, etc, as required by the supplier.

The reheating tape shall be of the self-regulating type equipped with a parallel circuit, self-regulating conductive core, polyolefin jacket and tinned copper braid on the outside.

The reheating tape shall be sized to maintain an operating temperature of 60 °C of water inside the pipe.

(m) Expansion bellows

(i) Expansion bellows for pipes (50 mm NB and larger)

Expansion bellows shall be of the rubber-lined type fitted between flanges. These bellows shall be suitable for an operating temperature of -10 °C to 110 °C at an operating pressure of 1 500 kPa. The bellows shall be installed strictly in accordance with the manufacturer's specifications.

(ii) Expansion bellows for copper pipes (up to 40 mm NB)

These expansion bellows shall have a copper body with corrugated stainless steel lining and soldered capillary type couplings. The bellows shall be able to withstand a working pressure of 600 kPa at a temperature of 140 °C. Installation shall be strictly in accordance with the manufacturer's specifications.

(n) Lagging of hot-water pipes

(i) Preformed closed cell flame retarded flexible insulation sections

Where pipes are installed in service ducts, ceiling voids, etc, the pipes shall be insulated with Thermaflex preformed pipe insulation sections. This insulation shall be used with pipe systems where the maximum temperature is 80 °C. For a temperature higher than 80 °C preformed fibreglass sections shall be used with galvanized sheet metal muffs.

All bends and T-pieces shall be cut in a 45° mitre box to form a neat joint. All joints shall be glued together with a contact adhesive supplied by the manufacturer. Pipe sizes larger than

50 mm diameter shall be insulated with preformed fibreglass sections with canvas covers glued together with cold wood glue.

Thermaflex thickness for various pipe sizes shall be as follows:

| PIPE SIZE (STEEL) | PIPE SIZE (COPPER) | THERMAFLEX THICKNESS |
|---|---|---|
| 50 mm dia | 54 mm dia | 20 mm |
| 40 mm dia | 42 mm dia | 20 mm dia |
| 32 mm dia | 35 mm dia | 15 mm dia |
| 25 mm dia | 28 mm dia | 15 mm dia |
| 20 mm dia | 22 mm dia | 15 mm dia |
| 15 mm dia | 15 mm dia | 15 mm dia |

(ii) Preformed fibreglass sections with galvanized sheet metal muffs

All hot-water pipes in service tunnels, service corridors and where exposed to damage and/or weather shall be insulated with preformed fibreglass sections covered with galvanized sheet metal muffs in a watertight manner. Sheet metal muffs shall be installed with the joints overlapping at least 50 mm and the longitudinal overlap pointing downwards to prevent ingress of water. The sheet metal muff shall be strapped with 10 mm galvanized straps by means of a strapping tool with a minimum of 2 straps/section. All pipe bends, T-pieces, etc, shall be insulated with 25 mm diameter fibreglass rope covered with a 12 mm thick layer of self-setting fibre cement. A reinforcing gauge shall be wrapped over the fibre cement while wet and painted with mastic paint when dry.

Fibreglass section thickness for the various pipe sizes shall be as follows:

| PIPE SIZE (STEEL) | PIPE SIZE (COPPER) | FIRBREGLASS THICKNESS |
|---|---|---|
| 100 mm dia | 108 mm dia | 50 mm dia |
| 80 mm dia | 76 mm dia | 40 mm dia |
| 65 mm dia | 67 mm dia | 40 mm dia |
| 40 mm dia | 54 mm dia | 25 mm dia |
| 40 mm dia | 42 mm dia | 25 mm dia |
| 32 mm dia | 35 mm dia | 25 mm dia |
| 25 mm dia | 28 mm dia | 20 mm dia |
| 20 mm dia | 22 mm dia | 20 mm dia |
| 15 mm dia | 15 mm dia | 20 mm dia |

## AA 09.05 SANITARY AND BRASSWARE EQUIPMENT

Repair work to the sanitary and brassware equipment is detailed in the Particular Specification and shall include but not be limited to the following:

(a) Damaged and/or broken irreparable sanitary and brassware equipment shall be replaced with equal specification equipment or approved alternative. These shall be installed strictly to the manufacturer's specifications.

(b) Sanitary and brassware equipment that is unsuitable for the purpose and application they serve are to be replaced with suitable equipment.

(c) The quantities of sanitary and brassware equipment needed for the number of people and application they serve, shall be investigated in accordance with the current SABS 0400 application regulations. If found to be insufficient these items of equipment facilities shall be increased only if approved by the Engineer.

(d) Loose sanitary ware shall be re-fixed and bracketed to structures in accordance with the manufacturer's specifications.

(e) Stained sanitary ware equipment shall be cleaned, where possible, with approved cleaning agent in accordance with the manufacturer's specification.

(f) All cisterns are to be cleaned out and filling and flushing mechanisms shall be serviced and repaired. Where beyond repair status, these items shall be replaced with items of equal specification or approved alternatives.

(g) Unserviceable flushvalves to be repaired utilizing the manufacturers repair kits only. Valves that are worn or damaged beyond repair shall be replaced with valves of equal specification. The design of the valve shall be of such type that all working components can be replaced or repaired without the necessity of changing the valve body – wear and tear must not affect the body of the valve.

Brushed chrome concealed type with integral vacuum breaker, non hold open feature and shut off device. Chrome plated vandal resistant pushbutton activation, "Through Wall" guide tube, wall fixing and captive linkage rod assembly.

Valve to be of either piston type or diaphragm type with replaceable working cylinder and piston or diaphragm.

(h) All pillar taps, mixers, sink taps and other taps are to be serviced, utilising repair kits. Where equipment is beyond repair these items shall be replaced with items of equal specification or approved alternatives. Where equipment connections are loose these shall be properly secured to sanitary ware and other equipment.

(i) Leaking, corroded or damaged chromium-plated flush pipes to water-closets and urinals are to be replaced where required.

(j) Replace missing and/or damaged shower gratings with gratings of equal specification or approved alternatives.

(k) Service and repair water metering taps by utilising manufacturer's replacement kits where necessary. Where damaged beyond repair the complete item shall be replaced with one of equal specification or approved alternative.

(l) Replace missing or damaged tap handles with matching handles from the manufacturer of the tap with a countersunk cap screw for the fixing of the handle to the head pot.

(m) Readjust all timing mechanisms on flush valves and metering taps to the correct flushing and flow times.

(n) Replace damaged or missing basin and/or sink mixer swivel arms with items of equal specification or approved alternative.

(o) Replace missing or damaged toilet seats and covers with items of equal specification or approved alternatives.

(p) Repair and service urinal syphonic valves with replacement kits from manufacturer. Where no spares are available or equipment is damaged beyond repair, these items are to be replaced with values of equal specification or approved alternatives.

(q) Repair and clean out all bottle traps. Bottle traps that are damaged beyond repair are to be replaced with traps of equal specification or approved alternatives.

(r) Repair and service bath taps and mixers by utilising manufacturer's replacement kits. Where damaged beyond repair, the taps and mixers shall be replaced with items of equal specification or approved alternatives.

(s) All tap handles to be of the crutch type where the handle is fixed to the spindle by factory press fit.

## AA 09.06 FIRE WATER PIPED RETICULATION NETWORKS

### AA 09.06.01 General

Repair work to the fire water piped reticulation networks is detailed in the Particular Specification and shall include but no be limited to the work described below. This specification only covers the water piped reticulation for the fire water protection system, while the equipment related to this installation, such as fire hydrants, hose reels and extinguishers, are covered and detailed in Technical Specification JC: Conventional Fire Fighting Equipment. This specification has to be read in conjunction with the afore-mentioned specification.

(a) Replace damaged, broken, leaking, corroded above and underground pipework, fittings and equipment.

(b) Repair, and service valves which shall include the installation of new gaskets, gland packings, seals, bolt and nuts, etc. If necessary the values shall be replaced.

(c) Where valves do not close properly, all these valves are to be refurbished, descaled and if necessary replaced.

(d) Repair, service and check the proper functioning of all non-return valves and backflow preventers.

(e) Repair, service, readjust and calibrate all pressure gauges.

(f) Repair bracketing systems including fixing and repair of existing brackets and the provision of additional brackets where required.

(g) Report all problems related to fire fighting equipment to the Engineer.

(h) Water storage tanks are to be emptied, cleaned out, repaired, sealed and put back into operation. Ball float and/or filling valves to these tanks are to be serviced and repaired where required.

(i) Pressure test and sterilise repaired new installations and equipment.

(j) Reinstate and make good walls, tiling, floors, concrete, finishes, holes, chases, surfaces, etc, to an acceptable level where any repair, upgrade and/or service work has been executed.

(k) Record pressure readings on supply to installation.

**AA 09.06.02 Material and equipment specification for fire water piped reticulation networks**

Materials and equipment to be used for repair items shall be suitable and/or adaptable to the existing installation and shall comply with the following:

(a) Galvanized steel pipe installation

(i) All galvanized steel pipes shall be medium gauge mild steel screwed and socketed pipes to SABS 62 and shall be normalised and marked as such by the manufacturer. Pipes shall be hot-dip galvanized to SABS 763.

(ii) All fittings shall be malleable cast-iron fittings to SABS 509 and galvanized to SABS 763.

(iii) All 80 mm diameter and larger pipes shall be joined with Class 16 flanged couplings to SABS 1123/1600. The bolts, nuts and spring washers to be used on these joints shall be cadmium-plated.

(iv) In pipe ducts and elsewhere pipes shall be fixed onto walls, soffits, etc, with approved type of supports, holderbats, clamps, etc. Brackets shall be designed to structurally support and fix the pipe system and shall have enough clearance from walls, soffits, etc, to maintain equipment.

(v) Pipes shall be supported according to the manufacturer's specifications at the following maximum intervals:

| NORMAL SIZE (mm) | HORIZONTAL (mm) | VERTICAL (mm) |
|---|---|---|
| 15 dia to 20 dia | 1 200 | 1 830 |
| 32 dia to 40 dia | 1 830 | 2450 |
| 50 dia to 150 dia | 2 450 | 3 050 |

(vi) All pipes shall be marked according to SABS 0140 or as specified by the Engineer. All surface pipes shall be painted.

(vii) Pipes shall be installed on the surface, unless otherwise specified.

(viii) Provision shall be made for thermal contraction and expansion.

(ix) The type of pipe joint compound shall be approved by the Engineer and used sparingly with good quality hemp. For pipes larger than 80 mm diameter a jointing compound such as Epidermix 32 shall be used.

(x) Any buried pipe shall have at least 900 mm cover and be coated and wrapped to SABS 1117 and tested in the presence of the Engineer.

(xi) All pipework and fittings shall be pressure tested as specified.

(b) uPVC underground pipe installations

(i) uPVC piping shall conform to SABS 966 with rubber ring type joints.

(ii) All bends shall be uPVC type fittings with rubber ring joints.

(iii) All other fittings such as T-pieces, reducers, flanges, etc, shall be bitumen-dipped cast-iron rubber ring jointed fittings to SABS 546.

(iv) No solvent weld type fittings will be allowed.

(v) All cast-iron fittings shall be coated and wrapped to SABS 1117.

(vi) All pipes shall be laid on a 100 mm sand bedding cradle and covered with 300 mm sand before backfilling.

(vii) Pipe trenching and bedding:

| AREA | MINIMUM COVER | BEDDING TYPE | MAIN FILL |
|---|---|---|---|
| Vehicle traffic | 1 100 | Flexible pipe bedding as per SABS 1200 LB | Soilcrete |
| Under surface bed | 600 | | Soilcrete |
| Other areas | 900 | | 90 % of modified AASHTO density |

(viii) All thrust blocks shall be cast between the pipe and the undisturbed trench material.

(ix) No concrete shall come into direct contact with the uPVC pipe. At the thrust blocks the bend shall be wrapped with Densopol 80 HT tape or similar approved.

(x) HDPe pipe connections to uPVC pipes up to 40 mm diameter can be done by means of SG Iron manufactured saddles with the appropriate gaskets and cadmium-plated bolts and nuts.

(xi) All pipe crossings under roads and parking areas shall be backfilled as specified in subclause CA 04.04.02(b).

(xii) All pipework shall be pressure tested with all joints uncovered to the satisfaction of the Engineer.

(xiii) Suitably sized air release valves built into valve chambers shall be installed at all high points of the pipeline.

(xiv) Duckfoot bends shall be used to all fire hydrants at the foot of fire hydrants. This to be cast into thrust blocks.

(c) HDPe underground pipe installations

(i) All HDPe piping shall be Type 4 HDPe pipe to SABS 533.

(ii) All fittings shall be of Plasson compression type and shall conform to ISO/DIS 3458.

(iii) All pipes shall be laid on a 100 mm sand bedding cradle and covered with 300 mm of sand or selected material.

(iv) All backfilling shall be to the SABS 1200 DB and to the Engineer's approval.

(v) Pipe trenching and bedding:

| AREA | MINIMUM COVER | BEDDING TYPE | MAIN FILL |
|---|---|---|---|
| Vehicle traffic | 1 100 | Flexible pipe bedding as per SABS 1200 LB | Soilcrete |
| Under surface bed | 600 | | Soilcrete |
| Other areas | 900 | | 90 % of modified AASHTO density |

(vi) No concrete shall come into direct contact with the HDPe pipe. At these points the fittings shall be wrapped with Densopol 80 HT tape or similar approved.

(vii) All pipe crossings under roads and parking areas shall be backfilled as specified in subclause CA 04.04.02(b).

(viii) All pipework shall be pressure tested with all joints uncovered to the satisfaction of the Engineer.

(ix) Suitably sized air release valves built into valve chambers shall be installed at all high points of the pipeline.

(d) Valves

(i) Gate valves underground in valve chambers to connect to uPVC piping (65 mm NB and larger)

Gate valves are to be equipped with non-rising spindle, spherical graphite iron body to SABS 936 Grade 42, cast-iron nitrile butadiene rubber covered gate, stainless steel spindle, nitrile butadiene rubber O-rings and seals, cast-iron bonnet and gunmetal thrust collar to BS 1400 LG2.

The valves shall conform to SABS 664 and/or 665 and shall be capable of withstanding a working pressure of 1 600 kPa.

The valves shall be fitted with a square key spindle top to close the valves in clockwise direction and socket ends to SABS 665 to fit into uPVC.

Valves are to be provided with locking devices to lock valves in open position.

(ii) Gate valves underground in valve chambers to connect to uPVC piping

The gate valves shall be of the dezincified brass type with brass gate, brass body, non-rising spindle and BSP threaded socket ends. The valves shall conform to SABS 776 Class 125. The valves shall be able to withstand a working pressure of

1 600 kPa. The valve shall be fitted with a hand wheel on an extended spindle shaft of 700 mm to close in a clockwise direction and shall be installed to details provided.

(iii) Gate valves above ground to connect to steel (65 NB and larger)

Gate valves are to be equipped with non-rising spindle, spherical graphite iron body to SABS 936 Grade 42, cast-iron nitrile butadiene rubber covered gate, stainless steel spindle, nitrile butadiene rubber O-rings and seals, cast-iron bonnet and gunmetal thrust collar to BS 1400 LG2.

The valves shall conform to SABS 664 and/or 665, and shall be capable of withstanding a working pressure of 1 600 kPa.

The valves shall be fitted with flanged ends to SABS 1123/1600, hand wheel to close the valves in a clockwise direction and installed in an upright position or sideways to maximum 90° from upright.

These valves shall be equipped with locking devices to lock valves in open position.

(iv) Gate valves above ground (up to 50 mm NB)

The gate valves shall be of the dezincified brass type with brass gate, brass body, non-rising spindle and BSP threaded socket ends. The valves shall conform to SABS 776 Class 125.

The valves shall be able to withstand a working pressure of 1 600 kPa.

The valve shall be equipped with a hand wheel to close in a clockwise direction.

The valves shall be installed in an upright position or sideways to maximum 90° from upright and shall be so placed with other fittings as to be removed without cutting the pipework.

The valves shall be equipped with locking devices to lock valves in open position.

## AA 10 MAINTENANCE TO INSTALLATIONS, SYSTEMS AND EQUIPMENT

### AA 10.01 GENERAL

Monthly maintenance responsibilities for each installation including all units and components as specified, shall commence with access to the site. A difference shall be made in payment for the maintenance prior to and after practical completion of repair work.

Maintenance responsibilities of the completed installation shall commence upon the issue of a certificate of practical completion for repair work, and shall continue for the remainder of the 36-month contract period.

This part of the Contract shall include preventative maintenance, corrective maintenance, and breakdown maintenance, as defined in Additional Specification SA: General Maintenance, for the specified installations described under the section AA 01 of this document.

The maintenance work to be performed and executed shall be done strictly in accordance with Additional Specification SA: General Maintenance, and as specified in the Particular Specification and this specification.

The said maintenance work shall be executed in accordance with the relevant codes of practice, standards, regulations, municipal laws and by-laws and the manufacturer's specifications and codes of practice.

The maintenance schedules and frequency shall be developed under the maintenance control plan to be instituted by the Contractor.

All new equipment, components and materials supplied and installed under the maintenance Contract shall be furnished with prescribed manufacturer's guarantees.

The maintenance work and items are to be categorised for each maintenance activity under the following headings:

(a) Rainwater disposal system
(b) Soil and wastewater drainage systems
(c) Domestic water distribution and reticulation systems
(d) Sanitary and brassware equipment
(e) Fire water piped reticulation networks.

## AA 10.02 PREVENTATIVE MAINTENANCE

This maintenance of the installations, systems and equipment shall be done in accordance with Additional Specification SA: General Maintenance and the Particular Specification related to this work.

The maintenance work to be performed and executed shall include, but not be limited to the items listed in tables AA 10.02/1, AA 10.02/2, AA 10.02/3, AA 10.02/4 and AA 10/02/5 below under each heading.

These actions and findings shall be logged and reported on the relevant approved schedules and reports.

TABLE AA 10.02/1 - RAINWATER DISPOSAL SYSTEM

| NO | PREVENTATIVE MAINTENANCE ITEM DESCRIPTION | MAINTENANCE FREQUENCY |
|---|---|---|
| 1 | Clean out and clear all rainwater gutters and full bores | Four-monthly |
| 2 | Clean out and clear all catch pits, channel drains and floor outlets | Four-monthly |
| 3 | Clean and unblock all drain pipes | Annually |
| 4 | Check alignments of gutters | Six-monthly |
| 5 | Check and inspect all rainwater outlet gratings and replace if necessary | Six-monthly |
| 6 | Check gutter and pipe bracketing system and repair and replace if necessary | Four-monthly |
| 7 | Check and inspect manhole covers and frames for damages and replace if necessary | Six-monthly |
| 8 | Paintwork repairs to surface piping and equipment | Annually |
| 9 | Visually inspect and report on total system | Monthly |

TABLE AA 10.02/2 - SOIL AND WASTEWATER DRAINAGE SYSTEM

| NO | PREVENTATIVE MAINTENANCE ITEM DESCRIPTION | MAINTENANCE FREQUENCY |
|---|---|---|
| 1 | Visually inspect and report on complete installation | Monthly |
| 2 | Check, service and clean out grease traps | Monthly |
| 3 | Check, service and clean out oil separators | Monthly |
| 4 | Check, inspect and clean out all floor drains | Monthly |
| 5 | Check, inspect and clean out all gullies | Monthly |
| 6 | Replace broken or missing gully gratings | Four-monthly |
| 7 | Check, inspect, repair or replace all manhole covers and frames and builder's work to manholes | Four-monthly |
| 8 | Check, inspect and repair manhole benching. | Four-monthly |
| 9 | Check, inspect, repair or replace all inspection eyes, end caps and cleaning eye covers | Four-monthly |
| 10 | Check, inspect, repair or replace all bracketing systems | Four-monthly |
| 11 | Check, inspect, report and unblock any blockage that occurs | Monthly |
| 12 | Check, inspect, repair/replace and clean out all equipment traps | Monthly |
| 13 | Paintwork repairs to surface piping and equipment | Annually |
| 14 | Video survey and resultant repairs and unblocking of all main sewer lines (See subclause AA 09.03.01(e)) | At start of Contract |
| 15 | Check, inspect, service, repair/replace all vacuum and two-way vents | Four-monthly |

TABLE AA 10.02/3 - DOMESTIC WATER DISTRIBUTION AND RETICULATION SYSTEMS

| NO | PREVENTATIVE MAINTENANCE ITEM DESCRIPTION | MAINTENANCE FREQUENCY |
|---|---|---|
| 1 | Visually inspect and report on complete system | Monthly |
| 2 | Log all water meter readings | Monthly |
| 3 | Log all pressure gauge readings | Monthly |
| 4 | Check, inspect, report and repair leaks | Monthly |
| 5 | Replace all valve gaskets, gland packings and seals | Annually |
| 6 | Sample water supply and chemical analyses to be provided by approved company | Annually |

| | | |
|---|---|---|
| 7 | Water storage tanks to be emptied, cleaned out, inspected, repaired and resealed where necessary | Annually |
| 8 | Check, inspect, service, repair and readjust all pressure-reducing valves | Annually |
| 9 | Check, inspect and test operation of all valves on site | Four-monthly |
| 10 | Clean out all strainers | Monthly |
| 11 | Check, inspect, service test and repair/replace all safety and expansion release valves | Six-monthly |
| 12 | Check, inspect, repair or replace all bracketing systems | Four-monthly |
| 13 | Check, inspect, service, repair/replace all air release valves and vacuum breakers | Four-monthly |
| 14 | Check, service, repair or replace all ball float valves | Four-monthly |
| 15 | Check, inspect, test, service, repair/replace all geyser installations | Four-monthly |
| 16 | Check, inspect, test, service and repair/replace all non-return valves | Four-monthly |
| 17 | Paintwork repairs to piping, fittings and equipment | Annually |

TABLE AA 10.02/4 - SANITARY AND BRASSWARE EQUIPMENT

| NO | PREVENTATIVE MAINTENANCE ITEM DESCRIPTION | MAINTENANCE FREQUENCY |
|---|---|---|
| 1 | Visually inspect and report on complete installation | Monthly |
| 2 | Inspect, repair/replace WC seats and covers | Monthly |
| 3 | Replace all tap washers | Six-monthly |
| 4 | Replace all tap gland packings | Six-monthly |
| 5 | Check, inspect, repair, fix and where necessary replace sanitary ware mountings and brackets | Four-monthly |
| 6 | Check, inspect, service, repair/replace all cistern flushing mechanisms | Monthly |
| 7 | Check, inspect, service, repair/replace all brassware | Four-monthly |
| 8 | Check, inspect, service, repair/replace all sanitary ware | Four-monthly |
| 9 | Check, inspect, service, repair, readjust all flushing valves | Four-monthly |
| 10 | Replace all flushing valve internal parts with replacement kits | Once per Contract |
| 11 | Stained equipment to be cleaned with approved manufacturer's cleaning agent | Six-monthly |
| 12 | Check, inspect, report and repair all leaks | Monthly |

| | | |
|---|---|---|
| 13 | Check, inspect, repair/replace all shower gratings | Four-monthly |
| 14 | Paintwork repairs to all equipment | Annually |
| 15 | Check, inspect, repair, service, replace all missing valves | Six-monthly |
| 16 | Replace missing tap handles | As occur |
| 17 | Replace missing bath, basin, sink, etc, plugs | As occur |

TABLE AA 10.02/5 - FIRE WATER PIPED RETICULATION NETWORKS

| NO | PREVENTATIVE MAINTENANCE ITEM DESCRIPTION | MAINTENANCE FREQUENCY |
|---|---|---|
| 1 | Visually inspect and report on complete system | Monthly |
| 2 | Report any failures/breakage of fire fighting equipment to the Engineer | Monthly |
| 3 | Log all pressure gauge readings | Monthly |
| 4 | Replace all valve gaskets, gland packings and seals | Annually |
| 5 | Water storage tanks to be cleaned out resealed/repaired if necessary | Annually |
| 6 | Check, inspect, service, repair/replace all non-return valves and backflow preventers | Four-monthly |
| 7 | Check, inspect, report and repair all leaks | Monthly |
| 8 | Inspect, service, readjust and calibrate all pressure gauges | Four-monthly |
| 9 | Paintwork repairs to piping, fittings and equipment | Annually |
| 10 | Check, inspect, repair or replace all bracketing systems | Four-monthly |

## AA 10.03 CORRECTIVE MAINTENANCE

The corrective maintenance of the installations, systems and equipment shall be done in accordance with Additional Specification SA: General Maintenance and the Particular Specification related to this work.

The Contractor shall inspect and check all equipment, materials, systems and installation for any pending breakdowns, maladjustments or anomalies of equipment.

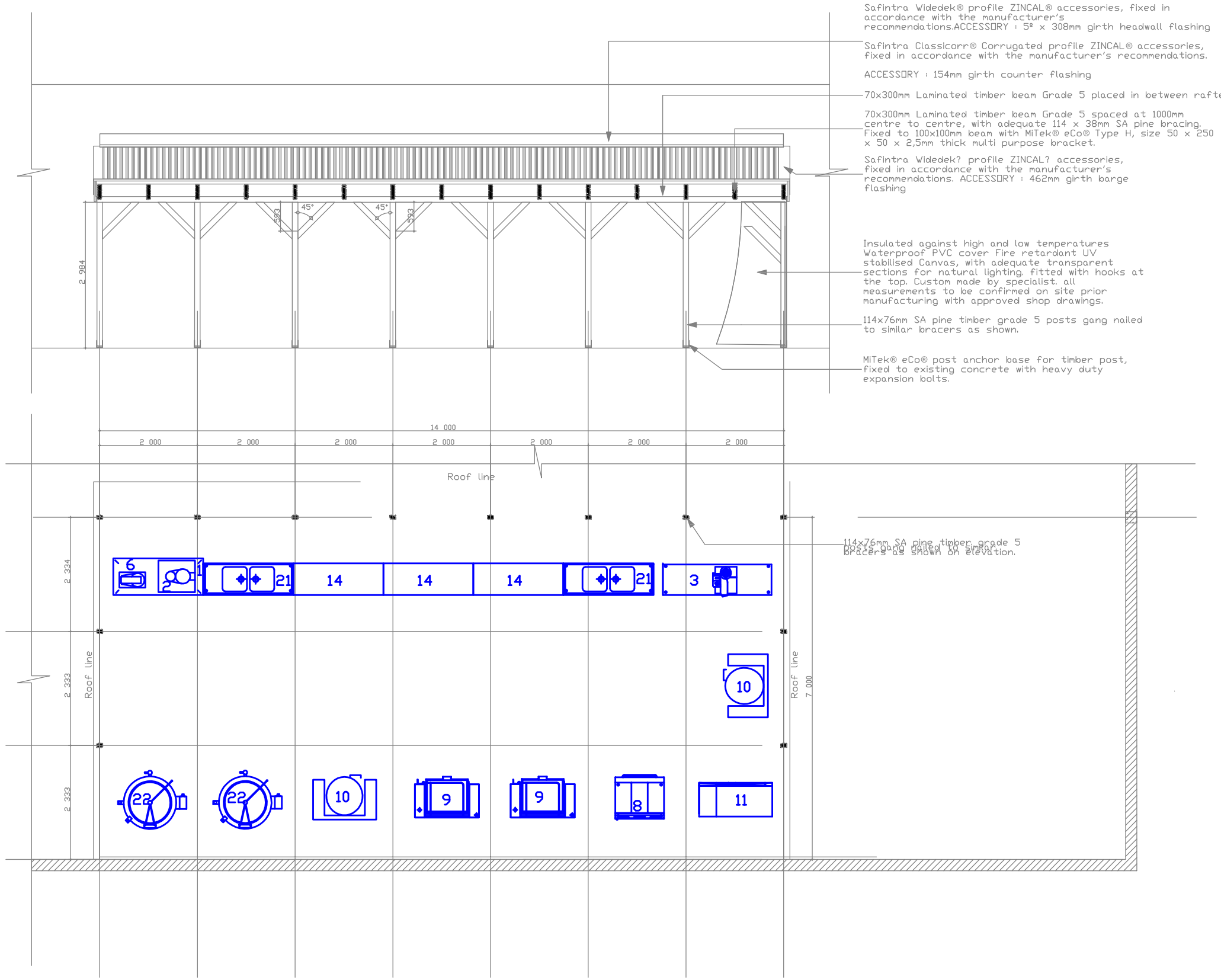
The Contractor shall report and take actions to correct such deficiencies.

## AA 10.04 BREAKDOWN MAINTENANCE

Breakdown maintenance of the installations, systems and equipment shall be done in accordance with Additional Specification SA: General Maintenance and in accordance with the related specifications, standards, regulations and codes.

All breakdown problems experienced shall be acted upon within the time limitations allowed in the General Maintenance documents.

The Contractor shall have access to the necessary spares, equipment and tools for the expected breakdowns.




ITEMS TO BE FIXED AND MOVED TO KITCHEN AT LATER STAGE

| | |
|---|---|
| 1 | |
| 2 | 12kg Potato peeler |
| 3 | Band saw, pedestal bandsaw with stainless steel working surgace |
| 4 | 1850 x 650mm Stainless steel Combination sink |
| 5 | |
| 6 | RG-200 Vegetable Prep Machine Hallde |
| 7 | |
| 8 | 1000 x 850 x 910mm high, 3 Solid Top Electrical Range with Oven |
| 9 | Tilting Fry Pan TP-80 |
| 10 | Tilting Boiling Pan 150lt (low pressure) |
| 11 | Rational Combimaster plus Steamer 40 Pan unit Model CM202 |
| | |
| | |
| 14 | Stainless Steel Table - mobile 1840 x 650mm with galvanized undershelf |
| 15 | |
| 16 | |
| 17 | |
| 18 | |
| 19 | |
| 20 | |
| 21 | 1850 x 650mm Stainless steel Double bowl Pot sink |
| | |
| | |
| 24 | |
| 25 | Mixer -Cooking Pot |

| | |
|---|---|
| 12 | |
| 13 | |
| 22 | 350L Phutu Cooking Pot 380V 3ph 50Hz 24kW 37A |
| 23 | |
| 26 | |
| 27 | |
| 28 | |

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discipline
MECHANICAL

service
THOHOYANDOU PRISON

Department of Correctional services:
Kitchen Upgrading, Replacement of kitchen equipments as well as temporary kitchen:
Thohoyandou Correctional Centre:
Medium B:

WCS number

drawing title
Temporary Kitchen Layout Mechanical Equipment

| | | | |
|---|---|---|---|
| ref. no. | | designed | APM |
| scale | 1:100 | drawn | APM |
| date | 30 JAN 2017 | checked | LM |

type number

drawing number ME30339/02 Rev 1




FLOOR PLAN SCALE:1:100

ITEMS TO BE REPLACED

| | |
|---|---|
| 1 | Stainless Steel Table with splashback- 1650 x 650 x 910 mm high |
| 2 | 30kg Potato peeler |
| 3 | Band saw, pedestal bandsaw with stainless steel working surgace |
| 4 | 1850 x 650mm Stainless steel Combination sink |
| 5 | 300kg Electronic Platform Scale |
| 6 | RG-200 Vegetable Prep Machine Hallde |
| 7 | Stainless steel table with splashback 1050 x 650 x 910 mm high |
| 8 | 1000 x 850 x 910mm high, 3 Solid Top Electrical Range with Oven |
| 9 | Tilting Fry Pan TP-80 |
| 10 | Tilting Boiling Pan 150et (low pressure) |
| 11 | Rational Combimaster plus Steamer 40 Pan unit Model CM202 |
| | |
| | |
| 14 | Stainless Steel Table - mobile 1840 x 650mm with galvanized undershelf |
| 15 | Fridge |
| 16 | Shelving Modular Stainless steel - dry goods |
| 17 | Bread Slicer Model B |
| 18 | Shelving Modular Stainless steel - Bread store |
| 19 | Dunnage Racks |
| 20 | 2250 x 620mm Dump Table with Flat shelf over |
| 21 | 1850 x 650mm Stainless steel Double bowl Pot sink |
| | |
| | |
| 24 | Extraction Canopy 7200mm X 3000mm X 600mm |
| 25 | Mixer -Cooking Pot |

ADDITIONAL ITEMS

| | |
|---|---|
| 12 | Mobile Food Warming cabinet |
| 13 | 5 division - Bain marie hot cupboard |
| 22 | 350L Phutu Cooking Pot 380V 3ph 50Hz 24kW 37A |
| 23 | Water Boiler 30L |
| 26 | Dehumidifier 230V 1ph 50Hz |
| 27 | Heated Food Trolley 240V 1ph 50Hz 1kW |
| 28 | 3.5kW Midwall Split inverter aircon: 230V 1ph 50Hz |

| NO. | DATE. | AMENDMENT | D.P.W. |
|---|---|---|---|
| | | | |

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Department of Correctional services:
Kitchen Upgrading, Replacement of kitchen equipments as well as temporary kitchen:
Thohoyandou Correctional Centre:
Medium B:

WCS number

drawing title
Kitchen Layout
Mechanical Equipment

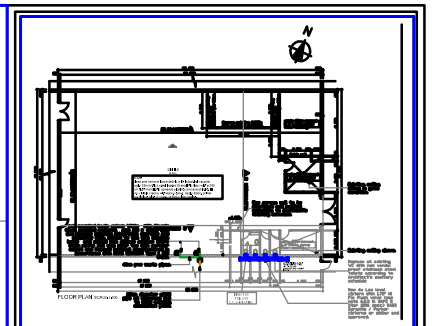
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|---|---|---|---|
| ref. no. | | designed | APM |
| scale | 1:100 | drawn | APM |
| date | 30 Nov 2019 | checked | LM |
| type number | | | |
| drawing number | ME30339/01 | | Rev 5 |

STORE

apply 25mm scre
& 2 coats epox
floor coating

Ø150mm Inline extract fan @705m3/s, 75Pa, c/w 1-off sound attenuator, and weather louvre.

115 115 115 115
000 820 845 900 900 115 4 060



| NO. | DATE. | AMENDMENT | D.P.W. |
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service
THOHOYANDOU PRISON

Department of Correctional services:
Kitchen Upgrading, Replacement of kitchen equipments as well as temporary kitchen:
Thohoyandou Correctional Centre:
Medium B:

WCS number

drawing title
Dining Hall Toilets
Mechanical Equipment Layout

| | | | |
|---|---|---|---|
| ref. no. | | designed | APM |
| scale | 1:100 | drawn | APM |
| date | 19 Sept 2016 | checked | LM |
| type number | | | |

drawing number
ME30339/03 Rev 0

# T2.2

# Returnable Documents Required for Tender Evaluation Purposes

# PA-11: DECLARATION OF INTEREST AND BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

**Failure to complete this form in full and signed by the duly authorized person, as indicated on PA-15.1 or PA-15.3, shall render the tender non-responsive and will be removed from any and all further contention.**

| | | | |
|---|---|---|---|
| **Project title:** | ***Thohoyandou Correctional Centre: Kitchen Upgrading, Replacement of Kitchen Equipment as Well as Temporary Kitchen: Medium B*** | | |
| **Bid no:** | *PLK 23/05* | **Reference no:** | *6054/0011* |

The following particulars must be furnished. In the case of a joint venture, separate declarations in respect of each partner must be completed and submitted.

**1. CIDB REGISTRATION NUMBER (if applicable)**

| |
|---|
| |

**2.** Any legal person, including persons employed by the State[1]; or persons having a kinship with persons employed by the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid (includes a price quotation, advertised competitive bid, limited bid or proposal). In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons employed by the state, or to persons connected with or related to them, it is required that the bidder or his/her authorised representative declare his/her position in relation to the evaluating/adjudicating authority and/or take an oath declaring his/her interest, where:

☐ The bidder is employed by the state; and/or

☐ The legal person on whose behalf the bidding document is signed, has a relationship with persons/a person who are/is involved in the evaluation and or adjudication of the bid(s), or where it is known that such a relationship exists between the person or persons for or on whose behalf the declarant acts and persons who are involved with the evaluation and or adjudication of the bid.

**3. In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.**

3.1 Full Name of bidder or his or her representative: …….

3.2 Identity number:……

3.3 Position occupied in the Company (director, trustees, shareholder[2] ect ……

3.4 Company Registration Number: ……..……..

3.5 Tax Reference umber:..……

3.6 VAT Registration Number: ……....

3.6.1 The names of all directors / trustees / shareholders / members, their individual identity numbers, tax reference numbers and, if applicable, employee / persal numbers must be indicated in paragraph 3 below.

[1] "State" means –

(a) any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No. 1 of 1999);
(b) any municipality or municipal entity;
(c) provincial legislature;
(d) national Assembly or the national Council of provinces; or
(e) Parliament.

[2] "Shareholder" means –

(a) a person who owns shares in the company and is actively involved in the management of the enterprise or business and exercise control over the enterprise

3.7 Are you or any person connected with the bidder presently employed by the state? ☐ YES ☐ NO

3.7.1 If so, furnish the following particulars:

Name of person / director /trustees/shareholder/ member:……..

Name of state institution at which you or the person

is connected to the bidder is employed ……...

Position occupied in the state institution:……

Any other particulars:

……

……

3.8 Did you or your spouse, or any of the company's directors / trustees/shareholders / members or their spouses conduct business with the state in the previous twelve months? ☐ YES ☐ NO

3.8.1 If so, furnish particulars:……

.....

3.9 Do you, or any person connected with the bidder, have any relationship (family, friend, other) with a person employed by the state and who may be involved with the evaluation and or adjudication of this bid? ☐ YES ☐ NO

3.9.1 If so, furnish particulars.

……

……

3.10 Are you, or any person connected with the bidder, aware of any relationship (family, friend, other) between the bidder and any person employed by the state who may be involved with the

evaluation and or adjudication of this bid? ☐ YES ☐ NO

3.10.1 If so, furnish particulars.

……

……

3.11 Do you or any of the directors /trustees/shareholders/ members of the company have any interest in any other related companies whether or not they are bidding for this contract?
☐ YES ☐ NO

3.11.1 If so, furnish particulars:

……

……

**4. Full details of directors / trustees / members / shareholders.**

| **Full Name** | **Identity Number** | **Personal Tax Reference Number** | **State Employee Number / Persal Number** |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
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| | | | |
| | | | |

**5. DECLARATION OF TENDERER / BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES**

| | | | |
|---|---|---|---|
| 5.1 | *Is the tenderer / bidder or any of its directors listed on the National Treasury's database as companies or persons prohibited from doing business with the public sector?* **(Companies or persons who are listed on this database were informed in writing of this restriction by the National Treasury after the audi alteram partem rule was applied).** | ☐ **Yes** | ☐ **No** |
| *5.2* | *If so, furnish particulars:* | | |

| | | | |
|---|---|---|---|
| | | | |
| *5.3* | *Is the tenderer / bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)?* **To access this Register enter the National Treasury's website, www.treasury.gov.za, click on the icon "Register for Tender Defaulters" or submit your written request for a hard copy of the Register to facsimile number (012) 3265445.** | ☐ **Yes** | ☐ **No** |
| *5.4* | *If so, furnish particulars:* | | |
| *5.5* | *Was the tenderer / bidder or any of its directors convicted by a court of law (including a court outside of the Republic of South Africa) for fraud or corruption during the past five years?* | ☐ **Yes** | ☐ **No** |
| *5.6* | *If so, furnish particulars:* | | |
| *5.7* | *Was any contract between the tenderer / bidder and any organ of state terminated during the past five years on account of failure to perform on or comply with the contract?* | ☐ **Yes** | ☐ **No** |
| *5.8* | *If so, furnish particulars:* | | |

## 6. CERTIFICATION

I the undersigned (full name) _____certify that the information furnished on this declaration form is true and correct.

I accept that, in addition to cancellation of a contract, action may be taken against me should this declaration prove to be false.

| | | | |
|---|---|---|---|
| Name of Tenderer / bidder | Signature | Date | Position |

**This form has been aligned with SBD4 and SBD 8**

# PA- 29: CERTIFICATION OF INDEPENDENT BID DETERMINATION

| | | | |
|---|---|---|---|
| **Project title:** | Thohoyandou Correctional Centre: Kitchen Upgrading, Replacement of Kitchen Equipment as Well as Temporary Kitchen: Medium B | | |
| **Bid no:** | PLK 23/05 | **Reference no:** | 6054/0011 |

## INTRODUCTION

1. This PA-29 [Certificate of Independent Bid Determination] must form part of all bids[1] invited.

2. Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).[2] Collusive bidding is a *pe se* prohibition meaning that it cannot be justified under any grounds.

3. Treasury Regulation 16A9 prescribes that accounting officers and accounting authorities must take all reasonable steps to prevent abuse of the supply chain management system and authorizes accounting officers and accounting authorities to:

    a. disregard the bid of any bidder if that bidder, or any of its directors have abused the institution's supply chain management system and or committed fraud or any other improper conduct in relation to such system.

    b. cancel a contract awarded to a supplier of goods and services if the supplier committed any corrupt or fraudulent act during the bidding process or the execution of that contract.

4. This form (PA-29) serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.

5. In order to give effect to the above, the attached Certificate of Bid Determination (PA-29) must be completed and submitted with the bid:

---

**[1] Includes price quotations, advertised competitive bids, limited bids and proposals.**

**[2] Bid rigging (or collusive bidding) occurs when businesses, that would otherwise be expected to compete, secretly conspire to raise prices or lower the quality of goods and / or services for purchasers who wish to acquire goods and / or services through a bidding process. Bid rigging is, therefore, an agreement between competitors not to compete.**

## CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

_____

**(Bid Number and Description)**

in response to the invitation for the bid made by:

_____

**(Name of Institution)**

do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of: _____ that:

**(Name of Bidder)**

1. I have read and I understand the contents of this Certificate.

2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect.

3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder.

4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign the bid, on behalf of the bidder.

5. For the purposes of this Certificate and the accompanying bid, I understand that the word “competitor” shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:

(a) has been requested to submit a bid in response to this bid invitation;

(b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and

(c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder.

6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium[3] will not be construed as collusive bidding.

7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:

(a) prices;

(b) geographical area where product or service will be rendered (market allocation)

(c) methods, factors or formulas used to calculate prices;

(d) the intention or decision to submit or not to submit, a bid;

(e) the submission of a bid which does not meet the specifications and conditions of the bid; or

(f) bidding with the intention not to win the bid.

8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.

9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No

89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

**[3] Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.**

| | | | |
|---|---|---|---|
| Name of Bidder | Signature | Date | Position |

# PA-15.1: RESOLUTION OF BOARD OF DIRECTORS

**RESOLUTION** of a meeting of the Board of *Directors / Members / Partners of:

_____

(*legally correct full name and registration number, if applicable, of the Enterprise)*

Held at _____ (*place)*

on _____ *(date)*

**RESOLVED that:**

1. The Enterprise submits a Bid / Tender to the Department of Public Works in respect of the following project:

   _____

   (*project description as per Bid / Tender Document)*

   Bid / Tender Number: _____ *(Bid / Tender Number as per Bid / Tender Document)*

2. *Mr/Mrs/Ms: _____

   in *his/her Capacity as: _____ *(Position in the Enterprise)*

   and who will sign as follows: _____

   be, and is hereby, authorised to sign the Bid / Tender, and any and all other documents and/or correspondence in connection with and relating to the Bid / Tender, as well as to sign any Contract, and any and all documentation, resulting from the award of the Bid / Tender to the Enterprise mentioned above.

| | Name | Capacity | Signature |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| 11 | | | |
| 12 | | | |
| 13 | | | |
| 14 | | | |

| | | | |
|---|---|---|---|
| 15 | | | |
| 16 | | | |
| 17 | | | |
| 18 | | | |
| 19 | | | |
| 20 | | | |

*The bidding enterprise hereby absolves the Department of Public Works from any liability whatsoever that may arise as a result of this document being signed.*

***Note:***

1. ** Delete which is not applicable.*
2. ***NB:** This resolution must, where possible, be signed by all the Directors / Members / Partners of the Bidding Enterprise.*
3. *In the event that paragraph 2 cannot be complied with, the resolution must be signed by Directors / Members / Partners holding a majority of the shares / ownership of the Bidding Enterprise (attach proof of shareholding / ownership hereto).*
4. *Directors / Members / Partners of the Bidding Enterprise may alternatively appoint a person to sign this document on behalf of the Bidding Enterprise, which person must be so authorized by way of a duly completed power of attorney, signed by the Directors / Members / Partners holding a majority of the shares / ownership of the Bidding Enterprise (proof of shareholding / ownership and power of attorney are to be attached hereto).*
5. *Should the number of Directors / Members / Partners exceed the space available above, additional names and signatures must be supplied on a separate page.*

**ENTERPRISE STAMP**

# PA-15.2: RESOLUTION OF BOARD OF DIRECTORS TO ENTER INTO CONSORTIA OR JOINT VENTURES

**RESOLUTION** of a meeting of the Board of *Directors / Members / Partners of:

_____

_____

(*Legally correct full name and registration number, if applicable, of the Enterprise)*

Held at _____ (*place)*

on _____ *(date)*

**RESOLVED that:**

1. The Enterprise submits a Bid /Tender, in consortium/Joint Venture with the following Enterprises:

   _____

   _____

   *(List all the legally correct full names and registration numbers, if applicable, of the Enterprises forming the Consortium/Joint Venture)*

   to the Department of Public Works in respect of the following project:

   _____

   _____

   (*Project description as per Bid /Tender Document)*

   Bid / Tender Number: _____ (*Bid / Tender Number as per Bid / Tender Document)*

2. *Mr/Mrs/Ms: _____

   in *his/her Capacity as: _____ *(Position in the Enterprise)*

   and who will sign as follows: _____

   be, and is hereby, authorised to sign a consortium/joint venture agreement with the parties listed under item 1 above, and any and all other documents and/or correspondence in connection with and relating to the consortium/joint venture, in respect of the project described under item 1 above.

3. The Enterprise accepts joint and several liability with the parties listed under item 1 above for the due fulfilment of the obligations of the joint venture deriving from, and in any way connected with, the Contract to be entered into with the Department in respect of the project described under item 1 above.

4. The Enterprise chooses as its *domicilium citandi et executandi* for all purposes arising from this joint venture agreement and the Contract with the Department in respect of the project under item 1 above:

   Physical address: _____

   _____

   _____

   _____ (code)

Postal Address: _____

_____

_____

_____ (code)

Telephone number: _____

Fax number: _____

| | Name | Capacity | Signature |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| 11 | | | |
| 12 | | | |
| 13 | | | |
| 14 | | | |
| 15 | | | |

*The bidding enterprise hereby absolves the Department of Public Works from any liability whatsoever that may arise as a result of this document being signed*

***Note:***

1. ** Delete which is not applicable.*
2. ***NB:** This resolution must, where possible, be signed by <u>all</u> the Directors / Members / Partners of the Bidding Enterprise.*
3. *In the event that paragraph 2 cannot be complied with, the resolution must be signed by Directors / Members / Partners holding a majority of the shares / ownership of the Bidding Enterprise (attach proof of shareholding / ownership hereto).*
4. *Directors / Members / Partners of the Bidding Enterprise may alternatively appoint a person to sign this document on behalf of the Bidding Enterprise, which person must be so authorized by way of a duly completed power of attorney, signed by the Directors / Members / Partners holding a majority of the shares / ownership of the Bidding Enterprise (proof of shareholding / ownership and power of attorney are to be attached hereto).*
5. *Should the number of Directors / Members / Partners exceed the space available above, additional names and signatures must be supplied on a separate page.*

**ENTERPRISE STAMP**

# PA-15.3: SPECIAL RESOLUTION OF CONSORTIA OR JOINT VENTURES

**RESOLUTION** of a meeting of the duly authorised representatives of the following legal entities who have entered into a consortium/joint venture to jointly bid for the project mentioned below: (*legally correct full names and registration numbers, if applicable, of the Enterprises forming a Consortium/Joint Venture)*

1. _____

_____

2. _____

_____

3. _____

_____

4. _____

_____

5. _____

_____

6. _____

_____

7. _____

_____

8. _____

_____

Held at _____ (*place)*

on _____ *(date)*

## RESOLVED that:

**RESOLVED that:**

A. The above-mentioned Enterprises submit a Bid in Consortium/Joint Venture to the Department of Public Works in respect of the following project:

_____

_____

(*Project description as per Bid /Tender Document)*

Bid / Tender Number: _____ (*Bid / Tender Number as per Bid /Tender Document)*

B. *Mr/Mrs/Ms: _____

in *his/her Capacity as: _____*(Position in the Enterprise)*

and who will sign as follows: _____

be, and is hereby, authorised to sign the Bid, and any and all other documents and/or correspondence in connection with and relating to the Bid, as well as to sign any Contract, and any and all documentation, resulting from the award of the Bid to the Enterprises in Consortium/Joint Venture mentioned above.

C. The Enterprises constituting the Consortium/Joint Venture, notwithstanding its composition, shall conduct all business under the name and style of:

_____

D. The Enterprises to the Consortium/Joint Venture accept joint and several liability for the due fulfilment of the obligations of the Consortium/Joint Venture deriving from, and in any way connected with, the Contract entered into with the Department in respect of the project described under item A above.

E. Any of the Enterprises to the Consortium/Joint Venture intending to terminate the consortium/joint venture agreement, for whatever reason, shall give the Department 30 days written notice of such intention. Notwithstanding such decision to terminate, the Enterprises shall remain jointly and severally liable to the Department for the due fulfilment of the obligations of the Consortium/Joint Venture as mentioned under item D above.

F. No Enterprise to the Consortium/Joint Venture shall, without the prior written consent of the other Enterprises to the Consortium/Joint Venture and of the Department, cede any of its rights or assign any of its obligations under the consortium/joint venture agreement in relation to the Contract with the Department referred to herein.

G. The Enterprises choose as the *domicilium citandi et executandi* of the Consortium/Joint Venture for all purposes arising from the consortium/joint venture agreement and the Contract with the Department in respect of the project under item A above:

Physical address: _____

_____

_____

_____ (code)

Postal Address: _____

_____

_____

_____ (code)

Telephone number: _____

Fax number: _____

| | Name | Capacity | Signature |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| 11 | | | |
| 12 | | | |
| 13 | | | |
| 14 | | | |
| 15 | | | |

*The bidding enterprise hereby absolves the Department of Public Works from any liability whatsoever that may arise as a result of this document being signed.*

***Note:***

1. ** Delete which is not applicable.*
2. ***NB:** This resolution must be signed by all the Duly Authorised Representatives of the Legal Entities to the consortium/joint venture submitting this tender, as named in item 2 of Resolution PA-15.2.*
3. *Should the number of the Duly Authorised Representatives of the Legal Entities joining forces in this tender exceed the space available above, additional names, capacity and signatures must be supplied on a separate page.*
4. *Resolution PA-15.2, duly completed and signed, from the separate Enterprises who participate in this consortium/joint venture, must be attached to this Special Resolution (PA-15.3).*

public works & infrastructure
Department:
Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

# PA-16: PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022

This preference form must form part of all tenders invited. It contains general information and serves as a claim form for preference points for specific goals.

**NB: BEFORE COMPLETING THIS FORM, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF THE TENDER AND PREFERENTIAL PROCUREMENT REGULATIONS, 2022**

---

## 1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to invitations to tender:

- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).

1.2 **Preference Points System to be applied**

(*Tick whichever is applicable*).

☒ The applicable preference point system for this tender is the **80/20** preference point system.

☐ The applicable preference point system for this tender is the **90/10** preference point system.

☐ Either the **90/10 or 80/20** preference point system will be applicable in this tender. The lowest/ highest acceptable tender will be used to determine the accurate system once tenders are received.

1.3 **Points for this tender shall be awarded for:**

**1.3.1 Price; and**

**1.3.2 Specific Goals**

1.4 **The maximum points for this tender are allocated as follows:**

| **CHOOSE APPLICABLE PREFERENCE POINT SCORING SYSTEM** | ☒ **80/20** | ☐ **90/10** |
|---|---|---|
| **PRICE** | | |
| **SPECIFIC GOALS** | | |
| **Total points for Price and Specific Goals** | **100** | |

## 1.5 Breakdown Allocation of Specific Goals Points

### 1.5.1 For Procurement transactions with rand value greater than R2 000.00 and up to R1 Million (Inclusive of all applicable taxes), the specific goals as listed in table 1 below are applicable.

All Acquisitions

Table 1

| Serial No | Specific Goals | Preference Points allocated out of 20 | Documentation to be submitted by bidders to validate their claim for points |
|---|---|---|---|
| 1. | An EME or QSE which is at least 51% owned by **black people** | 10 | ID Copy<br>Or<br>SANAS Accredited BBBEE Certificate or sworn affidavit where applicable<br>Or<br>CSD Report<br>Or<br>CIPC (company registration) |
| 2. | **Located** in a specific Local Municipality or District Municipality or Metro or Province area for work to be done or services to be rendered in that area | 2 | Office Municipal Rates Statement<br>Or<br>Permission To Occupy from local chief in case of rural areas (PTO)<br>Or<br>Lease Agreement |
| 3. | An EME or QSE which is at least 51% owned by **women** | 4 | ID Copy<br>Or<br>CSD Report<br>Or<br>CIPC (company registration) |

| Serial No | Specific Goals | Preference Points allocated out of 20 | Documentation to be submitted by bidders to validate their claim for points |
|---|---|---|---|
| 4. | An EME or QSE which is at least 51% owned by people with **disability** | 2 | Medical Certificate<br>Or<br>South African Social Security Agency (SASSA) registration<br>Or<br>National Council for Persons with Physical Disability in South Africa registration (NCPPDSA) |
| 5. | An EME or QSE which is at least 51% owned by **youth**. | 2 | ID Copy<br>Or<br>CSD Report<br>Or<br>CIPC (company registration) |

1.5.2 **For procurement transactions with rand value greater than R1 Million and up to R50 Million (Inclusive of all applicable taxes) the specific goals as listed in table 2 below are applicable:**

All Acquisitions

Table 2

| Serial No | Specific Goals | Preference Points allocated out of 20 | Documentation to be submitted by bidders to validate their claim for points |
|---|---|---|---|
| 1. | An EME or QSE or any entity which is at least 51% owned by **Historically Disadvantaged Individuals** (HDI) | 10 | ID Copy<br>Or<br>SANAS Accredited BBBEE Certificate or sworn affidavit where applicable<br>Or<br>CSD Report |

| Serial No | Specific Goals | Preference Points allocated out of 20 | Documentation to be submitted by bidders to validate their claim for points |
|---|---|---|---|
| | | | Or<br>CIPC (company registration) |
| 2. | **Located** in a specific Local Municipality or District Municipality or Metro or Province area for work to be done or services to be rendered in that area | 2 | Office Municipal Rates Statement<br>Or<br>Permission To Occupy from local chief in case of rural areas (PTO)<br>Or<br>Lease Agreement |
| 3. | An EME or QSE or any entity which is at least 51% owned by **women** | 4 | ID Copy<br>Or<br>CSD Report<br>Or<br>CIPC (company registration) |
| 4. | An EME or QSE or any entity which is at least 51% owned by people with **disability** | 2 | Medical Certificate<br>Or<br>South African Social Security Agency (SASSA) registration<br>Or<br>National Council for Persons with Physical Disability in South Africa registration (NCPPDSA) |
| 5. | An EME or QSE or any entity which is at least 51% owned by **youth**. | 2 | ID Copy<br>Or<br>CSD Report<br>Or<br>CIPC (company registration) |

**1.5.3 For procurement transactions with rand value greater than R50 Million (Inclusive of all applicable taxes) the specific goals as listed in table 3 below are applicable**

All Acquisitions

Table 3

| Serial No | Specific Goals | Preference Points allocated out of 10 | Documentation to be submitted by bidders to validate their claim for points |
|---|---|---|---|
| 1. | An EME or QSE or any entity which is at least 51% owned by **Historically Disadvantaged Individuals** (HDI) | 4 | ID Copy<br>Or<br>SANAS Accredited BBBEE Certificate or sworn affidavit where applicable<br>Or<br>CSD Report<br>Or<br>CIPC (company registration) |
| 2. | **Located** in a specific Local Municipality or District Municipality or Metro or Province area for work to be done or services to be rendered in that area | 2 | Office Municipal Rates Statement<br>Or<br>Permission To Occupy from local chief in case of rural areas (PTO)<br>Or<br>Lease Agreement |
| 3. | An EME or QSE or any entity which is at least 51% owned by **women** | 2 | ID Copy<br>Or<br>CSD Report<br>Or<br>CIPC (company registration) |
| 4. ☐ | An EME or QSE or any entity which is at least 51% owned by people with **disability** | 2 | Medical Certificate<br>Or |

| Serial No | Specific Goals | Preference Points allocated out of 10 | Documentation to be submitted by bidders to validate their claim for points |
|---|---|---|---|
| 5. ☐ | OR<br>An EME or QSE or any entity which is at least 51% owned by **youth**.<br>(only one specific goal is applicable between specific goal number 4 and specific goal number 5 under 90/10 Preference Point System) | | South African Social Security Agency (SASSA) registration<br>Or<br>National Council for Persons with Physical Disability in South Africa registration (NCPPDSA)<br>ID Copy<br>Or<br>CSD Report<br>Or<br>CIPC (company registration) |

1.6 Failure on the part of the tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals, if the service provider/ tenderer did not submit proof or documentation required to claim for specific goals will be interpreted to mean that preference points for specific goals are not claimed.

1.7 The organ of state reserves the right to require of a service provider/tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

## 2. DEFINITIONS

(a) **"tender"** means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;

(b) **"price"** means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;

*(c)* **"rand value"** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;

(d) **"tender for income-generating contracts"** means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and

(e) **"the Act"** means the Preferential Procurement Policy Framework Act, 2000 (Act No.

5 of 2000).

## 3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

### 3.1. POINTS AWARDED FOR PRICE

#### 3.1.1. THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

A maximum of 80 or 90 points is allocated for price on the following basis:

**80/20** **or** **90/10**

$$Ps = 80\left(1 - \frac{Pt - P\,min}{P\,min}\right) \text{ or } \quad Ps = 90\left(1 - \frac{Pt - P\,min}{P\,min}\right)$$

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmin = Price of lowest acceptable tender

### 3.2. FORMULAE FOR DISPOSAL OR LEASING OF STATE ASSETS AND INCOME GENERATING PROCUREMENT

#### 3.2.1. POINTS AWARDED FOR PRICE

A maximum of 80 or 90 points is allocated for price on the following basis:

**80/20** **or** **90/10**

$$Ps = 80\left(1 + \frac{Pt - P\,max}{P\,max}\right) \text{ or } \quad Ps = 90\left(1 + \frac{Pt - P\,max}{Pmax}\right)$$

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmax = Price of highest acceptable tender

## 4. POINTS AWARDED FOR SPECIFIC GOALS

4.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1,2 and 3 above as may be supported by proof/ documentation stated in the conditions of this tender:

4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—

(a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or

(b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,

then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

**Table 1: Specific goals for the tender and points claimed are indicated per the table below.**

***(Note to organs of state: Where either the 90/10 or 80/20 preference point system is applicable, corresponding points must also be indicated as such.***

***Note to tenderers: The tenderer must indicate how they claim points for each preference point system.*)**

| The specific goals allocated points in terms of this tender | Number of points allocated (90/10 system) (To be completed by the organ of state) | Number of points allocated (80/20 system) (To be completed by the organ of state) | Number of points claimed (90/10 system) (To be completed by the tenderer) | Number of points claimed (80/20 system) (To be completed by the tenderer) |
|---|---|---|---|---|
| 1. An EME or QSE or any entity which is at least 51% owned by **Historically Disadvantaged Individuals** (HDI) | 4 | 10 | | |
| 2. **Located** in a specific Local Municipality or District Municipality or Metro or Province area for work to be done or services to be rendered in that area | 2 | 2 | | |
| 3. An EME or QSE or any entity which is at least 51% owned by **women** | 2 | 4 | | |

| The specific goals allocated points in terms of this tender | Number of points allocated (90/10 system) (To be completed by the organ of state) | Number of points allocated (80/20 system) (To be completed by the organ of state) | Number of points claimed (90/10 system) (To be completed by the tenderer) | Number of points claimed (80/20 system) (To be completed by the tenderer) |
|---|---|---|---|---|
| 4. An EME or QSE or any entity which is at least 51% owned by people with **disability**<br><br>**or**<br><br>5. An EME or QSE or any entity which is at least 51% owned by **youth**.*<br><br>(**only one specific goal is applicable between specific goal number 4 and specific goal number 5 under 90/10 Preference Point System)** | 2 | 2<br><br>2 | | |

**Note: ***in respect of the 90/10 point system a selection of either disability or youth may be made with an allocation of 2 points for either of them.

**DECLARATION WITH REGARD TO COMPANY/FIRM**

4.3. Name of company/firm…….

4.4. Company registration number: ……...

4.5. TYPE OF COMPANY/ FIRM

- ☐ Partnership/Joint Venture / Consortium
- ☐ One-person business/sole propriety
- ☐ Close corporation
- ☐ Public Company
- ☐ Personal Liability Company
- ☐ (Pty) Limited
- ☐ Non-Profit Company
- ☐ State Owned Company

[TICK APPLICABLE BOX]

4.6. I, the undersigned, who is duly authorised to do so on behalf of the company/firm,

certify that the points claimed, based on the specific goals as advised in the tender, qualifies the company/ firm for the preference(s) shown and I acknowledge that:

i) The information furnished is true and correct;

ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;

iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;

iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –

(a) disqualify the person from the tendering process;

(b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;

(c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;

(d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and

(e) forward the matter for criminal prosecution, if deemed necessary.

| |
|---|
| ..... |
| **SIGNATURE(S) OF TENDERER(S)** |
| **SURNAME AND NAME**: ..... |
| **DATE:** ..... |
| **ADDRESS**: ..... |
| ..... |

# DPW-09 (EC): PARTICULARS OF TENDERER'S PROJECTS

| | | | |
|---|---|---|---|
| **Project title:** | Thohoyandou Correctional Centre: Kitchen Upgrading, Replacement of Kitchen Equipment as Well as Temporary Kitchen: Medium B | | |
| **Tender / quotation no:** | PLK 23/05 | **Closing date:** | 18/07/2023 |
| **Advertising date:** | 23/06/2023 | **Validity period:** | 84 days |

## 1. PARTICULARS OF THE TENDERER'S CURRENT AND PREVIOUS COMMITMENTS

### 1.1. Current projects

| **Projects currently engaged in** | | **Name of Employer or Representative of Employer** | **Contact tel. no.** | **Contract sum** | **Contractual commence-ment date** | **Contractual completion date** | **Current percentage progress** |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | | |
| 8 | | | | | | | |

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**1.2. Completed projects**

| **Projects completed in the previous 5 (five) years** | | **Name of Employer or Representative of Employer** | **Contact tel. no.** | **Contract sum** | **Contractual commence-ment date** | **Contractual completion date** | **Date of Certificate of Practical Completion** |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | | |
| 8 | | | | | | | |
| 9 | | | | | | | |

| | | |
|---|---|---|
| Name of Tenderer | Signature | Date |

# T2.2

# Returnable Documents: Documents that will be incorporated into the contract.

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# PA- 40: DECLARATION OF DESIGNATED GROUPS FOR PREFERENTIAL PROCUREMENT

**Name of Tenderer** ..... ☐ **EME**[1] ☐ **QSE**[2] ☐ **Non EME/QSE (tick applicable box)**

1. **LIST ALL PROPRIETORS, MEMBERS OR SHAREHOLDERS BY NAME, IDENTITY NUMBER, CITIZENSHIP AND DESIGNATED GROUPS.**

| Name and Surname # | Identity/ Passport number and Citizenship## | Percentage owned | Black | Indicate if youth | Indicate if woman | Indicate if person with disability | Indicate if living in rural / under developed area/township | Indicate if military veteran |
|---|---|---|---|---|---|---|---|---|
| 1. | | % | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No |
| 2. | | % | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No |
| 3. | | % | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No |
| 4. | | % | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No |
| 5. | | % | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No |
| 6. | | % | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No |
| 7. | | % | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No |
| 8. | | % | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No |
| 9. | | % | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No |
| 10. | | % | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No |
| 11. | | % | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No |
| 12. | | % | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No |

**#** Where Owners are themselves a Company, Close Corporation, Partnership etc, identify the ownership of the Holding Company, together with Registration number
**##** State date of South African citizenship obtained (not applicable to persons born in South Africa )

[1] EME: Exempted Micro Enterprise
[2] QSE: Qualifying Small Business Enterprise

**2. DECLARATION:**

**The undersigned, who warrants that he/she is duly authorized to do so on behalf of the Tenderer, hereby confirms that:**

1 The information and particulars contained in this Affidavit are true and correct in all respects;

2 The Broad-based Black Economic Empowerment Act, 2003 (Act 53 of 2003), Preferential Procurement Policy Framework Act, 2000 (Act 5 of 2000), the Preferential Procurement Regulations, 2017, National Small Business Act 102 of 1996 as amended and all documents pertaining to this Tender were studied and understood and that the above form was completed according to the definitions and information contained in said documents;

3 The Tenderer understands that any intentional misrepresentation or fraudulent information provided herein shall disqualify the Tenderer's offer herein, as well as any other tender offer(s) of the Tenderer simultaneously being evaluated, or will entitle the Employer to cancel any Contract resulting from the Tenderer's offer herein;

4 The Tenderer accepts that the Employer may exercise any other remedy it may have in law and in the Contract, including a claim for damages for having to accept a less favourable tender as a result of any such disqualification due to misrepresentation or fraudulent information provided herein;

5 Any further documentary proof required by the Employer regarding the information provided herein, will be submitted to the Employer within the time period as may be set by the latter;

**Signed by the Tenderer**

| | | |
|---|---|---|
| | | |
| **Name of representative** | **Signature** | **Date** |

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# DPW-15 (EC): SCHEDULE OF PROPOSED SUBCONTRACTORS

| | | | |
|---|---|---|---|
| **Project title:** | ***Thohoyandou Correctional Centre: Kitchen Upgrading, Replacement of Kitchen Equipment as Well as Temporary Kitchen: Medium B*** | | |
| **Tender no:** | *PLK 23/05* | **Reference no:** | *6054/0011* |

We notify you that it is our intention to employ the following Subcontractors for work in this contract.

We confirm that all subcontractors who are contracted to construct a house are registered as home builders with the National Home Builders Registration Council.

| | Name and address of proposed Subcontractor | Nature and extent of work | Previous experience with Subcontractor |
|---|---|---|---|
| **1** | | | |
| **2** | | | |
| **3** | | | |
| **4** | | | |
| **5** | | | |

| | | | |
|---|---|---|---|
| **Name of representative** | **Signature** | **Capacity** | **Date** |

| | |
|---|---|
| **Name of organisation:** | |

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# DPW-22 (EC): PARTICULARS OF ELECTRICAL CONTRACTOR

| | | | |
|---|---|---|---|
| **Project title:** | ***Thohoyandou Correctional Centre: Kitchen Upgrading, Replacement of Kitchen Equipment as Well as Temporary Kitchen: Medium B*** | | |
| **Tender no:** | PLK 23/05 | **Reference no:** | **6054/0011** |

| | |
|---|---|
| **Name of Electrical Contractor:** | |
| **Address:** | |
| **Electrical Contractor registration number at the Electrical Contracting Board of S.A.:** | |

| | | |
|---|---|---|
| | | |
| Name of Tenderer | Signature | Date |

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# DPW-22 (EC): PARTICULARS OF ELECTRICAL CONTRACTOR

| | | | |
|---|---|---|---|
| **Project title:** | ***Thohoyandou Correctional Centre: Kitchen Upgrading, Replacement of Kitchen Equipment as Well as Temporary Kitchen: Medium B*** | | |
| **Tender no:** | PLK 23/05 | **Reference no:** | **6054/0011** |

| | |
|---|---|
| **Name of Electrical Contractor:** | |
| **Address:** | |
| **Electrical Contractor registration number at the Electrical Contracting Board of S.A.:** | |

| | | |
|---|---|---|
| | | |
| Name of Tenderer | Signature | Date |

# DPW-23 (EC): SCHEDULE FOR IMPORTED MATERIALS AND EQUIPMENT

| | | | |
|---|---|---|---|
| **Project title:** | ***Thohoyandou Correctional Centre: Kitchen Upgrading, Replacement of Kitchen Equipment as Well as Temporary Kitchen: Medium B*** | | |
| **Tender no:** | *PLK 23/05* | **Reference no:** | *6054/0011* |

This schedule should be completed by the tenderer. *(Attach additional pages if more space is required)*

| Item | Material / Equipment | Rand (R) (Excluding VAT) |
|---|---|---|
| **1.** | | **R** |
| **2.** | | **R** |
| **3.** | | **R** |
| **4.** | | **R** |
| **5.** | | **R** |
| **6.** | | **R** |

**The Contractor shall list imported items, materials and/or equipment which shall be excluded from the Contract Price Adjustment Provisions (if applicable) and shall be adjusted in terms of currency fluctuations only.** Copies of the supplier's quotations for the items, materials or equipment (provided that such costs shall not be higher than the relevant contract rate as listed above) should be lodged with the Principal Agent / Engineer of the Department of Public Works within 60 (sixty) days from the date of acceptance of the tender. No adjustment of the local VAT amount, nor the contractor's profit, discount, mark-up, handling costs, etc. shall be allowed.

These net amounts will be adjusted as follows:

**FORMULA:**

The net amount to be added to or deducted from the contract sum:

$$A = V\left(\frac{Z}{Y} - 1\right)$$

A = the amount (R) of adjustment

V = the net amount (supplier's quotation) (R) of the imported item

Y = exchange rate at the closing date of tender submission

Z = exchange rate on the date of payment.

| | | |
|---|---|---|
| | | |
| Name of Tenderer | Signature | Date |

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# BILLS OF QUANTITIES

# FOR

## THOHOYANDOU CORRECTIONAL CENTRE: MEDIUM B

## KITCHEN UPGRADING,REPLACEMENT OF KITCHEN EQUIPMENTS

## VOLUME 3 OF 3


**PRINCIPAL AGENT & MECHANICAL ENGINEER**
Tsepa Consulting
308 Rentmeester Building
58 Schoeman Street
Polokwane
0699
Cel: 062 646 6077
Fax: 015-291 5205
E-mail: amonmasanganise@live.co.za

**ARCHITECTS**
Nxumalo De Jager Architects
P.O. Box 632
23 Peace Street
Tzaneen
0850
Tel: 087 086 9484/5
Fax: 086 602 6830
Email: reception@ndj.co.za

**QUANTITY SURVEYOR**
Phahlana Hunadi Quantity Surveyors
P.O. Box 632
Lebokgomo
0737
Tel: 015-633 6535/012 493 0854
Fax: 015-633 6477
E-mail: Info@phqs.net

**ELECTRICAL ENGINEERS**
Mogalemole Consulting
42 Hog Street
Polokwane
0700
Tel: 015-297 3556
Fax: 015- 297 2096
Email: info@mogalemole.co.za

**DEPARTMENT OF PUBLIC WORKS**
77 Hans van Rensburg Street
POLOKWANE
0700
Tel: 015-291 6000
Fax: 015-297 3314


**NAME OF TENDERER**: .....

**TENDER SUM**: .....


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EXPANDED PUBLIC WORKS PROGRAMME

# REPUBLIC OF SOUTH AFRICA

**DEPARTMENT OF PUBLIC WORKS & INFRASTRUCTURE**

**THOHOYANDOU CORRECTIONAL CENTRE: KITCHEN UPGRADING, REPLACEMENT OF KITCHEN EQUIPMENTS AS WELL AS TEMPORARY KITCHEN: MEDIUM B**

**PLK 23/05**

# VOLUME 3

# CONTRACT

# Part C1

# Agreement and Contract Data

# C1.2

# Contract Data

# DPW-05: (EC) CONTRACT DATA - (GCC (2010) 2nd EDITION: 2010)

| | | | |
|---|---|---|---|
| **Project title:** | ***Thohoyandou Correctional Centre: Kitchen Upgrading, Replacement of Kitchen Equipment as Well as Temporary Kitchen: Medium B*** | | |
| **Tender no:** | *PLK 23/05* | **Reference no:** | *6054/0011* |

| | |
|---|---|
| | **PART 1: DATA PROVIDED BY THE EMPLOYER** |
| | **CONDITIONS OF CONTRACT** |
| | The General Conditions of Contract for Construction Works, Second Edition, 2010, published by the South African Institution of Civil Engineering, Private Bag X200, Halfway House, 1685, is applicable to this Contract and is obtainable from *www.saice.org.za* |

| **CONTRACT SPECIFIC DATA** | |
|---|---|
| The following contract specific data, referring to the General Conditions of Contract for Construction Works, Second Edition, 2010, are applicable to this Contract: | |
| **CLAUSES** | **COMPULSORY DATA** |
| 1.1.1.8 | Amend Clause 1.1.1.8 to include the word "rights" to read as follows:<br>"Contract Data" means the specific data which, together with these General Conditions of Contract, collectively describe the rights, risks, liabilities and obligations of the contracting parties and the procedures for the administration of the Contract. |
| 1.1.1.13 | Amend Clause 1.1.1.13 as follows, clarify when the defects liability period starts:<br>"Defects Liability Period" means the period stated in the Contract Data, commencing on the date indicated on the Certificate of Completion or Certificates of Completion in the event of more than one Certificate of Completion is issued for different parts of the Works, during which the Contractor has both the right and the obligation to make good defects in the materials, Plant and workmanship covered by the Contract. |
| | Defects liability period is: **12 months**. |
| 1.1.1.14<br>&<br>5.14.7 | The time for achieving Practical Completion of the whole of the works is: ***9 months*** measured from the Commencement Date. The time thus stated includes special non-working days and the year-end break. |
| | ***or, if Practical Completion in portions is required***,<br>The times for achieving Practical Completion for the portions as set out in the Scope of Works are *mutatis mutandi*:<br>For portion 1 within ***N/A***<br>For portion 2 within ***N/A***<br>For portion 3 within ***N/A***<br>For portion 4 within ***N/A***<br>*(followed by further portions as required)*<br>The time for achieving Practical Completion of the whole of the Works is: ***9 months*****, measured from the Commencement Date. The time thus stated includes special non-working days and the year-end** |

| | |
|---|---|
| | **break**. |
| 1.1.1.15 | The name of the Employer is:<br>**The Government of the Republic of South Africa in its Department of Public Works.** |
| 1.1.1.16 | The name of the Engineer is:<br>***Tsepa Consulting Engineers*** |
| 1.1.1.26 | The Pricing Strategy is a: **Re-measurement Contract**. |
| 1.1.1.31 | Not applicable to this Contract. |
| 1.1.1.35 | Insert the definition of "Value of Works" as Clause 1.1.1.35:<br>"Value of Works" means the value of the Works certified by the Engineer as having been satisfactorily executed and shall include the value of the works done, the value of the materials and/or plant and Contract Price Adjustments. |
| 1.2.1.2 | **Employer's address:**<br>Physical Address:<br>***Department Public Works***<br>***77 Hans Van Rensberg Street***<br>***Polokwane***<br>***0700***<br><br>Postal Address:<br>***Private Bag X9469***<br>***Polokwane***<br>***0700***<br>Facsimile: ***015 297 4411***<br>Telephone: ***015 291 6300*** |
| | **Engineer's address:**<br>Physical Address:<br>***308 Rentmeester Building***<br>***58 Schoeman Street Polokwane***<br>***0700***<br>Postal Address:<br>***308 Rentmeester Building***<br>***58 Schoeman Street Polokwane***<br>***0700***<br>Facsimile: ***015 291 5205***<br>Telephone: ***015 291 4216*** |
| 1.3.4 | Not applicable to this Contract. |
| 1.3.5 | Replace Clause 1.3.5 with the following provisions:<br>(a) The Employer will become the owner of the information, documents, advice, recommendation and |

| | | |
|---|---|---|
| | | reports collected, furnished and/or compiled by the Contractor during the course of, and for the purposes of executing this Contract, all of which will be handed over to the Employer on request, but in any event on the termination and/or cancellation of this Contract for whatever reason. The Contractor relinquishes its retention or any other rights thereon to which it may be entitled.<br><br>(b) The copyright of all documents, recommendations and reports compiled by the Contractor during the course of and for the purposes of finalizing the Works will vest in the Employer, and may not be reproduced or distributed or made available to any person outside the Employer's service, or to any institution in any way, without the prior written consent of the Employer. The Employer shall have the right to use such material for any other purpose without the approval of information or payment to the Contractor.<br><br>(c) The copyright of all electronic aids, software programmes etc. prepared or developed in terms of the Contract shall vest in the Employer, who shall have the right to use such material for any other purpose without the approval of, information or payment to the Contractor.<br><br>(d) In case of the Contractor providing documents, electronic aids, software programs or like material to the Employer, the development of which has not been at the expense of the Employer, copyright shall not vest in the Employer. The Contractor shall be required to indicate to which documents, electronic aids, software programs or like material this provision applies.<br><br>(e) The Contractor hereby indemnifies the Employer against any action, claim, damages or legal cost that may be instituted against the Employer on the grounds of an alleged infringement of any copyright, patents or any other intellectual property right in connection with the Works outlined in this Contract.<br><br>(f) All information, documents, recommendations, programs and reports collected or compiled must be regarded as confidential and may not be communicated or made available to any person outside the Employer's service and may not be published either during the currency of this Contract or after termination thereof without the prior written consent of the Employer. |
| 3.1.3 | 1. | The Engineer's authority to act and/or to execute functions or duties or to issue instructions are expressly **excluded** in respect of the following:<br>(a) Appointment of nominated Sub-contractors – clause 4.4.3;<br>(b) Granting of an extension of time and/or ruling on claims associated with claims for extension of time – clauses 5.12.3, 10.1.5;<br>(c) Acceleration of the rate of progress and determination of the cost for payment of such acceleration – clause 5.12.4;<br>(d) Rulings on claims and disputes – clauses 10.1.5, 10.2.3 and 10.3.3;<br>(e) Suspension of the Works – clause 5.11.1;<br>(f) Final Payment Certificate – clause 6.10.9;<br>(g) Issuing of *mora* notices to the Contractor – clauses 9.1.1, 9.1.2.1 and 9.2.1;<br>(h) Cancellation of the contract between the Employer and Contractor – clauses 9.1.1, 9.1.2.1 and 9.2.1. |
| | 2. | In order to be legally binding and have legal bearing and consequence, any ruling in respect of the above matters (a) to (h) must be on an official document, signed and issued by the Employer to the Contractor. |
| | 3. | The Contractor must submit claims, demands, notices, notifications, updated particulars and reports in writing, as well as any other supporting documentation pertaining thereto, in respect of any of the above listed matters (a) to (h), to the Engineer within the time periods and in the format(s) as |

| | |
|---|---|
| | determined in the relevant clauses of the Conditions of Contract. Failing to deliver such to the Engineer timeous and in the correct format will invalidate any claim and the consequences of such failure will *mutatis mutandis* be as stated in clause 10.1.4.<br><br>4. Clauses 6.10.9 and 10.1.5 shall be amended as follows to indicate the limitation on the Engineer's authority in respect thereof:<br><br>**Clause 6.10.9 – Amend to read as follows:**<br><br>Within 14 days of the date of final approval as stated in the Final Approval Certificate, the Contractor shall deliver to the Engineer a final statement claiming final settlement of all moneys due to him (save in respect of matters in dispute, in terms of Clauses 10.3 to 10.11, and not yet resolved). The Employer shall within 14 days issue to the Contractor a Final Payment Certificate the amount of which shall be paid to the Contractor within 28 days of the date of such certificate, after which no further payments shall be due to the Contractor (save in respect of matters in dispute, in terms of Clauses 10.3 to 10.11 and not yet resolved).<br><br>**Clause 10.1.5 – Amend to read as follows:**<br><br>Unless otherwise provided in the Contract, the Employer shall, within 28 days after the Contractor has delivered his claim in terms of Clause 10.1.1 as read with Clause 10.1.2, deliver to the Contractor his written and adequately reasoned ruling on the claim (referring specifically to this Clause). The amount thereof, if any, allowed by the Employer shall be included to the credit of the Contractor in the next payment certificate.<br><br>5. Insert the following under 3.1.3:<br>Provided that, notwithstanding any provisions to the contrary in the Contract, the Employer shall have the right to reverse and, should it deem it necessary, to amend any certificate, instruction, decision or valuation of the Engineer and to issue a new one, and such certificate instruction, decisions or valuations shall for the purposes of the Contract be deemed to be issued by the Engineer, provided that the Contractor shall be remunerated in the normal manner for work executed in good faith in terms of an instruction issued by the Engineer and which has subsequently been rescinded. |
| 3.2.2.1 | Amend Clause 3.2.2.1 to insert the word "Plant" to read as follows:<br><br>Observe the execution of the Works, examine and test material, Plant and workmanship, and receive from the Contractor such information as he shall reasonably require. |
| 3.2.3.2 | Amend Clause 3.2.3.2 to insert the word "Plant" to reads as follows:<br><br>Notwithstanding any authority assigned to him in terms of Clauses 3.2.2 and 3.2.4, failure by the Engineer's Representative to disapprove of any work, workmanship, Plant or materials shall not prejudice the power of the Engineer thereafter to disapprove thereof and exercise any of his powers in terms of the Contract in respect of thereof. |
| 4.8.2.1 | Amend Clause 4.8.2.1 to include the word "person", as follows:<br><br>Makes available to the Employer, or to any such contractor, person or authority, any roads or ways for the maintenance of which the Contractor is responsible, or |
| 4.8.2.2 | Amend Clause 4.8.2.2 to include "Employer" and "contractors", as follows:<br><br>Provides any other facility or service of whatsoever nature to the Employer or to any of the said contractors, persons or authorities, |
| 5.3.1 | The documentation required before commencement with Works execution are:<br><br>Health and Safety Plan (Refer to Clause 4.3)<br>Initial programme (Refer to Clause 5.6) |

| | |
|---|---|
| | Security (Refer to Clause 6.2)<br>Insurance (Refer to Clause 6.8)<br>***N/A***<br>***N/A***<br>***N/A*** |
| 5.3.2 | The time to submit the documentation required before commencement with Works execution is: **21 days.** |
| 5.4.2 | The access to, and possession of, the Site referred to in Clause 5.4.1 shall be ***enter "exclusive"*** to the Contractor. In the event of access to, and possession of, the Site is not exclusive to the Contractor, the following limitations apply:<br>***N/A.*** |
| 5.8.1 | The non-working days are: **Saturdays and Sundays** |
| | The special non-working days are:<br>**(1) Public Holidays;**<br>**(2) The year-end break commencing on 16 December until the Sunday preceding the first working Monday of January of the succeeding year.** |
| 5.9.1 | Amend Clause 5.9.1 as follows:<br>On the Commencement Date, the Engineer shall deliver to the Contractor three (3) copies, at no cost to the Contractor, of the drawings and any instructions required for the commencement of the Works. The cost of any additional copies of such drawings and/or instructions, as may be required by the Contractor, will be for the account of the Contractor. |
| 5.13.1 | The penalty for failing to complete the Works is: **R*4500 including value added tax penalty amount* per day** |
| | ***or, if completion in portions is required,***<br>The penalty for failing to complete portion 1 of the Works is: **R*N/A* per day**.<br>The penalty for failing to complete portion 2 of the Works is: **R*N/A* per day**.<br>The penalty for failing to complete portion 3 of the Works is: **R*N/A* per day**.<br>The penalty for failing to complete portion 4 of the Works is: **R*N/A* per day**.<br>*Followed by further portions as required.*<br>The penalty for failing to complete the whole of the works is: **R*N/A* per day**. |
| 5.14.1 | Amend the second paragraph of Clause 5.14.1 as follows:<br>When the Works are about to reach the said stage, the Contractor shall, in writing, request a Certificate of Practical Completion and the Engineer shall, within 14 days after receiving such request, issue to the Contractor a written list setting out the work to be completed to justify Practical Completion. Should the Engineer not issue such a list within the 14 days, the Contractor shall notify the Employer accordingly. Should the Employer not issue such a list within 7 days of receipt of such notice, Practical Completion shall be deemed to have been achieved on the 14th day after the contractor requested the Certificate of Practical Completion. |
| 5.16.1 | Amend Clause 5.16.1 to delete the proviso in the third paragraph of this clause. |

| | |
|---|---|
| 5.16.2 | Amend Clause 5.16.2 as follows:<br>No certificate other than the Final Approval Certificate referred to in Clause 5.16.1 shall be deemed to constitute approval of the Works or shall be taken as an admission of the due performance of the Contract or any part thereof, nor of the accuracy of any claim made by the Contractor, nor shall any other certificate exclude or prejudice any of the powers of the Engineer and/or the Employer. |
| 5.16.3 | The latent defect period for all works is: **5 years**. |
| 6.2.1 | The type of security for the due performance of the Contract, as selected by the Contractor in the Contract Data, must be delivered to the Employer. |
| 6.2.3 | Amend Clause 6.2.3 as follows:<br>If the Contractor has selected a performance guarantee as security, he shall ensure that it remains valid and enforceable as required in terms of the Contract. |
| 6.5.1.2.3 | The percentage allowance to cover overhead charges is:<br>**33%, except on material cost where the percentage allowance is 10%.** |
| 6.8.2 | Contract Price Adjustment (CPA) will be applicable: ***"No"***.<br>If CPA is indicated as 'Yes" above the value of payment certificates is to be adjusted by a Contract Price Adjustment Factor:<br>The value of the certificates issued shall be adjusted in accordance with the Contract Price Adjustment Schedule with the following values:<br>The value of "x" is 0.15.<br>The values of the coefficients are:<br>a = 0.25. (Labour)<br>b = 0.3 (Contractor's equipment)<br>c = 0.3 (Material)<br>d = 0.15 (Fuel)<br>The values of the coefficients for "Repair and Maintenance Project" (RAMP) contracts are:<br>a = 0.35 (Labour)<br>b = 0.20 (Contractor's equipment)<br>c = 0.35 (Material)<br>d = 0.10 (Fuel)<br>The urban area nearest the Site is ***N/A***.<br>*(Select urban area from Statistical News Release, P0141, Table 7.1.)*<br>The applicable industry for the Producer Price Index for materials is ***N/A***.<br>*(Select the applicable industry from Statistical News Release, P01421, Table 11.)*<br>The area for the Producer Price Index for fuel is ***N/A***.<br>*(Select the area from Statistical News Release, P01421, Table 12.)*<br>The base month is ***N/A*** *20**19**. (The month prior to the closing of the tender.)* |
| 6.8.3 | Price adjustments for variations in the costs of special materials are not allowed. |
| 6.10.1.5 | The percentage advance on materials not yet built into the Permanent Works is: **85 %**. |

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| 6.10.3 | The limit of retention money is dependent on the security to be provided by the Contractor in terms of Clause 6.2.1. |
| 6.10.5 | Replace Clause 6.10.5 with the following:<br><br>In respect of contracts up to R2 million and in respect of contracts above R2 million where the Contractor elects a security by means of a 10% retention, 50% of the retention shall be released to the Contractor when the Engineer issues the Certificate of Completion in terms of clause 5.14.4. The remaining 50% of the retention shall be released in accordance with the provisions of the conditions of contract and will become due and payable when the Contractor becomes entitled, in terms of Clause 5.16.1, to receive the Final Approval Certificate.<br><br>In respect of contracts above R2 million, where the Contractor elects a security by means of a cash deposit or fixed guarantee of 5% of the Contract Sum (excl. VAT) and a 5% retention of the Value of the Works (excl. VAT), the cash deposit or fixed guarantee, whichever is applicable, shall be refunded to the Contractor or return to the guarantor, respectively, when the Engineer issues the Certificate of Completion in terms of Clause 5.14.4. The 5% retention of the Value of the Works (excl. VAT) shall become due and payable when the Contractor becomes entitled, in terms of Clause 5.16.1, to receive the Final Approval Certificate.<br><br>In respect of contracts above R2 million, where the Contractor elects a security by means of a cash deposit or a variable guarantee of 10% of the Contract Sum (excl. VAT), the cash deposit or the variable guarantee, whichever is applicable, will be reduced to 5% of the Value of the Works (excl. VAT) when the Engineer issues the Certificate of Completion in terms of Clause 5.14.4. The balance of the cash deposit shall become due and payable or the variable guarantee shall expire when the Contractor becomes entitled in terms of Clause 5.16.1 to receive the Final Approval Certificate. |
| 7.9.1 | Insert the following at the end of Clause 7.9.1:<br><br>Provided that, should the Contractor on demand not pay the amount of such costs to the Employer, such amount may be determined and deducted by the Employer from any amount due to or that may become due to the Contractor under this or any other previous or subsequent contract between the Contractor and the Employer. |
| 8.2.2.1 | Insert the following as a second paragraph to Clause 8.2.2.1:<br><br>The Contractor shall at all times proceed immediately to remove or dispose of any debris arising from damage to or destruction of the Works and to rebuild, restore, replace and/or repair the Works, failing which the Employer may cause same to be done and recover the reasonable costs associated therewith from the Contractor. |
| 8.4.3 | Insert a new Clause 8.4.3 as follows:<br><br>The Contractor shall on receiving a written instruction from the Engineer immediately proceed at his own cost to remove or dispose of any debris and to rebuild, restore, replace and/or repair such property and to execute the Works. |
| 8.6.1.1.1 | Amend Clause 8.6.1.1.1 to read as follows: Contract Sum plus 10%. |
| 8.6.1.1.2 | The value of Plant and materials supplied by the Employer to be included in the insurance sum is: **Nil** |
| 8.6.1.1.3 | The amount to cover professional fees for repairing damage and loss to be included in the insurance sum is: **Nil** |
| 8.6.1.3 | Amend Clause 8.6.1.3 to delete reference to limit of indemnity, to read as follows:<br><br>Liability insurance that covers the Contractor against liability for the death of, or injury to any person, or loss of, or damage to any property (other than property while it is insured in terms of Clause 8.6.1.1) arising from |

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| | or in the course of the fulfillment of the Contract, from the Commencement Date to the date of the end of the Defects Liability Period, if there is one, or otherwise to the issue of the Certificate of Completion. |
| 8.6.1.5 | 1. **Public liability insurance** to be effect by the Contractor to a minimum value of:<br>☒ R5 million<br>**or**<br>☐ R<br>With a deductible not exceeding 5% of each and every claim.<br><br>2. **Support insurance** is to be effected by the Contractor to a minimum value of:<br>R ***N/A***<br>With a deductible not exceeding 5% of each and every claim. |
| 8.6.5 | Amend Clause 8.6.5 as follows:<br>Save as otherwise provided in the Contract Data, the insurances referred to in Clause 8.6.1 shall be effected with an insurance company registered in the Republic of South Africa. The Contractor shall submit the insurance policy to the Employer for approval, if so requested. |
| 8.6.7 | Amend Clause 8.6.7 as follows:<br>If the Contractor fails to effect and keep in force any of the insurances referred to in Clause 8.6.1, the Employer may cancel the Contract in terms of Clause 9.2. |
| 8.6.8 | Insert a new Clause 8.6.8 in provide for high risk insurance for projects executed on areas classified as "High Risk Areas".<br><br>**HIGH RISK INSURANCE**<br><br>In the event of the project being executed in a geological area classified as a "High Risk Area", that is an area which is subject to highly unstable subsurface conditions that might result in catastrophic ground movement evident by sinkhole or doline formation the following will apply:<br><br>(1) **Damage to the Works**<br><br>The Contractor shall, from the date of Commencement of the Works until the date of the Certificate of Completion, bear the full risk of and hereby indemnifies and holds harmless the Employer against any damage to and/or destruction of the Works consequent upon a catastrophic ground movement as mentioned above. The Contractor shall take such precautions and security measures and other steps for the protection of the Works as he may deem necessary.<br><br>When so instructed to do so by the Engineer, the Contractor shall proceed immediately to remove and/or dispose of any debris arising from damage to or destruction of the Works and to rebuild, restore, replace and/or repair the Works, at the Contractor's own costs.<br><br>(2) **Injury to Persons or Loss of or damage to Properties**<br><br>The Contractor shall be liable for and hereby indemnifies and holds harmless the Employer against any liability, loss, claim or proceeding arising during the Contract Period whether arising in common law or by Statute, consequent upon personal injuries to or the death of any person whomsoever resulting from, arising out of or caused by a catastrophic ground movement as mentioned above.<br><br>The Contractor shall be liable for and hereby indemnifies the Employer against any and all liability, |

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| | loss, claim or proceeding consequent upon loss of or damage to any moveable, or immovable or personal property or property contiguous to the Site, whether belonging to or under the control of the Employer or any other body or person whomsoever arising out of or caused by a catastrophic ground movement, as mentioned above, which occurred during the Contract Period.<br>(3) It is the responsibility of the Contractor to ensure that he has adequate insurance to cover his risk and liability as mentioned in Clauses 8.6.8(1) and 8.6.8 (2) above. Without limiting his obligations in terms of the Contract, the Contractor shall, within 21 days of the Commencement Date and before Commencement of the Works, submit to the Employer proof of such insurance policy, if requested to do so.<br>(4) The Employer shall be entitled to recover any and all losses and/or damages of whatever nature suffered or incurred consequent upon the Contractor's default of his obligations as set out in Clauses 8.6.8 (1), 8.6.8 (2) and 8.6.8 (3). Provided that, should the Contractor on demand not pay the amount of such costs to the Employer, such amount may be determined and deducted by the Employer from any amount due to or that may become due to the Contractor under this or any other existing or subsequent contract between the Contractor and the Employer. |
| 9.1.4 | Amend Clause 9.1.4 as follows:<br>In the circumstances referred to in Clauses 9.1.1, 9.1.2 or 9.1.3 (provided that the circumstances in 9.1.3 is not due to the fault of the Contractor, his employees, contractors or agents), and whether or not the Contract is terminated under the provisions of this Clause, the Contractor shall be entitled to payment of any increased cost of or incidental to the execution of the Works which is specifically attributable to, or consequent upon the circumstances defined in Clauses 9.1.1, 9.1.2 or 9.1.3; |
| 9.1.5 | Amend Clause 9.1.5 as follows:<br>If the Contract is terminated on any account in terms of this Clause (provided that the circumstances in 9.1.3 is not due to the fault of the Contractor, his employees, contractors or agents) , the Contractor shall be paid by the Employer (insofar as such amounts or items have not already been covered by payments on account made to the Contractor) for all measured work executed prior to the date of termination, the amount (without retention), payable in terms of the Contract and, in addition: |
| 9.1.6 | This Clause is not applicable to this Contract. |
| 9.2.1.3.8 | Insert a new Clause 9.2.1.3.8 as follows:<br>Has failed to effect and keep in force any of the insurances referred to in Clause 8.6.1, |
| 9.2.4 | Insert a new Clause 9.2.4 as follows, to provide for unilateral termination by the Employer:<br>The Employer shall be entitled at any time to unilaterally terminate or cancel this Contract or any part thereof. Save for the following, the Contractor shall not be entitled to claim any other amounts whatsoever in respect of such termination or cancellation of this Contract. The Employer shall be obliged to pay the Contractor as damages and/or loss of profit the lesser of:<br>9.2.4.1 An amount not exceeding 10% of the Contract Sum;<br>9.2.4.2 10% of the value of incomplete work; or<br>9.2.4.3 The Contractor's actual damage or loss as determined by the Employer after receipt of evidence substantiating any such damage or loss. |
| 9.3.2.2 | Amend Clause 9.3.2.2 as follows to delete the proviso on lien:<br>The ownership of Plant and unused materials brought onto the Site by the Contractor, and for which the Employer has not made any payment, shall revest to the Contractor and he shall, with all reasonable dispatch, remove from the Site such Plant, materials and all Construction Equipment and Temporary Works. |

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| 9.3.3 | Insert the following at the end of Clause 9.3.3<br><br>After cancellation of the Contract by the Contractor, the Contractor, when requested by the Employer to do so, shall not be entitled to refuse to withdraw from the Works on the grounds of any lien or a right of retention or on the grounds of any other right whatsoever. |
| 10.1.3.1 | Amend Clause 10.1.3.1 as follows to insert the word "Plant":<br><br>All facts and circumstances relating to the claims shall be investigated as and when they occur or arise. For this purpose, the Contractor shall deliver to the Engineer, records in a form approved by the Engineer, of all the facts and circumstances which the Contractor considers relevant and wishes to rely upon in support of his claims, including details of all Construction Equipment, labour, Plant and materials relevant to each claim. Such records shall be submitted promptly after the occurrence of the event giving rise to the claim. |
| 10.1.6 | Insert a new Clause 10.1.6 as follows:<br><br>If the Employer fails to give his ruling within the period referred to in Clause 10.1.5 he shall be deemed to have given a ruling dismissing the claim. |
| 10.2.1 | Amend Clause 10.2.1 as follows:<br><br>In respect of any matter arising out of or in connection with the Contract, which is not required to be dealt with in terms of Clause 10.1 or which does not require the decision or ruling of the Employer, the Contractor or the Employer shall have the right to deliver a written dissatisfaction claim to the Engineer. This written claim shall be supported by particulars and substantiated. |
| 10.2.2 | Amend Clause 10.2.2 as follows:<br><br>If, in respect of any matter arising out of or in connection with the Contract, which is not required to be dealt with in terms of Clause 10.1 or which does not require the decision or ruling of the Employer, the Contractor or the Employer fails to submit a claim within 28 days after the cause of dissatisfaction, he shall have no further right to raise any dissatisfaction on such matter. |
| 10.3.2 | Amend Clause 10.3.2 as follows to replace "adjudication" with "court":<br><br>If either party shall have given notice in compliance with Clause 10.3.1, the dispute shall be referred to court proceedings in terms of Clause 10.8, unless amicable settlement is contemplated. |
| 10.3.3 | Replace "Engineer" with "Employer". |
| 10.4.2 | Amend Clause 10.4.2 as follows to provide for submission to court:<br><br>If the other party rejects the invitation to amicable settlement in writing or does not respond in writing to the invitation with 14 days, or amicable settlement is unsuccessful, either party may submit the dispute to court. |
| 10.4.4 | Amend Clause 10.4.4 to delete reference to "adjudication" and "arbitration" to read as follows:<br><br>Save for reference to any portion of any settlement or decision which has been agreed to be final and binding on the parties, no reference shall be made by or on behalf or either party in any subsequent court proceedings, to any outcome of an amicable settlement, or to the fact that any particular evidence was given, or to any submission, statement or admission made in the course of the amicable settlement. |
| 10.5<br>10.6<br>& 10.7 | The entire provisions of these Clauses are not applicable to this Contract. |
| 10.10.3 | Amend Clause 10.10.3 as follows to reword and remove reference to "arbitrator":<br><br>The court shall have full power to open up, review and revise any ruling, decision, order, instruction, |

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| | certificate or valuation of the Engineer and Employer and neither party shall be limited in such proceedings before such court to the evidence or arguments put before the Engineer or Employer for the purpose of obtaining his ruling. |

| | **PART 2: DATA PROVIDED BY THE CONTRACTOR** |
|---|---|
| 1.1.1.9 | The name of the Contractor is: |
| 1.2.1.2 | The address of the Contractor is:<br>Physical Address:<br><br>Postal Address:<br><br>Facsimile:<br>Telephone: |
| 6.2.1 | The security to be provided by the Contractor shall be one of the following:<br>(a) Cash deposit of 10 % of the Contact Sum (excl. VAT) ☐ **YES** or ☐ **NO**<br>(b) Variable performance guarantee of 10 % of the Contract Sum (excl. VAT) ☐ **YES** or ☐ **NO**<br>(c) Retention of 10 % of the value of the Works (excl. VAT) ☐ **YES** or ☐ **NO**<br>(d) Cash deposit of 5 % of the Contract Sum (excl. VAT) plus retention of 5 % of the value of the Works (excl. VAT) ☐ **YES** or ☐ **NO**<br>(e) Performance guarantee of 5 % of the Contract Sum (excl. VAT) plus retention of 5 % of the value of the Works (excl. VAT) ☐ **YES** or ☐ **NO**<br>***NB: Guarantees submitted must be issued by either an insurance company duly registered in terms of the Short-Term Insurance Act, 1998 (Act 53 of 1998) or by a bank duly registered in terms of the Banks Act, 1990 (Act 94 of 1990) on the pro-forma referred to above. No alterations or amendments of the wording of the pro-forma will be accepted.*** |

# C1.3

# Form of Guarantee

public works
Department:
Public Works
REPUBLIC OF SOUTH AFRICA

# DPW-10.4 (EC): FIXED CONSTRUCTION GUARANTEE - (GCC (2010) 2nd EDITION: 2010)

Director-General
Department of Public Works
Government of the Republic of South Africa

To: ***Department of Public Works***
Private Bag ***X9469***
***Polokwane***
***0700***

Sir,

## FIXED CONSTRUCTION GUARANTEE FOR THE EXECUTION OF A CONTRACT IN TERMS OF GCC (2010) 2ND EDITION 2010

1. With reference to the contract between _____

_____ (hereinafter referred to as the "**contractor"**) and the Government of the Republic of South Africa in its Department of Public Works (hereinafter referred to as the **"employer"**), Contract/Tender No: ***PLK 23/05***, for the ***Thohoyandou Correctional Centre: Kitchen Upgrading, Replacement of Kitchen Equipment as Well as Temporary Kitchen: Medium B*** (hereinafter referred to as the **"contract"**), for the sum of R ***amount***, ( ***amount in words***), (hereinafter referred to as the **"contract sum"**).

I / We, _____

in my/our capacity as _____and hereby

representing _____ (hereinafter referred to as the "**guarantor"**) advise that the **guarantor** holds at the e**mployer**'s disposal the sum of R , ( ***amount in words***) being 5% of the **contract sum** (excluding VAT), for the due fulfillment of the **contract**.

2. The **guarantor** hereby renounces the benefits of the exceptions *non numeratae pecunia; non causa debiti; excussionis et divisionis;* and *de duobus vel pluribus reis debendi* which could be pleaded against the enforcement of this guarantee, with the meaning and effect whereof I/we declare myself/ourselves to be conversant, and undertake to pay the **employer** the amount guaranteed on receipt of a written demand from the **employer** to do so, stating that (in the **employer**'s opinion and sole discretion):

   (a) the **contractor** has failed or neglected to comply with the terms and/or conditions of the **contract**; or
   (b) the **contractor**'s estate is sequestrated; liquidated or surrendered in terms of the insolvency laws in force within the Republic of South Africa.

3. Subject to the above, but without in any way detracting from the **employer**'s rights to adopt any of the procedures provided for in the **contract**, the said demand can be made by the **employer** at any stage prior to the expiry of this guarantee.

4. The amount paid by the **guarantor** in terms of this guarantee may be retained by the **employer** on condition that upon the issue of the last **final approval certificate**, the **employer** shall account to the **guarantor** showing how this amount has been expended and refund any balance due to the **guarantor**.

5. The **employer** shall have the absolute right to arrange his affairs with the **contractor** in any manner which the **employer** deems fit and the **guarantor** shall not have the right to claim his release on account of any conduct alleged to be prejudicial to the **guarantor**. Without derogating from the aforegoing, any compromise, extension of the construction period, indulgence, release or variation of the **contractor**'s obligation shall not affect the validity of this guarantee.

6. The **guarantor** reserves the right to withdraw from this guarantee at any time by depositing the guaranteed amount with the **employer**, whereupon the **guarantor**'s liability ceases.

7. This guarantee is neither negotiable nor transferable, and

   (a) must be surrendered to the **guarantor** at the time when the **employer** accounts to the **guarantor** in terms of clause 4 above, or

   (b) shall lapse on the date of the last **certificate of completion** of works.

8. This guarantee shall not be interpreted as extending the **guarantor**'s liability to anything more than the payment of the amount guaranteed.

**SIGNED AT _____ ON THIS _____ DAY OF**

**_____ 20____.**

**AS WITNESS**

**1.** _____

**2.** _____

_____

**By and on behalf of**

_____

_____

_____

**(insert the name and physical address of the guarantor)**

**NAME:** _____

**CAPACITY:** _____
**(duly authorised thereto by resolution attached marked Annexure A)**

**DATE:** _____

**A. No alterations and/or additions of the wording of this form will be accepted.**

**B. The physical address of the guarantor must be clearly indicated and will be regarded as the guarantor's *domicilium citandi et executandi*, for all purposes arising from this guarantee.**

**C. This GUARANTEE must be returned to:** _____

_____

# DPW-10.2 (EC): VARIABLE CONSTRUCTION GUARANTEE – (GCC (2010) 2nd EDITION: 2010)

Director-General
Department of Public Works
Government of the Republic of South Africa

To: ***Department of Public Works***
Private Bag ***X9469***
***Polokwane***
***0700***

Sir,

## VARIABLE CONSTRUCTION GUARANTEE FOR THE EXECUTION OF A CONTRACT IN TERMS OF GCC (2010) 2nd EDITION 2010

1. With reference to the contract between _____

   _____ (hereinafter referred to as the **"contractor"**) and the Government of the Republic of South Africa in its Department of Public Works (hereinafter referred to as the **"employer"**), Contract/Tender No: ***PLK 23/05***, for the ***Thohoyandou Correctional Centre: Kitchen Upgrading, Replacement of Kitchen Equipment as Well as Temporary Kitchen: Medium B*** (hereinafter referred to as the **"contract"**) for the sum of R , ( ***in words***), (hereinafter referred to as the **"contract sum"**).

   I / We, _____

   in my/our capacity as _____ and hereby

   representing _____ (hereinafter referred to as the **"guarantor"**) advise that the **guarant**or holds at the **employer**'s disposal the sum of R , ( ***amount in words***) being 10% of the **contract sum** (excluding VAT), for the due fulfilment of the **contract**.

2. I / We advise that the **guarantor**'s liability in terms of this guarantee shall be as follows:

   (a) From and including the date on which this guarantee is issued and up to and including the day before the date on which the last **certificate of completion** of works is issued, the **guarantor** will be liable in terms of this guarantee to the maximum amount of 10% of the **contract sum** (excluding VAT);

   (b) The **guarantor**'s liability shall reduce to 5 % of the **value of the works** (excluding VAT) as determined at the date of the last **certificate of completion** of works, subject to such amount not exceeding 10% of the **contract sum** (excluding VAT);

   (c) This guarantee shall expire on the date of the last **final approval certificate**.

3. The **guarantor** hereby renounces the benefits of the exceptions *non numeratae pecunia; non causa debiti; excussionis et divisionis;* and *de duobus vel pluribus reis debendi* which could be pleaded against the enforcement of this guarantee, with the meaning and effect whereof I/we declare myself/ourselves to be conversant, and undertake to pay the **employer** the amount guaranteed on receipt of a written demand from the **employer** to do so, stating that (in the **employer**'s opinion and sole discretion):

   (a) the **contractor** has failed or neglected to comply with the terms and/or conditions of the **contract**; or
   (b) the **contractor**'s estate is sequestrated, liquidated or surrendered in terms of the insolvency laws in force within the Republic of South Africa.

4. Subject to the above, but without in any way detracting from the **employer**'s rights to adopt any of the procedures provided for in the **contract**, the said demand can be made by the **employer** at any stage prior to the expiry of this guarantee.
5. The amount paid by the **guarantor** in terms of this guarantee may be retained by the **employer** on condition that upon issue of the last **final approval certificate**, the **employer** shall account to the **guarantor** showing how this amount has been expended and refund any balance due to the **guarantor**.
6. The **employer** shall have the absolute right to arrange his affairs with the **contractor** in any manner which the **employer** deems fit and the **guarantor** shall not have the right to claim his release on account of any conduct alleged to be prejudicial to the **guarantor**. Without derogating from the aforegoing, any compromise, extension of the construction period, indulgence, release or variation of the **contractor**'s obligation shall not affect the validity of this guarantee.
7. The **guarantor** reserves the right to withdraw from this guarantee at any time by depositing the guaranteed amount with the **employer**, whereupon the **guarantor**'s liability ceases.
8. This guarantee is neither negotiable nor transferable, and
   (a) must be surrendered to the **guarantor** at the time when the **employer** accounts to the **guarantor** in terms of clause 5 above, or
   (b) shall lapse in accordance with clause 2 (c) above.
9. This guarantee shall not be interpreted as extending the **guarantor**'s liability to anything more than payment of the amount guaranteed.

**SIGNED AT _____ ON THIS _____ DAY OF**

**_____ 200__**

**AS WITNESS**

**1.** _____

**2.** _____

_____

**By and on behalf of**

_____

_____

_____

**(insert the name and physical address of the guarantor)**

**NAME:** _____

**CAPACITY:** _____
**(duly authorised thereto by resolution attached marked Annexure A)**

**DATE:** _____

**A. No alterations and/or additions of the wording of this form will be accepted.**

**B. The physical address of the guarantor must be clearly indicated and will be regarded as the guarantor's *domicilium citandi et executandi,* for all purposes arising from this guarantee.**

**C. This GUARANTEE must be returned to: _____**

_____

# C3

# Scope of Works

## HIV/AIDS Specifications
## Health & Safety Specifications
## EPWP Guidelines

# PG-01.1 (EC) SCOPE OF WORKS – (GCC (2010) 2nd EDITION: 2010)

| | | | |
|---|---|---|---|
| **Project title:** | ***Thohoyandou Correctional Centre: Kitchen Upgrading, Replacement of Kitchen Equipment as Well as Temporary Kitchen: Medium B*** | | |
| **Tender no:** | PLK 23/05 | **Reference no:** | *6054/0011* |

## C3. Scope of Works

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**NOTE: This is an example only. Compiler / Designer to provide the applicable contents.**

**B: AMENDMENTS TO THE PARTICULAR SPECIFICATIONS**

-

### C3.3 PARTICULAR SPECIFICATIONS

-

### C3.4 STANDARD SPECIFICATIONS:

The standard specifications on which this contract is based are the **South African Bureau of Standards Standardized Specifications for Civil Engineering Construction SABS 1200.** *(Note to compiler. "SABS" has been changed to "SANS"; the SABS 1200 specifications are due to be replaced in the foreseeable future by SANS 2100)*

Although not bound in nor issued with this Document, the following Sections of the Standardized Specifications of SABS 1200 shall form part of this Contract:

A - 1986 - GENERAL / D – (etc, to be provided by compiler)

## 3.5 PROJECT SPECIFICATIONS:

**Status**

The Project Specification, consisting of two parts, forms an integral part of the contract and supplements the Standard Specifications.

Part1 A contains a general description of the works, the site and the requirements to be met.

Part B contains variations, amendments and additions to the Standardized Specifications and, if applicable, the Particular Specifications.

In the event of any discrepancy between a part or parts of the Standardised of Particular Specifications and the Project Specification, the Project Specification shall take precedence. In the event of a discrepancy between the specifications, (including the Project Specifications) and the drawings and / or the Bill of Quantities, the discrepancy shall be resolved by the Engineer before the execution of the work under the relevant item.

### 3.5.1 GENERAL

**PS-1 PROJECT DESCRIPTION:**

***Thohoyandou Correctional Centre: Kitchen Upgrading, Replacement of Kitchen Equipment as Well as Temporary Kitchen: Medium B***

### 3.5.2 AMENDMENTS TO THE STANDARD AND PARTICULAR SPECIFICATION:

-

### C3.5.3 PARTICULAR SPECIFICATIONS:

-

## C3.6 STANDARD MINIMUM REQUIREMENTS

In terms of section 5(2) of the Construction Industry Development Board Act, 2000 (Act no. 38 of 2000) (the Act), the Construction Industry Development Board is empowered to establish and promote best practice standards, Standard Requirements and Guidelines which includes the following but not limited to:

C3.61 cidb Best Practice: Green Building Certification, No. 34158 Government Gazette, 1 April 2011

C3.6.2 cidb Standard for Developing Skills through Infrastructure Contracts, No. 36760 Government Gazette, 23 August 2013

C3.6.3 cidb Standard for Indirect Targeting for Enterprise Development through Construction Works Contracts, No 36190 Government Gazette, 25 February 2013

C3.6.4 Preferential Procurement Policy Framework Act, 2000: Preferential Procurement Regulations, 2017, No. 40553 Government Gazette, 20 January 2017

C3.6.5 cidb Standard for Contract Participation Goals for Targeting Enterprises and Labour through Construction Works Contracts, No. 41237 Government Gazette,10 November 2017

C3.6.6 cidb Standard for Minimum Requirements for Engaging Contractors and Sub-Contractors on Construction Works Contracts, No. 41237 Government Gazette, 10 November 2017

C3.6.7 cidb Standard for Minimum Requirements for Engaging Contractors and Sub- Contractors on Construction Works Contracts, No. 42021 Government Gazette, 9 November 2018

C3.6.8 cidb Standard for Developing Skills through Infrastructure Contracts, No. 43495 Government Gazette, 3 July 2020

## C3.7 CONTRACT PARTICIPATION GOALS AND CIDB BUILD PROGRAMME

The contractor shall achieve in the performance of the contract the following Contract Participation Goals (CPGs) as indicated below. Provision for pricing of compliance with the achieving the CPGs is made in the Contract Participation Goal Section of the Bills of Quantities and it is explicitly pointed out that all requirements in respect of the aforementioned are deemed to be priced thereunder and no additional claims in this regard shall be entertained:

### C3.7.1 Minimum Thirty Percent (30%) Mandatory Sub-contracting Contract Participation Goal

**MINIMUM THIRTY PERCENT (30%) MANDATORY SUBCONTRACTING TO SMMES: IMPLEMENTATION OF PREFERENCIAL PROCUREMENT RGULATIONS 2017**

**30% Mandatory subcontracting is *applicable* to this project.**

It is the requirement of the employer that the contractor enhances the use of local Small, Micro and Medium Enterprises (SMME's) in executing this contract, irrespective whether the 30% Participation Goal is applicable or not.

The thirty percent (30%) mandatory Sub-contracting shall be achieved in the execution of the contract. in terms of in accordance with the Preferential Procurement Policy Framework Act, 2000: Preferential Procurement Regulations, 2017 as published in the Government Gazette Notice No. 40553 of 20 January 2017.

(a) SMME's involvement of at least **30% (Thirty Percent)** of the tender amount at the time of tender to be sourced from within **25 kilometerskm** radius of the project site with the intention to maximize use of local SMMEs within **insert applicable Ward/s, Municipal District, Town, City, Province**,
(b) SMME's involvement of at least **insert applicable percentage, both in words and figures** of the Tender Value to be sourced from within **insert applicable kilometerskm** radius of the project site.

Bidders are cautioned not to under-price items earmarked to be executed by SMMEs as adjustment to too low rates will not be entertained by the Employer.

Bidders to sub-contract a minimum of thirty percent (30%) of the tender amount including VAT at the time of tender (All inclusive, Including VAT). to any one or more of the following categories:

a. An EME or QSE
b. An EME or QSE which is at least 51% owned by black people
c. An EME or QSE which is at least 51% owned by black people who are youth
d. An EME or QSE which is at least 51% owned by black people who are women
e. An EME or QSE which is at least 51% owned by black people with disabilities
f. An EME or QSE which is at least 51% owned by black people living in rural or underdeveloped areas or townships
g. A co-operative which is at least 51% owned by black people
h. An EME or QSE which is at least 51% owned by black people who are Military veterans
i. More than one of the categories referred to in paragraphs (a) to (h).

Bidders to refer to the CSD for a list of prospective sub-contractors provided with the tender. The bidder to refer to the CSD website should the list provided be insufficient.

**Bidders must ensure that the sub-contractors conform to the following:**

a. Possess relevant accreditation where applicable;
b. Be registered with relevant bodies (CIDB, various Councils, etc.) where applicable;

c. Possess necessary capabilities to deliver the sub-contracted work;
d. Meet the requirements in terms of the stipulated designated groups; and
e. Geographical located at the place where the project will be delivered. Geographical location must be determined using the following criteria:
   - Relevant Ward. If not available;
   - Relevant neighbouring Wards. If not available;
   - Relevant Local Municipality. If not available;
   - Relevant District Municipality. If not available;
   - Relevant Metro. If not available;
   - Relevant Province. If not available;
   - Relevant Neighbouring Province. And If not available;
   - Anywhere within the borders of South Africa .

It is the bidder's responsibility to source alternative SMMEs should the parties with whom agreements were entered into at the time of tendering either no longer exist or do not perform or render work of an acceptable standard, subject to the approval by the Employer. Failure to achieve the **minimum thirty percent (30%)** SMME participation based on the tender amount including VAT, will result in a **insert applicable percentage, both in words and figures** penalty on the amount of work on which there is no compliance (Excluding VAT), unless the contractor can prove to the Employer's satisfaction that the non-achievement was beyond his/her control.

The bidder shall submit monthly reports in terms of monthly achievement and accumulative targets achieved including audited supporting documentation to the Employer's Representative.

The bidder shall submit monthly reports in terms of monthly achievement and accumulative targets achieved including audited supporting documentation to the Employer's Representative.

### C3.7.2 Minimum Targeted Local Material Manufacturer Contract Participation Goal

**The Minimum Targeted Local Building Material Manufacturers CPG is *Not appliacble* to this project.**

It is the requirement of the employer that the contractor enhances the use of local Small, Micro and Medium Enterprise Local Material Manufacturers (SMME's) in executing this contract, irrespective whether a minimum percentage Participation Goals is applicable or not.

The Minimum Targeted Local Manufacturers of Material Contract Participation Goal, in accordance with the cidb Standard for Contract Participation Goals for Targeting Enterprises and Labour through Construction Works Contracts as published in the Government Gazette Notice No. 41237 of 10 November 2017, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020.

A Targeted Local Material Manufacturer is a targeted enterprise that operates or maintains a factory or establishment that produces on its premises materials or goods required by the principal contractor for the performance of the contract.
Note: Adapted from SANS 10845-7:2015, definition 2.13

Preference shall be given to the Targeted Local Material Manufacturer where feasible in **(N/A)**, and provided that:
(a) Such materials comply in all respects with the specific requirements of PW371 and SANS specifications,
(b) The non-availability of such materials shall not adversely affect the desired progress of the specific works,
(c) The use of such suppliers shall not constitute grounds for any claim for increased cost in respect thereof,
(d) Materials of at least **(N/A)** of the total value of materials purchased excluding VAT to be sourced from within **(N/A) km** radius of the project site,
(e) Material of at least **insert applicable percentage, both in words and figures** of the total value of materials purchased excluding VAT to be sourced from within **insert applicable kilometerskm** radius of the project site.

Failure to achieve the minimum **insert applicable percentage, both in words and figures** Targeted Local Material Manufacturer participation expressed as a percentage of the original tender amount, excluding allowances and VAT, will result in a **insert applicable percentage, both in words and figures** penalty of the prorate targeted value of materials not complied with unless the contractor can prove to the Employer's satisfaction that the non-achievement was beyond his/her control.

The bidder shall submit monthly reports in terms of monthly achievement and accumulative targets achieved including audited supporting documentation to the Employer's Representative.

### C3.7.3 Minimum Targeted Local Building Material Suppliers Contract Participation Goal

**The Minimum Targeted Local Building Material Suppliers CPG is *Not applicable* to this project.**

It is the requirement of the employer that the contractor enhances the use of local Small, Micro and Medium Enterprise Local Material Suppliers (SMME's) in executing this contract, irrespective whether a minimum percentage Participation Goals is applicable or not.

The Minimum Targeted Local Manufacturers of Material Contract Participation Goal shall be achieved in accordance with the cidb Standard for Contract Participation Goals for Targeting Enterprises and Labour through Construction Works Contracts as published in the Government Gazette Notice No. 41237 of 10 November 2017, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract..

A targeted supplier is a targeted enterprise that

a) owns, operates or maintains a store, warehouse or other establishment in which goods are bought, kept in stock and regularly sold to wholesalers, retailers or the public in the usual course of business; and

b) engages, as its principal business and in its own name, in the purchase and sale of goods.

Note: Adapted from SANS 10845-7:2015, definition 2.14

Preference shall be given to the local material suppliers where feasible in the **(N/A)**, and provided that:

(a) Such materials comply in all respects with the specific requirements of PW371 and SANS specifications,

(b) The none availability of such materials shall not adversely affect the desired progress of the specific works,

(c) The use of such suppliers shall not constitute grounds for any claim for increased cost in respect thereof,

(d) Materials of at least **(N/A)** of the total value of materials purchased excluding VAT to be sourced from within **(N/A)** of the project site,

(e) Material of at least **(N/A)** of the total value of materials purchased excluding VAT to be sourced from within **(N/A)km** of the project site.

Failure to achieve the minimum **(N/A)** Targeted Local Material Manufacturer participation expressed as a percentage of the original tender amount, excluding allowances and VAT, will result in a **(N/A)** penalty of the prorate targeted value of materials not complied with, unless the contractor can prove to the Employer's satisfaction that the non-achievement was beyond his/her control.

The bidder shall submit monthly reports in terms of monthly achievement and accumulative targets achieved including audited supporting documentation to the Employer's Representative.

### C3.7.4 Minimum Targeted Local Labour Skills Development Contract Participation Goal

**The Minimum Targeted Local Labour Skills Development CPG is *not applicable* to this project.**

It is the requirement of the employer that the contractor enhances the use of local labour in executing this contract. This is required to be done through the use of both traditional building techniques and labour-intensive construction techniques careful and considered construction planning and

implemented in the project irrespective whether a minimum percentage Participation Goal is applicable or not.

The Minimum Targeted Local Skills Development Contract Participation Goal shall be achieved in accordance with the cidb Standard for Contract Participation Goals for Targeting Enterprises and Labour through Construction Works Contracts as published in the Government Gazette Notice No. 41237 of 10 November 2017, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract..

Targeted labour: individuals who:

a) are employed by the principal contractor, sub-contractor or targeted enterprises in the performance of the contract;
b) are defined as the target group in the targeting data; and
c) permanently reside in the target area or who are recognized as being residents of the target area on the basis of identification and association with and recognition by the residents of the target area.

Adapted from SANS 10845-7:2015, definition 2.12

Targeting of labour by skills categories is only permissible within categories of semi-skilled and unskilled labour.

Contract participation goals for semi-skilled and unskilled labour shall be limited to on-the-job training to targeted labour to enable such labour to master the basic work techniques required to undertake the work in accordance with the requirements of the contract and in a manner that does not compromise worker health and safety. In the case of targeted labour, the certification of records shall be in accordance with SANS 10845-8.

Beneficiaries will be sourced from the **(N/A)** for the full duration of the Construction Period, employed by either the principal contractor, sub-contractors or targeted enterprises. The total number of working days to complete the Works amount to **(N/A)** working days. The minimum CPG participation for Targeted Local Labour Skills Development is **(N/A)** expressed as a percentage of the total number of working days required to complete the Works. The contractor shall attain or exceed the CPG in the performance of the contract. Failure to achieve the minimum Targeted Local Labour Skills Development CPG will result in a payment reduction of **R5 000** (Excluding VAT), per working day which training has not been provided to the workforce in attendance, unless the contractor can prove to the Employer's satisfaction that the non-achievement was beyond his/her control.

The bidder shall submit monthly reports in terms of monthly achievement and accumulative targets achieved including audited supporting documentation to the Employer's Representative.

### C3.7.5 CIDB BUILD PROGRAMME: Minimum Targeted Enterprise Development Contract Participation Goal

**The Minimum Targeted Enterprise Development CPG is *not applicable* to this project.**

The aim of this best practice standard for indirect targeting for enterprise development in accordance with the Standard for Indirect Targeting for Enterprise Development (published in Government Gazette 36190 of 25 February 2013), as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract. is to promote enterprise development by providing for a minimum contract participation goal (CPG) of **five percent (5%)** of the contract amount as defined in the Standard (Tender amount, excluding allowances and VAT on selected contracts to be undertaken by joint-venture partners or to be sub-contracted to developing contractors that are also to be beneficiaries of enterprise development support from the main contractor.

The lead partner or main contractor shall dedicate a **minimum five percent (5%)** of the tender value at the time of award, excluding allowances and VAT, to provide developmental support to targeted subcontractor or joint venture partner applicable to contracts in Grades 7 to 9, General Building and Civil Engineering contracts. Preference will be given to (N/A) Enterprises.

The contractor shall attain or exceed the enterprise development goal in the performance of the contract. Failing to achieve the Participation Goal will result in A) a thirty percent (30%) penalty of the value not achieved, excluding VAT, unless the contractor can prove to the Employer's satisfaction that the non-achievement was beyond his/her control.

The bidder shall submit monthly reports in terms of monthly achievement and accumulative targets achieved including audited supporting documentation to the Employer's Representative.

C3.7.5.1 Criteria

The main or lead partner of the successful bidder shall:

(a) There must be a needs analysis for indirect targeting and development or skill standard and should be development in at least any two developmental areas namely;

- Administrative and cost control systems
- construction management systems and plans
- planning, tendering and programming
- business; technical; procurement skills
- legal compliance
- credit rating/history; financial loan capacity/history
- contractual knowledge

(b) The above needs analysis shall be mutually agreed upon between contractor and targeted enterprise

(c) The contractor shall appoint an enterprise development coordinator to:

- perform needs analysis on the targeted enterprise to identify developmental goals
- develop a project specific enterprise development plan to improve the targeted enterprise/s performance in the identified developmental areas
- provide internal mentorship support to improve the targeted enterprise/s performance
- monitor and submit to the employer's representative a monthly enterprise development report thereby reporting on the progress of the agreed development areas with the targeted enterprise/s
- submit a project completion report to the Employer's representative for each targeted enterprise.

C3.7.5.2 Management

The contractor shall provide a competent person/s to provide internal mentorship to the Targeted Enterprise/s in the two agreed developmental areas.

C3.7.5.3 Competence Criteria for an Enterprise Development Co-ordinator

The enterprise development co-ordinator shall have the following competencies:

- Minimum experience of 5 years in the construction industry at Managerial level as a Site Agent, Contracts Manager, Site Manager, Construction Manager, Business Development Manager or Enterprise Development Manager.
- Minimum experience of 2 years in training and development in Building or Construction; and
- National Diploma or B Degree in the Built Environment or Business Management

C3.7.5.4 Format of Communications

The contractor shall submit to the Employer's Representative:

- *Project interim reports* in the specified format **(ED105P)** detailing interim values of the CPG that was achieved together with an assessment of the enterprise development support provided should be tabled and discussed at least monthly at progress meetings between employer's representative and the contractor;
- *Project completion report* in the specified format **(ED101P)** to the Employer's Representative for acceptance within 15 days of achieving practical completion. The report shall include the value of the CPG that was certified in accordance with the contract, cidb registration numbers of each and every targeted enterprise, and the value of the subcontracted works or of the joint venture entered into; and the participation parameter
- *Enterprise development declaration (**ED104P**).*

C3.7.5.5 The Key Personal

The contractor shall appoint an Enterprise Development Co-ordinator and a competent person/s to provide internal mentorship.

C3.7.5.6 Management Meetings

The contractor shall report to the Employer's Representative on the implementation and progress of the targeted enterprise development and CPG at monthly progress site meetings.

C3.7.5.7 Forms for contract administration

The contractor shall submit to the Employer's Representative the following proformas:

- Form ED 105P Project Interim Report
- Form ED 104P Enterprise Development Declaration
- Form ED 101P Project Completion Report

C3.7.5.8 Records

The contractor shall:

- keep records of the targeted enterprise development
- keep records of the payments made to the targeted enterprises in relation to the CPG.
- ensure all the documentation required in terms of the Standard is provided with each monthly progress payment certificate and according to a prescribed format where applicable.

C3.7.5.9 Payment Certificates

The contractor shall:

- achieve the measurable CPG and providing enterprise development support to the targeted enterprise/s as per the Standard.
- submit payment certificates to the Employer Representative at intervals determined in the Contract.

C3.7.5.10 Compliance requirements

**Non-compliance with the Best Practice Project Assessment Scheme**

The wording of regulation 27A of the cidb regulations makes provision for the Board to enforce the cidb code of conduct in the event of clients being found to be in breach of the best practice project assessment scheme.

- Not including the requirements of the cidb standards in the conditions of tender
- Not registering the award of contract on the cidb Register of Projects (RoP)
- Not reporting practical completion on the cidb Register of Projects (RoP)

3.7.6 **CIDB BUILD PROGRAMME: Minimum Targeted Contract Skills Development Goal (CSDG)**

**The Minimum Targeted Contract Skills Development CPG is *not applicable* to this project.**

The contractor shall achieve or exceed in the performance of the contract the Contract Skills Development Goal (CSDG) established in the Standard for Developing Skills through Infrastructure Contracts (published in Government Gazette No 43495 of 3 July 2020, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract.

Failing to achieve the targeted Contract Skills Development Goal will result in A) a **thirty percent (30%)** penalty of the value of the portion not achieved, excluding VAT, and B) the issuing of completion certificates only after the completion certificate of achieving the skills development goal, counter-signed by the relevant individuals has been submitted, unless the contractor can prove to the Employer's satisfaction that the non-achievement was beyond his/her control.

The contractor shall apportion the learners in the different construction activities based on the scope of work. The cost of accommodating learners will be determined by using Table 3 in the Standard and this cost will be used to determine the value in Rand and will be added to the provision for training as provided for in the Preliminary and General section in the Bill of Quantities/Pricing schedules/Activity schedule.

C3.7.6.1 Methodology

The contractor shall achieve the measurable contract skills development goal by providing opportunities to learners requiring structured workplace learning using one or a combination of any of the following in relation to work directly related to the contract or order:

Method 1: structured workplace learning opportunities for learners towards the attainment of a part or a full occupational qualification;

Method 2: structured workplace learning opportunities for apprentices or other artisan learners towards the attainment of a trade qualification leading to a listed trade (GG No. 35625, 31 August 2012) subject to at least sixty percent (60%) of the artisan learners being holders of public TVET college qualifications;

Method 3: work integrated learning opportunities for University of Technology or Comprehensive University students completing their national diplomas;

Method 4: structured workplace learning opportunities for candidates towards registration in a professional category by a statutory council listed in Table 1 above.

The contract skills participation goals, expressed in Rand, shall not be less than the contract amount multiplied by a percentage (%) factor given in Table 2 in the Standard for the applicable class of construction works.

*Table 2: Contracting skills development goals for different classes of engineering and construction works contracts*

| **Class of construction works as identified in terms of Regulation 25 (3) of the Construction Industry Regulations 2004** | | **Construction skills development goal (CSDG) (%)** |
|---|---|---|
| **Designation** | **Description** | |

| | | |
|---|---|---|
| CE | Civil Engineering | 0.25 |
| CE and GB | Civil engineering and General Building | 0.375 |
| EE | Electrical Engineering works (buildings) | 0.25 |
| EP | Electrical Engineering works (infrastructure) | 0.25 |
| GB | General Building | 0.5 |
| ME | Mechanical Engineering works | 0.25 |
| SB | Specialist | 0.25 |

The contractor shall apportion the learners in the different construction activities based on the scope of work. The cost of accommodating learners will be determined by using Table 3 in the Standard and this cost will be used to determine the value in Rand and will be added to the provision for training as provided for in the Preliminary and General section in the Bill of Quantities/Pricing schedules/Activity schedule.

*Table 3: Notional Cost of Training per Headcount*

*Source: cidb Standard for Skills Development*

| Type of Training Opportunity | Provision for stipends (Unemployed learners only) | Provisions for mentorship | Provisions for additional costs* | Total costs | |
|---|---|---|---|---|---|
| | | | | Unemployed learners | Employed learners |
| **Method 1** | | | | | |
| **Occupational qualification** | **R7 000** | **R0** | **R9 000** | **R16 000** | **R9 000** |
| **Method 2** | | | | | |
| **TVET College graduates** | **R14 000** | **R0** | **R9 000** | **R23 000** | **N/A** |
| **Apprenticeship** | **R14 000** | **R0** | **R12 000** | **R26 000** | **R12 000** |
| **Method 3** | | | | | |
| **P1 and P2 learners** | **R24 000** | **R20 000** | **R4 500** | **R48 500** | **N/A** |
| **Method 4** | | | | | |
| **Candidates with a 3 year diploma** | **R37 000** | **R20 000** | **R4 500** | **R61 500** | **R20 000** |
| **Candidates with 4 year qualification** | **R47 000** | **R20 000** | **R4 500** | **R71 500** | **R20 000** |

*Note: the required CPG will be recalculated based on the awarded tender amount and "Contract amount" once the beneficiaries have been appointed and actual costs are known. The notional cost of providing training opportunities will increase by CPI on an annual basis based on April CPI. Should the rates increase after bid award or during construction the rates will be adjusted as a remeasuarble item.*

(a) (a) The successful contractor may employ part/full occupational qualification learners, trade qualification learners, work integrated learners or candidates directly or through a Skills Development Agency (SDA), (A1 - List of cidb accredited SDAs). (N/A)

(b) The successful contractor must employ at least sixty percent (60%) of the learners from an FET / TVET college should the contractor select to have part/full occupational qualification learners and trade qualification learners contributing to the CSDG.

(c) The successful contractor shall employ at least **(N/A)** from eligible part/full occupational qualification learners, trade qualification learners, work integrated learners or candidates in the employment of the employer.

(d) The successful contractor shall ensure that no single method shall contribute more than seventy five percent (75%) of the CSDG for the contract.

(e) The successful contractor may only place thirty three percent (33%) employed employees or that of his subcontractors contributing to the CSDG.

(f) The contractor shall employ at least sixty percent (60%) of the learners from a Public FET / TVET college should the contractor select to have trade qualification learners (Method 2) contributing to the CSDG.

(g) One of the objectives of the project is to train **(N/A)** Occupational qualifications, trade qualification, work integrated learners – P1 and P2 learners, professional candidates.

C3.7.6.2 Management

(a) The successful contractor must keep site records regarding the part/full occupational qualification learners', trade qualification learners', work integrated learners' or candidates' (delete that which is not applicable) progress, site attendance, hours worked and other relevant information as required by the Standard.

(b) The successful contractor shall provide the required number of appropriately qualified mentors to the maximum number of part/full occupational qualification learners, trade qualification learners, work integrated learners in the proportion as specified in the Standard.

(c) The successful contractor shall provide a supervisor to manage the training of the part/full occupational qualification learners, trade qualification learners, work integrated learners, candidates. (N/A)

(d) The successful contractor shall submit to the employer's representative a baseline training plan in the specified format (Pro-forma A2) for the part/full occupational qualification learners, trade qualification learners, work integrated learners, candidates (N/A) within 30 days of start of the contract.

(e) The successful contractor shall submit to the employer's representative project interim report in the specified format (Pro-forma A3) on the progress of each of part/full occupational qualification learner, trade qualification learner, work integrated learner, candidate (N/A) every three months.

(f) The successful contractor shall submit to the employer's representative the names and particulars in the specified format (Pro-forma A4) of the supervisor, mentors for the part/full occupational qualification learners, trade qualification learners, work integrated learners or candidates (N/A) within 30 days of start of the contract.

(g) The successful contractor shall keep a daily record of all the part/full occupational qualification learners, trade qualification learners, work integrated learners, candidates on site and their daily activities and shall be made available to the employer's representative on request.

(h) The successful contractor shall submit to the employer's representative the reports on the progress and status of the part/full occupational qualification learners, trade qualification learners, work integrated learners or candidates (N/A) with the monthly invoice for the payment certificate.

(i) The successful contractor shall have health and safety inductions for all part/full occupational qualification learners, trade qualification learners, work integrated learners or candidates (N/A).

(j) The successful contractor shall conduct entry and exit medical tests of all part/full occupational qualification learners, trade qualification learners, work integrated learners or candidates (N/A).

(k) The successful contractor shall provide personal protective equipment (PPE) to all part/full occupational qualification learners, trade qualification learners, work integrated learners or candidates (N/A) at the start of their employment on site.

(l) Based on the agreed skills methods the contractor may employ part/full Occupational Qualification Learners and /or Trade Qualification Learners and/or Work Integrated Learners and/or Candidates (N/A) directly or through a Skills Development Agency (SDA), training provider or skills development facilitator (Form A1 - List of cidb accredited SDAs). The contractor shall ensure that no more than one Method shall be applied to any individual concurrently in the calculation of the CSDG for the contract.

## C3.7.7 NATIONAL YOUTH SERVICE TRAINING AND DEVELOPMENT PROGRAMME (NYS)

**The National Youth Service Training and Development Programme is *applicable* to this project.**

The programme shall be implemented in terms of the Implementation of the National Youth Service Programme under the Expanded Public Works (EPWP) and shall be priced in the CPG section of the Bills of Quantities. Monthly reports are to be submitted to the Employer's Representative.

Failure by the contractors to achieve the specified number to be trained in the NYS section of the CPG section within the Bills of quantities will result in a payment reduction as per bill of quantities per person, excluding VAT unless the contractor can prove to the Employer's satisfaction that the non-achievement was beyond his/her control.

## C3.7.8 LABOUR-INTENSIVE WORKS

**Labour Intensive Works is *applicable* to this project.**

Where labour intensive work is specified in the Bill of Qualities and indicated by "LI" the contractor must price for and include in rates. Contractors are expected to use their initiative to identify additional activities that can be done labour-intensively to comply with the set minimum labour intensity target. Allowance must be made for submitting monthly reports illustrating the value of the works executed under Labour Intensive Works.

Failure by the contractor to achieve the specified value of the Labour Intensive Participation Goal as stipulated within the Bills of quantities will result in a thirty percent (30%) penalty of the value of the works not done by means of labour intensive methods, excluding VAT, unless the contractor can prove to the Employer's satisfaction that the non-achievement was beyond his/her control.

Employer's objectives:
The employer's objectives are to deliver public infrastructure using labour-intensive methods in accordance with EPWP Guidelines.

Labour-intensive works:
Labour-intensive works shall be constructed/maintained using local workers who are temporarily employed in terms of the scope of work. A **thirty percent (30%)** penalty of the value of the works will be imposed on items where unauthorised use of plant was used to carry out work which was to be done labour-intensively.

Labour-intensive competencies of supervisory and management staff:
Contractors shall only engage supervisory and management staff in labour-intensive works that have completed the skills programme including Foremen/ Supervisors at NQF level 4 "National Certificate: Supervision of Civil Engineering Construction Processes" and Site Agent/ Manager at NQF level 5 "Manage Labour-Intensive Construction Processes" or equivalent QCTO qualifications (See Appendix C) at NQF outlined in Table 1

### C3.7.8.1 GENERIC LABOUR-INTENSIVE SPECIFICATION

Contractors are referred to the Guidelines for the Implementation of Labour-intensive Infrastructure Projects under the Expanded Publics Works Programme (EPWP) for the generic labour-intensive specification applicable to the contract.

This specification establishes general requirements for activities which are to be executed by hand involving the following:

- trenches having a depth of less than 1.5 metres
- stormwater drainage
- roads
- sidewalks and non-motorised transport infrastructure

- water and sanitation

**Precedence**

Where this specification is in conflict with any other standard or specification referred to in the Scope of Works to this Contract, the requirements of this specification shall prevail

.

**Hand excavatable material**

Hand excavatable material is:

**a) granular materials:**

i) whose consistency when profiled may in terms of table 2 be classified as very loose, loose, medium dense, or dense; or

ii) where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 15 blows of a dynamic cone penetrometer is required to penetrate 100mm;

**b) cohesive materials:**

i) whose consistency when profiled may in terms of table 2 be classified as very soft, soft, firm, stiff and stiff / very stiff; or

ii) where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 8 blows of a dynamic cone penetrometer is required to penetrate 100mm;

**Note**

1) A boulder is material with a particle size greater than 200mm, a cobble and gravel is material between 60 and 200mm.

2) A dynamic cone penetrometer is an instrument used to measure the in-situ shear resistance of a soil comprising a drop weight of approximately 10 kg which falls through a height of 400mm and drives a cone having a maximum diameter of 20mm (cone angle of 60° with respect to the horizontal) into the material being used.

**Table 2: Consistency of materials when profiled**

| GRANULAR MATERIALS | | COHESIVE MATERIALS | |
|---|---|---|---|
| **CONSISTENCY** | **DESCRIPTION** | **CONSISTENCY** | **DESCRIPTION** |
| Very loose | Crumbles very easily when scraped with a geological pick. | Very soft | Geological pick head can easily be pushed in as far as the shaft of the handle. |
| Loose | Small resistance to penetration by sharp end of a geological pick. | Soft | Easily dented by thumb; sharp end of a geological pick can be pushed in 30-40 mm; can be moulded by fingers with some pressure. |
| Medium dense | Considerable resistance to penetration by sharp end of a geological pick. | Firm | Indented by thumb with effort; sharp end of geological pick can be pushed in up to 10 mm; very difficult to mould with fingers; can just be penetrated with an ordinary hand spade. |
| Dense | Very high resistance to penetration by the sharp end of a geological pick; requires many blows for excavation. | Stiff | Can be indented by thumb-nail; slight indentation produced by pushing geological pick point into soil; cannot be moulded by fingers. |
| Very dense | High resistance to repeated blows of a geological pick. | Very stiff | Indented by thumb-nail with difficulty; slight indentation produced by blow of a geological pick point. |

**Trench excavation**

All hand excavatable material in trenches having a depth of less than 1,5 metres shall be excavated by hand.

**Compaction of backfilling to trenches (areas not subject to traffic)**
Backfilling to trenches shall be placed in layers of thickness (before compaction) not exceeding 100mm. Each layer shall be compacted using hand stampers;
a) to ninety percent (90%) Mod AASHTO;
b) such that in excess of 5 blows of a dynamic come penetrometer (DCP) is required to penetrate 100 mm of the backfill, provided that backfill does not comprise more than ten (10%) gravel of size less than 10mm and contains no isolated boulders, or
c) such that the density of the compacted trench backfill is not less than that of the surrounding undisturbed soil when tested comparatively with a DCP.

**Excavation**
All excavatable material including topsoil classified as hand excavatable shall be excavated by hand. Harder material may be loosened by mechanical means prior to excavation by hand. Any material which presents the possibility of danger or injury to workers shall not be excavated by hand.

**Clearing and grubbing**
Grass and bushes shall be cleared by hand.

**Shaping**
All shaping shall be undertaken by hand.

**Loading**
All loading shall be done by hand. Haulage equipment should be selected in a manner that allows loading by hand to the greatest extent possible.

**Haul**
Excavation material shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150m.

**Offloading**
All material, however transported, is to be off-loaded by hand, unless tipper-trucks are utilised for haulage.

**Spreading**
All material shall be spread by hand.

**Compaction**
Small areas may be compacted by hand provided that the specified compaction is achieved. Appropriate rollers should be used where higher (than can be achieved by hand) levels of compaction are required or for large areas.

**Grassing**
All grassing shall be undertaking by sprigging, sodding, or seeding by hand.

**Stone pitching and rubble concrete masonry**
All stone required for stone pitching and rubble concrete masonry, whether grouted or dry, must to be collected, loaded, off loaded and placed by hand.
Sand and stone shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150m.
Grout shall be mixed and placed by hand.

**Manufactured Elements**
Elements manufactured or supplied by the Contractor, such as manhole rings and cover slabs, precast concrete planks and pipes, masonry units and edge beams shall not individually, have a mass of more than 320kg. Where the mass of an element exceeds 55 kg, consideration should be given to the size of the element relative to its total mass related to the number of workers who would be needed to lift such mass

### C3.8 Submission of Accrual Reports

The Contractor shall submit accrual reports to the client representative at the end of March and September each year for the duration of the Service Contract period from the date of appointment up to and including project closeout. This is to ensure that PMTE complies with the accounting framework GRAP, which requires that PMTE disclose all its accruals as at the end of each reporting date.

### C.3.9 Submission of Monthly Local Material Utilisation Report (Local Content)

The contractors shall be responsible for record keeping, documenting and submission of monthly local material utilization report with supporting documentation to the Employer's representative within 7 working days of the beginning of the successive month, in terms of DTI&C designated industry/sector/sub-sector schedule as per the PA36 and Annexures C attached to the tender document. The final percentage achievement to be reconciled upon completion of the project and form part of the final account.

Failure by the contractors to achieve the specified percentage of local content per designated industry/sector/sub-sector as listed will result in a thirty percent thirty percent (30%) penalty of the value not achieved, excluding VAT, unless the contractor can prove to the Employer's satisfaction that the non-achievement was beyond his/her control. Allowance must be made for submitting monthly reports illustrating the value of local material utilisation report.

**Examples of calculating CPGs and related penalties**

CPGs values are based on the Tender Amount at the time of the award. Determining the actual values is based either on the Tender Amount including allowances and Vat or the Tender Amount at the time of award excluding allowances and VAT, where Allowances include the following:

- Provisional amounts
- CPG allowances
- Nominated and/or selected subcontractors
- Contract price adjustment (Not provided for within the B of Q by NDPWI)
- Contingency amounts (Not provided for within the B of Q by NDPWI)

**CPG values in the CPG Bill of Quantities Section will be recalculated based on the "Tender Amount" or the "Contract Amount" which ever applicable and the provisional amounts adjusted accordingly. Sanctions (penalties) are applicable to all CPGs where the contractor fails to achieve the minimum specified requirements, unless the contractor can prove to the Employer's satisfaction that the non-achievement was beyond his/her control. No penalties will be applied should the CPG value, based on the original "Tender Amount" or the "Contract Amount", has been achieved.**

### 1.1. 30% SMME mandatory subcontracting CPG

When applicable, a minimum of 30% of the total tender amount at the time of award, including all allowances and VAT are to be subcontracted to SMMEs.

CPG calculation example:
"Tender Amount" = R150 mil
CPG 30% subcontracting value = R45 Mil

Calculation of penalty:
Percentage penalty applicable = 5% as specified in the Scope of Works (PG01.1)
CPG Achieved = R30 Mil (R15 Mil shortfall)
Penalty = R15 Mil x 5% = R750 000 Excl. VAT

### 1.2 Targeted Local Building Material Manufacturers CPG

When applicable, the CPG is expressed as a percentage of the "Contract Amount", i.e. the Tender Amount at the time of award excluding allowances and VAT.

CPG calculation example:
"Tender Amount" = R150 Mil all inclusive of allowances and VAT
"Contract Amount" = R130 Mil (Tender Amount at the time of award excluding allowances and VAT)
CPG to be achieved = 5% as specified in the Scope of Works (PG01.1)
CPG target value = R130 Mil x 5% = R 6,5 Mil (Value of material to be purchased from local manufacturers, excluding VAT)

Calculation of penalty:
Percentage penalty applicable = 10% as specified in the Scope of Works (PG01.1)
CPG target value = R6,5 Mil excluding VAT
CPG Achieved = R5,5 Mil (R1 Mil shortfall) excluding VAT
Penalty = R1 Mil x 10% = R100 000 excluding VAT

### 1.3 Targeted Local Building Material Suppliers CPG

When applicable, the CPG is expressed as a percentage of the "Contract Amount", i.e. the Tender Amount at the time of award excluding allowances and VAT.

CPG calculation example:
"Tender Amount" = R150 Mil all inclusive of allowances and VAT
"Contract Amount" = R130 Mil (Tender Amount at the time of award excluding allowances and VAT)
CPG to be achieved = 5% as specified in the Scope of Works (PG01.1)

CPG target value = R130 Mil x 5% = R 6,5 Mil (Value of material to be purchased from local suppliers, excluding VAT)

Calculation of penalty:
Percentage penalty applicable = 20% as specified in the Scope of Works (PG01.1)
CPG target value = R6,5 Mil excluding VAT
CPG Achieved = R5,5 Mil (R1 Mil shortfall) excluding VAT
Penalty = R1 Mil x 20% = R200 000 excluding VAT

### 1.4 Targeted Local Labour Skills Development CPG

When applicable, the CPG is expressed as a percentage of the total number working days required to complete the Works.

CPG calculation example:
"Tender Amount" = R150 Mil all inclusive of allowances and VAT
"Contract amount" = R130 Mil (Tender Amount at the time of award excluding allowances and VAT)
Number of working days required to complete the Works based on the construction period = 600 days
CPG percentage participation to be achieved = 30% as specified in the Scope of Works (PG01.1)
Required number of working days training to be provided = 180 days (600 x 30%)

Calculation of penalty:
Payment reduction = R 5 000 per day for not providing training as specified in the Scope of Works (PG01.1)
CPG = 600 working days x 30% = 180 working days training to be provided
CPG Achieved = 160 days (20 days shortfall where no training was provided)
Penalty = 20 days x R5 000 payment reduction per day= R100 000 excluding VAT

### 1.5 National Youth Service Programme (NYS) CPG

When applicable, a separate NYS Bill of Quantities will be included in the tender documentation will indicate the number of beneficiaries to be trained.

Calculation of penalty:
Payment reduction per person not trained as stipulated in the NYS Bill of Quantities = R 2 500 per person.
Total number of NYS Beneficiaries as stipulated in the NYS Bill of Quantities = 25
Total Number of NYS beneficiaries trained = 20 (shortfall of 5 beneficiaries)
Penalty = 5 x R2 500 = R12 500 Excl. VAT

### 1.6 Labour Intensive Works CPG

When applicable, the work to be done by way of Labour intensive methods are specified in the Bills of Quantities with a "LI".

CPG calculation example:
"Tender Amount" = R150 Mil all inclusive of allowances and VAT
"Contract Amount" = R130 Mil (Tender Amount at the time of award excluding allowances and VAT)
CPG value = R10 Mil (Total value of labour-intensive works specified in the Bills of Quantities)

Calculation of penalty:
CPG value = R10 Mil
Percentage penalty applicable = 30% as specified in the PG01.1 Scope of Work
CPG Achieved = 9 Mil (R1 Mil shortfall)
Penalty = R1 Mil x 30% = R300 000 Excl. VAT

### 1.7 Cidb BUILD Programme: Enterprise Development

When applicable, the Enterprise Development CPG expressed as a percentage of the "Contract amount" = Tender amount at the time of award excluding allowances and VAT. Failure to achieve the minimum Targeted Local Labour Skills Development CPG will result in a payment reduction of an amount specified in the Scope of Works (PG01.1) per working day where training was not provided.

The monetary value of training to be provided is stipulated in the CPG BoQ section. The number of beneficiaries to be trained is dependent on the "Contract Amount" as well the number of beneficiaries appointed which will generally resort under the Grade 1 and 2 cidb categories. The provisional amount will therefore be adjusted in terms of the "contract Amount", the number of beneficiaries to be trained and the actual cost for providing the training.

Part 1: Calculation of 5% CPG example:
"Tender Amount" = R150 Mil all inclusive of allowances and VAT
"Contract Amount" = R130 Mil (Tender Amount at the time of award excluding allowances and VAT)
CPG percentage participation to be achieved = 5% as specified in the Scope of Works (PG01.1)
CPG value = R6,5 Mil (Value of work to be subcontracted to emerging enterprises)

Calculation of penalty
Percentage penalty applicable = 30% as specified in the Scope of Works (PG01.1)
CPG Minimum 5% = R6,5 Mil
Achieved = R5,5 Mil (Only subcontracted work to the value of R5,5 Mil, i.e. R1 Mil shortfall)
Penalty = R1 Mil x 30% = R300 000 Excl. VAT

Part 2: Calculations in terms of training to be done:
The number of enterprises to be developed is subject to the contract amount and the apportionment of the work as per Example 1 below.
Number of enterprises to be trained = 6 x 1 GB subcontractors
Total cost for training = R 1 660 000

Calculation of penalty
Total number of enterprises to be trained = 6
Total number trained = 4 (2 Shortfall)
Training cost per beneficiary = R1 660 000 / 6 = R 276 666,67 per beneficiary
Penalty = R 276 666,67 x 2 x 30% = R166 000 Excl. VAT

| B of Q Item | Description | Unit | Rate | Quantity | Amount (R) |
|---|---|---|---|---|---|
| **5** | **Enterprise Development** | | | | |
| 5.1 | Enterprise Development of Targeted Enterprise or JV partners | | | | |
| 5.1.1 | Appointment of training co-ordinator | Per Quarter | 45 000 | 8 | 360 000 |
| 5.1.2 | Appointment of Mentor /Training Service provider | Per Quarter | 135 000 | 8 | 1 080 000 |
| 5.1.3 | Needs Analysis and Enterprise Development Plan per Targeted Enterprise | No. | 5 000 | 6 | 30 000 |
| 5.1.4 | Monitoring and Interim reporting per targeted enterprise | Per Quarter | 20 000 | 8 | 160 000 |
| 5.1.5 | Project Completion report per Targeted Enterprise | No. | 5 000 | 6 | 30 000 |
| | **Provisional Sum to be carried over to CPG bill of quantities** | | | | **1 660 000** |
| | "Contract amount" Tender amount excl. allowances and VAT. | 130 000 000 | | | |
| | CPG Monetary value (5%) to be subcontracted to beneficiaries for training | 6 500 000 | | | |
| | No of enterprises based on the CPG value | 6 | Grade 1 / 2 GB/CE,ETC. | | |
| | Contract period (months) | 24 | | | |

**Note: Rates to be determined by PQS and adjusted to accepted quotation amounts**

## 1.8 Cidb BUILD Programme: Skills Development (Principal contractor including subcontractors and consultants)

When applicable, the contract skills development participation goals, expressed in Rand, shall be no less than the "contract amount" multiplied by a percentage (%) factor for the applicable class of construction works.

The monetary value of training to be provided is stipulated in the CPG BoQ section. The number of beneficiaries to be trained is dependent on the "Contract Amount" as well the number of beneficiaries appointed which will generally resort under the Grade 1 and 2 cidb categories. The provisional amount will therefore be adjusted in terms of the "Contract Amount", the number of beneficiaries to be trained from which *Method* and the actual cost for providing the training.

## CPG Calculation

***Table 2: Contracting skills development goals for different classes of engineering and construction works contracts***

*Source: cidb Standard for Developing Skills through Infrastructure Contracts as published in the Government Gazette Notice No. 43495 of 3 July 2020 (Page 7)*

| Class of construction works as identified in terms of Regulation 25 (3) of the Construction Industry Regulations 2004 | | Construction skills development goal (CSDG) (%) |
|---|---|---|
| **Designation** | **Description** | |
| CE | Civil Engineering | 0.25 |
| CE and GB | Civil engineering and General Building | 0.375 |
| EE | Electrical Engineering works (buildings) | 0.25 |
| EP | Electrical Engineering works (infrastructure) | 0.25 |
| GB | General Building | 0.5 |
| ME | Mechanical Engineering works | 0.25 |
| SB | Specialist | 0.25 |

"Contract amount" = Tender amount at the time of award excluding allowances and expenses, and VAT

**Contractor CPG:**

CPG calculation
"Contract amount" x factor from Table 3 above.

CPG calculation example:
"Tender Amount" = R150 Mil for GB, all inclusive of allowances and VAT
"Contract Amount" = R130 Mil (Tender Amount at the time of award excluding allowances and VAT)
Factor for GB = 0,5% (as per Table 2 above)
CPG in R value = R130 Mil x 0,5% = R650 000 i.e. total cost of training to amount to R650 000

Calculation of penalty:
Percentage penalty applicable = 30% as specified in the Scope of Works (PG01.1)
CPG value = R650 000
Achieved = R550 000 = R100 000 Shortfall
Penalty = R100 000 x 30% = R30 000 Excl. VAT

**Calculations based on "Contract Amount" after bid award and after bid award and appointment of beneficiaries**

Actual CPG training requirement value after award upon selecting method/s of training and appointment of beneficiaries = R676 000 (Table 4 below) and the provisional amount allowed for to be adjusted accordingly. The new monetary value of training required will then form the basis for determining penalties applicable. No penalties will be applied should the CPG value, based on the "Contract Amount" be achieved.

*Table 4: Notional cost recalculation upon appointment of beneficiaries.*

*Source: cidb Standard for Developing Skills through Infrastructure Contracts as published in the Government Gazette Notice No. 43495 of 3 July 2020 (Page 10)*

| Skills Types | Number of learners | Notional Cost / Learner / Quarter | Notional cost / learner / year | Total Notional Cost over 12 months Contract |
|---|---|---|---|---|
| **Method 2:** Workplace learning opportunities, with unemployed TVET graduates | 2 | R23 000 | R92 000 | R184 000 |
| **Method 3:** Candidacy for an unemployed learner with a 3-year qualification | 2 | R61 500 | R246 000 | R492 000 |
| Total | 4 | | | R676 000 |

*Note: the required CPG will be recalculated based on the awarded Tender amount and "Contract Amount" once the beneficiaries have been appointed and actual costs are known*

*Note: The notional cost of providing training opportunities will increase by CPI on an annual basis based on April CPI as published by Stats SA. The rates will be adjusted as an adjustment to the provisional amounts should the rates increase after bid award or during the construction period*

PW 1544

# DEPARTMENT OF PUBLIC WORKS

# HIV/AIDS

# SPECIFICATION FOR

# CIVIL CONTRACTS

**APRIL 2004**

# NOTES TO CONSULTANTS

Please include the following note to tenderers, Preliminary and General items and HIV/AIDS Specification with the attached schedules in the appropriate Sections in the Bill of Quantities.

# NOTES TO TENDERERS

# HIV/AIDS AWARENESS

These Bills of Quantities contain items relating to HIV/AIDS awareness. The items have been included under “Section 1: Preliminary and General” to enable tenderers to allow for the implementation of prescribed HIV/AIDS awareness specifications for the benefit of all workers under this Contract.

Tenderers must take note that compliance with the HIV/AIDS awareness programme is compulsory.

| ITEM NO | PAYMENT | DESCRIPTION | UNIT | QTY | RATE | AMOUNT | |
|---|---|---|---|---|---|---|---|
| | | | | | | R | C |
| | | **HIV/AIDS AWARENESS** | | | | | |
| 1. ... | | It is required of the Contractor to thoroughly study the HIV/AIDS Specification (PW 1544) of the Department that must be read together with and is deemed to be incorporated under this Section of the Bills of Quantities. Provision for pricing of HIV/AIDS awareness is made under items 1. .... to 1. ... hereafter and it is explicitly pointed out that all requirements of the aforementioned specification are deemed to be priced hereunder, as the said items represent the only method of measurement and no additional items or extras to the contract in this regard shall be entertained<br>The Contractor must take note that compliance with the HIV/AIDS Specification is compulsory. In the event of partial or total non-compliance, the Representative/Agent, notwithstanding the provisions of Clause 52 of the General Conditions of Contract for Works of Civil Engineering Construction or any other clause to the contrary, reserves the right to delay issuing any progress payment certificate until the Contractor provides satisfactory proof of compliance. The Contractor shall not be entitled to any compensation of whatsoever nature, including interest, due to such delay of payment | | | | | |
| 1. ... | | **AWARENESS CHAMPION**<br>Selection, appointment, briefing and making available of an Awareness Champion including provision of all relevant services, all in accordance with the HIV/AIDS Specification | Sum | | | | |
| 1. ... | | **AWARENESS WORKSHOPS**<br>Selection and appointment of a competent Service Provider approved by the Representative/Agent, provision of a Service Provider Workshop Plan and a suitable venue, conducting of awareness workshops by means of traditional and/or modern multi-media techniques, including follow-up courses, making available all tuition material and performing assessment procedures, all in accordance with the HIV/AIDS Specification | Sum | | | | |
| 1. ... | | **POSTERS, BOOKLETS, VIDEOS, ETC.**<br>Provision, displaying, maintaining and replacing when necessary of four plastic laminated posters, booklets and educational videos, etc. for the duration of the construction period, all in accordance with the HIV/AIDS Specification | Sum | | | | |
| 1. ... | | **ACCESS TO CONDOMS**<br>Provision and maintenance of condom dispensers fixed in position, including male and female condoms, replenishing male and female condoms on a daily basis as required for the duration of the construction period, all in accordance with the HIV/AIDS Specification | Sum | | | | |
| 1.... | | **MONITORING**<br>Monitoring HIV/AIDS awareness of workers, providing the Representative/Agent with access to information including making available all reports, thoroughly completed and reflecting the correct information, for the duration of the construction period and close out, all in accordance with the HIV/AIDS Specification | Sum | | | | |

# SECTION

# HIV/AIDS SPECIFICATION

## HIV/AIDS REQUIREMENTS

### 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:

- 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
- Informing Workers of their rights with regard to HIV/AIDS in the workplace
- 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:

- Number of Workers and Sub-contractors on site
- When new Workers or Sub-contractors will join the construction project
- Duration of Workers and Sub-contractors on site

- How the maximum number of Workers can be targeted with workshops
- How the Contractor prefers workshops to be scheduled, *e.g.* three hourly sessions per Worker, or one 2.5 hour workshop per Worker
- Profile of Workers, including educational level, age and gender (if available)
- Preferred time of day or month to conduct workshops
- A Gantt chart reflecting the construction programme, for scheduling of workshops
- Suitable venues for workshops

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:

3.1 The nature of the disease;

3.2 How it is transmitted;

3.3 Safe sexual behaviour;

3.4 Post exposure services such as voluntary counselling and testing (VCT) and nutritional plans for people living with HIV/AIDS;

3.5 Attitudes towards other people with HIV/AIDS;

3.6 Rights of the Worker in the workplace;

3.7 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;

3.8 How the Service Provider will support the Awareness Champion;

3.9 Location and contact numbers of the closest clinics, VCT facilities, counselling services and referral systems;

3.10 How the workshops will be presented, including frequency and duration;

3.11 How the workshops will fit in with the construction programme;

3.12 How the Service Provider will assess the knowledge and attitude levels of attendees to structure workshops accordingly;

3.13 How the video will be used;

3.14 How the Service Provider will elicit maximum participation from the Workers;

3.15 A questions and answers slot (interactive session)

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
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
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
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
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
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
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
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

## 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:

7.1 Liasing with the Service Provider on organising awareness workshops;

7.2 Filling condom dispensers and monitoring condom distribution;

7.3 Handing out information booklets;

7.4 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** | | | | **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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| *Please indicate the applicable number for the reporting period* | | | | | | | |
|---|---|---|---|---|---|---|---|
| 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 | | | | | | | |
| _____<br>Representative/Agent | | | | | | | |
| _____<br>Contractor | | | | | | | |

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 |
| **Content of workshop:** *(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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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## HIV/AIDS AWARENESS PROGRAMME: ATTENDANCE REGISTER

| *Fill in your name and indicate attendance by ticking the appropriate date* | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **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 |
| **No** | **NAMES** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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SCHEDULE B

# 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 _____

_____

## GENERAL

Briefly describe programme activities and satisfaction with outcome _____

_____

_____

Additional comments, suggestions or needs with regard to the HIV/AIDS awareness programmes on site

_____

_____

_____

| Yes | No | Currently developing one |
|---|---|---|

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

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 | Coughing or chest pain | Vomiting |
| Reactive TB | Pain when swallowing | Meningitis |
| Hair loss | Persistent fever | Memory loss |
| Severe tiredness | Diarrhoea | Pneumonia |

Number of HIV/AIDS-related deaths _____

_____ _____

**Contractor** **Date**

_____ _____

**Departmental Project Manager** **Date**

DEPARTMENT OF PUBLIC WORKS

# OCCUPATIONAL HEALTH AND SAFETY

# HEALTH & SAFETY SPECIFICATIONS

## FOR

## PROJECTS AND MAINTENANCE (BUILDING/ELECTRICAL/MECHANICAL)

## MANAGED ON BEHALF OF

## THE DEPARTMENT OF PUBLIC WORKS

**(THE "CLIENT")**

**PROJECT:** ***Thohoyandou Correctional Centre: Kitchen Upgrading, Replacement of Kitchen Equipment as Well as Temporary Kitchen: Medium B***

**WCS NO:** **050733**

**SUPERVISION BY THE DEPARTMENT OF PUBLIC WORKS:**

**Mr M.M. RAGANYA** - **PROJECT MANAGER**

**Mr /Ms/Me** - **CONTROL/WORKS MANAGER**
**(add full details of the inspector)**

**AND/OR ITS AGENT:** [as per CR 4(5)] – {Also refer specifically to Sections 8(2)(g), 8(2)(h) and 37(2) of the Act}

**AGENT:** **Phahlana Hunadi Quantity Surveyors**
**2760 Zone B**
**Lebowakgomo 0737**

**SUPERVISION BY THE PRINCIPAL CONTRACTOR:**

**PRINCIPAL CONTRACTOR:** **(full particulars of principle contractor / contractor)**

**Mr /Ms/Me** - **HEALTH & SAFETY OFFICER (BUILDING)**
**(add full details of this officer)**

……..
……..

**Mr /Ms/Me** - **HEALTH & SAFETY OFFICER (ELECTRICAL)**
**(add full details of this officer)**

……..
……..

**Mr /Ms/Me** - **HEALTH & SAFETY OFFICER (MECHANICAL)**
**(add full details of this officer)**

……..
……..

**Mr /Ms/Me** - **HEAD : PROJECTS & MAINTENANCE**
**(add full details of the head of the project)**

……..
……..

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## ATTACHMENTS:


14. HEALTH AND SAFETY FILE COMPILATION AND CONTENT
15. SAFETY AND SWITCHING PROCEDURES FOR ELECTRICAL INSTALLATIONS
16. GUIDE TO THE GENERAL ADMINISTRATIVE REGULATIONS
17. IMPORTANT CONTACT DETAILS (HEALTH & SAFETY ONLY)

## 1. PREAMBLE

In terms of Construction Regulation 4(1)(*a*) of the Occupational Health and Safety Act, 1993 (Act 85 of 1993), the Department of Public Works, as the Client and/or its Agent on its behalf, shall be responsible to prepare Health & Safety Specifications for any intended construction project and provide any Principal Contractor who is making a bid or appointed to perform construction work for the Client and/or its Agent on its behalf with the same.

The Client's further duties are as described in The Act and the Regulations made there-under. The Principal Contractor shall be responsible for the Health & Safety Policy for the site in terms of Section 7 of the Act and in line with Construction Regulation 5 as well as the Health and Safety Plan for the project.

This 'Health and Safety Specifications' document is governed by the "Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), hereinafter referred to as 'The Act'. Notwithstanding this, cognisance should be taken of the fact that no single Act or its set of Regulations can be read in isolation. Furthermore, although the definition of Health and Safety Specifications stipulates 'a documented specification of all health and safety requirements pertaining to associated works on a construction site, so as to ensure the health and safety of persons', it is required that the entire scope of the Labour legislation, including the Basic Conditions of Employment Act be considered as part of the legal compliance system. With reference to this specification document this requirement is limited to all health, safety and environmental issues pertaining to the site of the project as referred to here-in. Despite the foregoing it is reiterated that environmental management shall receive due attention.

Due to the wide scope and definition of construction work, every construction activity and site will be different, and circumstances and conditions may change even on a daily basis. Therefore, due caution is to be taken by the Principal Contractor when drafting the Health and Safety Plan based on these Health and Safety Specifications. Prior to drafting the Health and Safety Plan, and in consideration of the information contained here-in, the contractor shall set up a Risk Assessment Program to identify and determine the scope and details of any risk associated with any hazard at the construction site, in order to identify the steps needed to be taken to remove, reduce or control such hazard. *This Risk Assessment and the steps identified will be the basis or point of departure for the Health and Safety Plan.* The Health and Safety Plan shall include documented 'Methods of Statement' (see definitions under Construction Regulations) detailing the key activities to be performed in order to reduce as far as practicable, the hazards identified in the Risk Assessment.

The Department of Public Works is tasked to provide accommodation and operational facilities to a very large proportion of the approximate 40 National Departments responsible for the governance of the Department of Public Works. A very large number of State employees and public users of the facilities and the services provided there-in directly interacts with the facilities provided by the well-being, health and safety of a great number of people. This Department thus has directly or indirectly, an impact on the Republic of South Africa as well as the National Parliament.

In this a high premium is to be placed on the health and safety of the most valuable assets of the Department of Public Works. These are its personnel, the personnel of its Clients and the physical assets of which it is the custodian and may also include the public as well. The responsibilities the Department and relevant stakeholders have toward its employees and other people present in the facilities or on the sites are captured further in this specification document. These responsibilities stem from both moral, civil and a variety of legal obligations. The Principal Contractor is to take due cognisance of the above statement.

Every effort has been made to ensure that this specification document is accurate and adequate in all respects. Should it however, contain any errors or omissions they may not be considered as grounds for claims under the contract for additional reimbursement or extension of time, or relieve the Principal Contractor from his responsibilities and accountability in respect of the project to which this specification document pertains. Any such inaccuracies, inconsistencies and/or inadequacies must immediately be brought to the attention of the Agent and/or Client.

## 2. SCOPE OF HEALTH AND SAFETY SPECIFICATION DOCUMENT

The Health and Safety Specifications pertaining to the project; "Thohoyandou Prison Medium B :Replacement of Kitchen Equipment", cover the subjects contained in the index and is intended to outline the normal as well as any special requirements of the Department pertaining to the health and safety matters (including the environment) applicable to the project in question. These Specifications should be read in conjunction with the Act, the Construction Regulations and all other Regulations and Safety Standards which were or will be promulgated under the Act or incorporated into the Act and be in force or come into force during the effective duration of the project. The stipulations in this specification, as well as those contained in all other documentation pertaining to the project, including contract documentation and technical specifications shall not be interpreted, in any way whatsoever, to countermand or nullify any stipulation of the Act, Regulations and Safety Standards which are promulgated under, or incorporated into the Act.

## 3. PURPOSE

The Department is obligated to implement measures to ensure the health and safety of all people and properties affected under its custodianship or contractual commitments, and is further obligated to monitor that these measures are structured and applied according to the requirements of these Health and Safety Specifications. **(*All references to the singular shall also be regarded as references to the plural*)**

The purpose of this specification document is to provide the relevant Principal Contractor (and his /her contractor) with any information other than the standard conditions pertaining to construction sites which might affect the health and safety of persons at work and the health and safety of persons in connection with the use of plant and machinery; and to protect persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work during the carrying out of construction work for the Department of Public Works. The Principal Contractor (and his /her contractor) is to be briefed on the significant health and safety aspects of the project and to be provided with information and requirements on inter alia:

a) safety considerations affecting the site of the project and its environment;
b) health and safety aspects of the associated structures and equipment;
c) submissions on health and safety matters required from the Principal Contractor(and his /her contractor); and
d) the Principal Contractor's (and his /her contractor) health & safety plan.

To serve to ensure that the Principal Contractor (and his /her contractor) is fully aware of what is expected from him/her with regard to the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and the Regulations made there-under including the applicable safety standards, and in particular in terms of Section 8 of the Act.

To inform the Principal Contractor that the Occupational Health and Safety Act, 1993 (Act 85 of 1993) in its entirety shall apply to the contract to which this specification document applies. The Construction Regulations promulgated on 18 July 2003 and incorporated into the above Act by Government Notice R 1010, published in Government Gazette 25207 shall apply to any person involved in construction work pertaining to this project, as will the Act.

## 4. DEFINITIONS - The most important definitions in the Act and Regulations pertaining to this specification document are hereby extracted.

"Purpose of the Act" –

To provide for the health and safety of persons at work and the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work; to establish an advisory council for occupational health and safety; and to provide for matters connected therewith.

"Agent" –

means any person who acts as a representative for a client;

"Client" –

means any person for whom construction work is performed;

''Construction Work'' is defined as 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;

"Contractor" –

means an employer, as defined in Section 1 of the Act, who performs construction work and includes Principal Contractors;

"Health and Safety File" –

means a file, or other record in permanent form, containing the information required a contemplated in the 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;

"Method Statement" –

means a document detailing the key activities to be performed in order to reduce as reasonably as practicable the hazards identified in any risk assessment;

"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;

"Risk Assessment" –

means a program 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.

## 5. OCCUPATIONAL HEALTH & SAFETY MANAGEMENT

### 5.1 Structure and Organization of OH&S Responsibilities

#### 5.1.1. *Overall Supervision and Responsibility for OH&S*

* The Client and/or its Agent on its behalf to ensure that the Principal Contractor, appointed in terms of Construction Regulation 4(1)(c), implements and maintains the agreed and approved H&S Plan. Failure on the part of the Client or Agent to comply with this requirement will not relieve the Principal Contractor from any one or more of his/her duties under the Act and Regulations.

* The Chief Executive Officer of the Principal Contractor in terms of Section 16 (1) of the Act to ensure that the Employer (as defined in the Act) complies with the Act. The pro forma Legal Compliance Audit may be used for this purpose by the Principal Contractor or his/her appointed contractor.

* All OH&S Act (85 /1993), Section 16 (2) appointee/s as detailed in his/her/their respective appointment forms to regularly, in writing, report to their principals on matters of health and safety per routine and ad hoc inspections and on any deviations as soon as observed, regardless of whether the observation was made during any routine or ad hoc inspection and to ensure that the reports are made available to the principal Contractor to become part of site records (Health & Safety File).

* The Construction Supervisor and Assistant Construction Supervisor/s appointed in terms of Construction Regulation 6 to regularly, in writing, report to their principals on matters of health and safety per routine and ad hoc inspections and on any deviations as soon as observed, regardless of whether the observation was made during any routine or ad hoc inspection and to ensure that the reports are made available to the principal Contractor to become part of site records (Health & Safety File).

.

* All Health and Safety Representatives (SHE-Reps) shall act and report as per Section 18 of the Act.

#### 5.1.2. *Further (Specific) Supervision Responsibilities for OH&S*

Several appointments or designations of responsible and /or competent people in specific areas of construction work are required by the Act and Regulations. The following competent appointments, where applicable, in terms of the Construction Regulations are required to ensure compliance to the Act, Regulations and Safety Standards.

***Required appointments as per the Construction Regulations:-***

| Item | Regulation | Appointment | Responsible Person |
|---|---|---|---|
| 1. | 4(1)(c) | Principal contractor for each phase or project | Client |
| 2. | 5.(3)(b) | Contractor | Principal Contractor |
| 3. | 5(11) | Contractor | Contractor |
| 4. | 6(1) | Construction supervisor | Contractor |
| 5. | 6(2) | Construction supervisor sub-ordinates | Contractor |
| 6. | 6(6) | Construction Safety Officer | Contractor |
| 7. | 7(1) | Person to carry out risk assessment | Contractor |
| 8. | 7(4) | Trainer/Instructor | Contractor |
| 9. | 8(1)(a) | Fall protection planner | Contractor |
| 10. | 10 (a) | Formwork & support work supervisor | Contractor |
| 11. | 10(e) + (f) | Formwork & support work examiner | Contractor |
| 12. | 11(1) | Excavation supervisor | Contractor |
| 13. | 11(3)(b)(ii)(b) | Professional engineer or technologist | Contractor |
| 14. | 11(3)(k) | Explosives expert | Contractor |
| 15. | 12(1) | Supervisor demolition work | Contractor |
| 16. | 12(2) + (3) | Demolition expert | Contractor |
| 17. | 12(11) | Explosives expert | Contractor |
| 18. | 14(2) | Scaffold supervisor | Contractor |
| 19. | 15(1) | Suspended platform supervisor | Contractor |
| 20. | 15(2)(c) | Compliance plan developer | Contractor |
| 21. | 15(8)(c) | Suspended platform expert | Contractor |
| 22. | 15(13) | Outrigger expert | Contractor |
| 23. | 17(8)(a) | Material hoist inspector | Contractor |
| 24. | 18(1) | Batch plant supervisor | Contractor |
| 25. | 18(7) | Batch plant operator | Contractor |
| 26. | 19(2)(b) | Power tool expert | Contractor |
| 27. | 19.2 (g) (i) | Power tool controller | Contractor |
| 28. | 20(f) | Tower crane operator | Contractor |
| 29. | 21(1)(d)(i) | Construction vehicle and mobile plant operator | Contractor |
| 30. | 21(1)(j) | Construction vehicle and mobile plant inspector | Contractor |
| 31. | 22(d) | Temporary electrical installations inspector | Contractor |
| 32. | 22 (e) | Temporary electrical installations controller | Contractor |
| 33. | 26 (a) | Stacking and storage supervisor | Contractor |
| 34. | 27 (h) | Fire equipment inspector | Contractor |

This list may be used as a reference or tool to determine which components of the Act and Regulations would be applicable to a particular site, as was intended under paragraph 3 & 4 of the Chapter "Preamble" (page 4) above. This list must not be assumed to be exclusive or comprehensive.

5.2 ***Communication & Liaison***

5.2.1 OH&S Liaison between the Employer, the Principal Contractor, the other Contractors, the Designer and other concerned parties shall be through the H&S Committee as per the procedures determined by the H&S Committee.

5.2.2 In addition to the above, communication may be directly to the Client or his appointed Agent, verbally or in writing, as and when the need arises.

5.2.3 Consultation with the workforce on OH&S matters will be through their Supervisors and H&S Representatives ('SHE – Reps')

5.2.4 The Principal Contractor will be responsible for the dissemination of all relevant OH&S information to the other Contractors e.g. design changes agreed with the Client and/or its Agent on its behalf and the Designer, instructions by the Client and/or his/her agent, exchange of information between Contractors, the reporting of hazardous/dangerous conditions/situations etc.

## 6. INTERPRETATION

(i) The Occupational Health and Safety Act and all its Regulations, with the exception of the Construction Regulations, distinguish between the roles, responsibilities and functions of employers and employees respectively. It views consultants and contractors as employees of the "owner" of a construction or operational project, the "owner" being regarded as the employer. Only if formally agreed to by way of the written agreement in this regard between the "owner(s)" and consultant and /or between the "owner(s)" and the contractor(s), will these assumptions be relinquished in favour of the position agreed upon between the relevant parties.

(ii) The position taken by the Construction Regulations is that the "owner", in terms of its instructions, operates (has to operate) in the role of client as per relevant definition. The contractors working for the "client" are seen to be in two categories, i.e. the Principal Contractor and Contractors. The Principal Contractor has to take full responsibility for the health and safety on the site of the relevant project / contract. This includes monitoring health and safety conditions and overseeing administrative measures required by the Construction Regulations from all contractors on the project site. (Ordinary / sub) Contractors are required to operate under the scrutiny and control (in terms of all health and safety measures which are covered in the Construction Regulations) of the Principal Contractor. Where, for the work the Principal Contractor will have to execute himself, practical health and safety measures are applicable, he will also be subject to the relevant requirements with which (ordinary / sub) Contractors have to comply. The Principal Contractor will, however, not have to actually fulfill such requirements in respect of any of the work / functions of any (ordinary / sub) Contractors on the site for which he has been appointed as Principal Contractor. However, he has to monitor / oversee such processes, ensuring that the requirements are complied with and that the required appointments / evaluations / inspections / assessments and tests are done and that the records are duly generated and kept as prescribed in the Construction Regulations. This has to feature clearly in the Principal Contractor's Health and Safety Plan.

## 7. RESPONSIBILITIES

### 7.1 Client

7.1.1 The Client or his appointed Agent on his behalf will appoint each Principal Contractor for this project or phase/section of the project in writing for assuming the role of Principal Contractor as intended by the Construction Regulations and determined by the Bills of Quantities.

7.1.2 The Client or his appointed Agent on his behalf shall discuss and negotiate with the Principal Contractor the contents of the health and safety plan of the both Principal Contractor and Contractor for approval.

7.1.3 The Client or his appointed Agent on his behalf, will take reasonable steps to ensure that the health and safety plan of both the Principal Contractor and Contractor is implemented and maintained. The steps taken will include periodic audits at intervals of at least once every month.

7.1.4 The Client or his appointed Agent on his behalf, will prevent the Principal Contractor and/or the Contractor from commencing or continuing with construction work should the Principal Contractor and/or the Contractor at any stage in the execution of the works be found to:

- have failed to have complied with any of the administrative measures required by the Construction Regulations in preparation for the construction project or any physical preparations necessary in terms of the Act;
- have failed to implement or maintain their health and safety plan;
- have executed construction work which is not in accordance with their health and safety plan; or
- act in any way which may pose a threat to the health and safety of any person(s) present on the site of the works or in its vicinity, irrespective of him/them being employed or legitimately on the site of the works or in its vicinity.

### 7.2 Principal Contractor

7.2.1 The Principal Contractor shall accept the appointment under the terms and Conditions of Contract. The Principal Contractor shall sign and agree to those terms and conditions and shall, before commencing work, notify the Department of Labour of the intended construction work in terms of Regulation 3 of the Construction Regulations. Annexure B of this Specification contains a "Notification of Construction Work" form. The Principal Contractor shall submit the notification in writing prior to commencement of work and inform the Client or his Agent accordingly.

7.2.2 The Principal Contractor shall ensure that he is fully conversant with the requirements of this Specification and all relevant health and safety legislation. This Specification is not intended to supersede the Act nor the Construction Regulations or any part of either. Those sections of the Act and the Construction Regulations which apply to the scope of work to be performed by the

Principal Contractor in terms of this contract (entirely or in part) will continue to be legally required of the Principal Contractor to comply with. The Principal Contractor will in no manner or means be absolved from the responsibility to comply with all applicable sections of the Act, the Construction Regulations or any Regulations proclaimed under the Act or which may perceivable be applicable to this contract.

7.2.3 The Principal Contractor shall provide and demonstrate to the Client a suitable and sufficiently documented health and safety plan based on this Specification, the Act and the Construction Regulations, which shall be applied from the date of commencement of and for the duration of execution of the works. This plan shall, as appendices, include the health and safety plans of all Sub-contractors for which he has to take responsibility in terms of this contract.

7.2.4 The Principal Contractor shall provide proof of his registration and good standing with the Compensation Fund or with a licensed compensation insurer prior to commencement with the works.

7.2.5 The Potential Principal Contractor shall, in submitting his tender, demonstrate that he has made provision for the cost of compliance with the specified health and safety requirements, the Act and Construction Regulations. (Note: This shall have to be contained in the conditions of tender upon which a tenderer's offer is based.)

7.2.6 The Principal Contractor shall consistently demonstrate his competence and the adequacy of his resources to perform the duties imposed on the Principal Contractor in terms of this Specification, the Act and the Construction Regulations.

7.2.7 The Principal Contractor shall ensure that a copy of his health and safety plan is available on site and is presented upon request to the Client, an Inspector, Employee or Sub-contractor.

7.2.8 The Principal Contractor shall ensure that a health and safety file, which shall include all documentation required in terms of the provisions of this Specification, the Act and the Construction Regulations, is opened and kept on site and made available to the Client or Inspector upon request. Upon completion of the works, the Principal Contractor shall hand over a consolidated health and safety file to the Client.

7.2.9 The Principal Contractor shall, throughout execution of the contract, ensure that all conditions imposed on his Sub-contractors in terms of the Act and the Construction Regulations are complied with as if they were the Principal Contractor.

7.2.10 The Principal Contractor shall from time to time evaluate the relevance of the Health and Safety Plan and revise the same as required, following which revised plan shall be submitted to the Client and/or his/her Agent for approval.

7.3 **Contractor** (Responsibilities of …… in terms of this contract and health and safety specification)

As per 7.2 above, as and where applicable or as indicated in the letter of appointment.

## 8. SCOPE OF WORK (*also refer to paragraph 2 on page 5*)

These specifications are applicable to the specific scope of work pertaining to the above-mentioned project as detailed in the tender documents, this amongst all includes for example:

*"Renovations and repairs to existing kitchen building, electrical installations and kitchen equipment."*

**[Notes to the Client, Designer, Project Manager, Architect, Agent :**

**add references to the above project and include specific elements identified as the 'Critical Few'. The 'Critical Few' refer to those few or singular elements of the project that have the potential to impact in a major or devastating way on the project as a whole in the event of an accident or incident occurring. (20:80 principle)**

**Because of the inherent generic nature of the Health and Safety Specifications document, specific relevant information on the project must be provided and it may be necessary to draft the required information under this paragraph on a separate attached document.**

**If at any time after commencement of the project changes are brought about to the design or construction, sufficient health and safety information and appropriate resources are to be made available to the Principal Contractor to execute the work safely.]**

**N.B** Construction Regulation 5(3)(g) determines that potential contractors submitting tenders have made provision for the cost of health and safety measures during the construction process. The Principal Contractor shall on tendering make provision for the cost of health and safety measures in terms of his/her documented Health and Safety Plan and measures based on these Health and Safety Specifications during the period of the project. The cost shall be duly quantified and clearly identified for such identifiable purpose.

**THE HEALTH AND SAFETY PLAN IS THEREFORE TO BE INCLUDED WITH THE TENDER DOCUMENTS WHEN TENDERS ARE INVITED FOR THE PROJECT.**

## 9. HEALTH AND SAFETY FILE

The Principal Contractor must, in terms of Construction Regulation 5(7), keep a Health & Safety File on site at all times that must include all documentation required in terms of the Act and Regulations and must also include a list of all Contractors on site that are accountable to the Principal Contractor and the agreements between the parties and details of work being done. A more detailed list of documents and other legal requirements that must be kept in the Health and Safety File is attached as an addendum to this document.

**IMPORTANT:**

The Health and Safety File will remain the property of the Client and/or its Agent on its behalf throughout the period of the project and shall be consolidated and handed over to the Client and/or its Agent on its behalf at the time of completion of the project.

## 10. OH&S GOALS AND OBJECTIVES AND ARRANGEMENTS FOR MONITORING AND REVIEWING OH&S PERFORMANCE

The Principal Contractor is required to maintain an acceptable disabling incident frequency rate (DIFR) and report on this to the Client and/or its Agent on its behalf on a monthly basis.

## 11. IDENTIFICATION OF HAZARDS AND DEVELOPMENT OF RISK ASSESSMENTS, STANDARD WORKING PROCEDURES (SWP) AND METHOD STATEMENTS

The Principal Contractor is required to develop Risk Assessments, Standard Working Procedures (SWP) and Method Statements for each activity executed in the contract or project (see 4. below "Project/Site Specific Requirements")

The identification of hazards is over and above the hazards identification programme and those hazards identified during the drafting of the Health and Safety Plan.

## 12. ARRANGEMENTS FOR MONITORING AND REVIEW

### 12.1 Monthly Audit by Client and/or its Agent on its behalf

The Client and/or its Agent on its behalf will be conducting Periodic Audits at times agreed with the Principal Contractor Audit to comply with Construction Regulation 4(1)(*d*) to ensure that the principal Contractor has implemented, is adhering to and is maintaining the agreed and approved OH&S Plan.

## 12.2 Other audits and inspections by client and/or its agent on its behalf.

The Client and/or its Agent on its behalf reserves the right to conduct any other ad hoc audits and inspections as it and/or its Agent on its behalf deem necessary.

A representative of the Principal Contractor and the relevant Health and Safety Representative(s) (SHE-Reps) must accompany the Client and/or its Agent on its behalf on all Audits and Inspections and may conduct their own audit/inspection at the same time. Each party will, however, take responsibility for the results of his/her own audit/inspection results. The Client and/or its Agent on its behalf may require to be handed a copy of the minutes of the previous Health and Safety Committee meeting reflecting possible recommendations made by that committee to the Employer for reference purposes.

## 12.3 Reports

12.3.1 The Principal Contractor shall report all incidents where an employee is injured on duty to the extent that he/she:

* dies
* becomes unconscious
* loses a limb or part of a limb
* is injured or becomes ill to such a degree that he/she is likely either to die or to suffer a permanent physical defect or likely to be unable for a period of at least 14 days either to work or continue with the activity for which he/she was usually employed

OR where:

* a major incident occurred
* the health or safety of any person was endangered
* where a dangerous substance was spilled
* the uncontrolled release of any substance under pressure took place
* machinery or any part of machinery fractured or failed resulting in flying, falling or uncontrolled moving objects
* machinery ran out of control,

to the Provincial Director of the Department of Labour within seven days and at the same time to the Client and/or its Agent on its behalf.

Refer in this regard to Section 24 of the Act & General Administrative Regulation 8.

12.3.2 The Principal Contractor is required to provide the Client and/or its Agent on its behalf with copies of all statutory reports required in terms of the Act and the Regulations.

12.3.3 The Principal Contractor is required to provide the Client and/or its Agent on its behalf with a monthly “SHE Risk Management Report”.

12.3.4 The Principal Contractor is required to provide a.s.a.p. the Client and/or its Agent on its behalf with copies of all internal and external accident/incident investigation reports including the reports contemplated in 12.7, 12.8.2, 15, 16, 17, 21 and 22 below. As soon as the occurrence of any accident/incident of whatever nature comes to the notice of the Principal Contractor, it shall be reported immediately to any of the following:

* W. Botha 071 603 0003
* G. Mpaphuli 082 884 1525
* S. Motloutsi 073 442 9929
* the Occupational Health and Safety Section of the Polokwane Regional Office of the Department of Public Works.

**12.4 Review**

The Principal Contractor is to review the Hazard Identification, Risk Assessments and Standard Work Processes at each Production Planning and Progress Report meeting as the construction work develops and progresses and each time changes are made to the designs, plans and construction methods and processes.

The Principal Contractor must provide the Client and/or its Agent on its behalf, other Contractors and all other concerned parties with copies of any changes, alterations or amendments as contemplated in the above paragraph.

**12.5 Site Rules and other Restrictions**

**12.5.1** ***Site OH&S Rules***

The Principal Contractor must develop a set of site-specific OH&S rules that will be applied to regulate the Health and Safety Plan and associated aspects of the construction.

When required for a site by law, visitors and non-employees upon entering the site shall be issued with the proper Personal Protective Equipment (PPE) as and when necessary.

**12.5.2** ***Security Arrangements***

The Principal Contractor must establish site access rules and implement and maintain these throughout the construction period. Access control must include the rule that non-employees shall at all times be provided with fulltime supervision while on site.

The Principal Contractor must develop a set of Security rules and procedures and maintain these throughout the construction period.

If not already tasked to the H&S Officer appointed in terms of Construction Regulation 6(6), the Principal Contractor must appoint a competent Emergency Controller who must develop contingency plans for any emergency that may arise on site as indicated by the risk assessments. These must include a monthly practice/testing programme for the plans e.g. January: trench collapse, February: flooding etc. and practiced/tested with all persons on site at the time, participating.

## 12.6 Training

The contents and syllabi of all training required by the Act and Regulations including any other related or relevant training as required must be included in the Principal Contractor's Health and Safety Plan and Health and Safety File.

### 12.6.1 *General Induction Training*

All employees of the Principal and other Contractors must be in possession of proof of General Induction training

### 12.6.2 *Site Specific Induction Training*

All employees of the Principal and other Contractors must be in possession of Site Specific Occupational Health and Safety Induction or other qualifying training .

### 12.6.3 *Other Training*

All operators, drivers and users of construction vehicles, mobile plant and other equipment must be in possession of valid proof of training.

All employees in jobs requiring training in terms of the Act and Regulations must be in possession of valid proof of training as follows:

Occupational Health and Safety Training Requirements: (as required by the Construction Regulations and as indicated by the Health and Safety Specification Document & the Risk Assessment/s and recommendations by the Health and Safety Committee):

* General Induction (Section 8 of the Act)
* Site/Job Specific Induction (also visitors) (Sections 8 & 9 of the Act)
* Site/Project Manager
* Construction Supervisor
* OH&S Representatives (Section 18 (3) of the Act)
* Training of the Appointees indicated in 12.6.1 & 12.6.2 above
* Operation of Cranes (Driven Machinery Regulations 18 (11)
* Operators & Drivers of Construction Vehicles & Mobile Plant (Construction Regulation 21)
* Basic Fire Prevention & Protection (Environmental Regulations 9 and Construction Regulation 27)
* As a minimum basic First Aid to be upgraded when necessary (General Safety Regulations 3)
* Storekeeping Methods & Safe Stacking (Construction Regulation 26)
* Emergency, Security and Fire Co-ordinator

## 12.7 Accident and Incident Investigation

The Principal Contractor is responsible to oversee the investigation of all accidents/incidents where employees and non-employees were injured to the extent that he/she/they had to receive first aid or be referred for medical treatment by a doctor, hospital or clinic. (General Administrative Regulation 9)

The results of the investigation to be entered into the Accident/Incident Register listed above. (General Administrative Regulation 9)

The Principal Contractor is responsible for the investigation of all non-injury incidents as described in Section 24 (1) (b) & (c) of the Act and keeping a record of the results of such investigations including the steps taken to prevent similar incidents in future.

The Principal Contractor is responsible for the investigation of all road traffic accidents relating to the construction site and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.

Notwithstanding the requirements of Section 24 of the Act, ALL incidents shall be investigated and reported on in writing, irrespective of whether such incident gave rise to injury or damage.

## 12.8 H&S Representatives (SHE-Reps – 'safety, health & environment') and H&S Committees

### 12.8.1 *Designation of H&S Representatives('SHE – Reps')*

Where the Principal Contractor employs more that 20 persons (including the employees of other Contractors (sub-contractors) he has to appoint one H&S Representatives for every 50 employees or part thereof. (Section 17 of the Act and General Administrative Regulation 6. & 7.)

H&S Representatives have to be designated in writing and the designation shall be in accordance with the Collective Agreement as concluded between the parties as is required in terms of General Administration Regulation 6.

### 12.8.2 *Duties and Functions of the H&S Representatives*

The Principal Contractor must ensure that the designated H&S Representatives conduct at least a weekly inspection of their respective areas of responsibility using a checklist and report thereon to the Principal Contractor, after which these reports shall be consolidated for submission to the Health and Safety Committee.

H&S Representatives must be included in and be part of accident/incident investigations.

H&S Representatives shall be members of at least one H&S Committee and must attend all meetings of that H&S committee.

### 12.8.3 *Establishment of H&S Committee(s)*

The Principal Contractor must establish H&S Committees consisting of designated H&S Representatives together with a number of Employers Representatives appointed as per Section 19(3) that are not allowed to exceed the number of H&S Representatives on the committee. The persons nominated by the employer on a H&S Committee must be designated in writing for such period as may be determined by him. The H&S Committee shall co-opt advisory (temporary) members and determine the procedures of the meetings including the chairmanship.

The H&S Committee must meet minimum monthly and consider, at least, the following Agenda for the first meeting. Thereafter the H&S Committee shall determine its own procedures as per the previous paragraph.

***Agenda*:**

1) Opening and determining of chairmanship (only when necessary)
2) Minutes of Previous Minutes
3) Observations
4) Program and Safety considerations
5) Hygiene
6) Housekeeping improvement
7) Incidents & Accidents / Injuries
8) Registers:
    a H&S Rep. Inspections
    b. Matters of First Aid
    c. Scaffolding
    d. Ladders
    e. Excavations
    f. Portable Electric Equipment
    g. Fire Equipment
    h. Explosive Power Tools
    i. Power Hand tools
    j. Incident! Report Investigation
    k. Pressure Vessels
    l. Personal Protective Equipment
9) Safety performance Evaluations
10) Education & Safety promotion program
11) First Aid Officials and training in First Aid
12) Demarcation of work- /hazardous-/safe areas/walkways
13) Posters and signage
14) Environmental preservation and conservation
15) Specific training programmes
16) General
17) Date of Next Meeting
18) Closing

## 13. PROJECT/SITE SPECIFIC REQUIREMENTS

The following is a list of specific activities and considerations that have been identified for the project and site and for which Risk Assessments, Standard Working Procedures (SWP), management and control measures and Method Statements (where necessary) have to be developed by the Principal Contractor:

* Clearing & Grubbing of the Area/Site
* Site Establishment including:
    - Office/s
    - Secure/Safe Storage and storage areas for materials, plant & equipment
    - Ablution facilities
    - Sheltered dining area
    - Vehicle access to the site
* Dealing with existing Structures.
* Location of existing Services
* Installation & Maintenance of Temporary Construction Electrical Supply, Lighting and Equipment
* Adjacent Land uses/Surrounding property exposures
* Boundary & Access control/Public Liability Exposures (Remember: the Employer is also responsible for the OH&S of non-employees affected by his/her work activities.)
* Health risks arising from neighboring as well as own activities and from the environment e.g. threats by dogs, bees, snakes, lightning, allergies etc.
* Exposure to Noise
* Exposure to Vibration
* Protection against dehydration and heat exhaustion
* Protection from wet & cold conditions
* Dealing with HIV/Aids and other diseases as per specific programme provided by the client and/or its Agent on its behalf
* Use of Portable Electrical Equipment including:
    - Angle grinder
    - Electrical Drilling machine
    - Skill saw
* Excavations including:
    - Ground/soil conditions
    - Trenching
    - Shoring
    - Drainage
    - Daily inspections
* Welding including:
    - Arc Welding
    - Gas welding
    - Flame Cutting
    - Use of LP Gas torches and appliances
* Loading & Offloading of Trucks
* Aggregate/Sand and other Materials Delivery
* Manual and Mechanical Handling
* Lifting and Lowering Operations

* Driving & Operation of Construction Vehicles and Mobile Plant including:
    - Trenching machine
    - Excavator
    - Bomag Roller
    - Plate Compactor
    - Front End Loader
    - Mobile Cranes and the ancillary lifting tackle
    - Parking of Vehicles & Mobile Plant
    - Towing of Vehicles & Mobile Plant
* Use and Storage of Flammable Liquids and other Hazardous Substances – the client and/or its Agent on its behalf to be informed of this prior to commencing of the project
* Layering and Bedding of trench floor
* Installation of Pipes in trenches
* Backfilling of Trenches
* Protection against Flooding
* Gabion work
* Use of Explosives - the client and/or its Agent on its behalf to be informed of this prior to commencing of the project
* Protection from Overhead Power Lines
* As discovered by the Principal Contractor's hazard identification exercise
* As discovered from any inspections and audits conducted by the Client and/or its Agent on its behalf or by the Principal Contractor or any other Contractor on site
* As discovered from any accident/incident investigation.

**13.1 The following are in particular requirements depending on scope of works and will form a basis for compliance audits.**

1. Administrative & Legal Requirements
2. Education, Training & Promotion
3. Public Safety & Emergency Preparedness
4. Personal Protective Equipment
5. Housekeeping
6. Scaffolding, Formwork & Support work
7. Ladders
8. Electrical Safeguarding
9. Emergency/Fire Prevention & Protection
10. Excavations & Demolition
11. Tools
12. Cranes
13. Personnel & Material Hoists
14. Transport & Materials Handling
15. Site Plant & Machinery
16. Plant & Storage Yards/Site Workshops Specifics
17. Health & Hygiene

## 14. OUTLINED DATA, REFERENCES AND INFORMATION ON CERTAIN AND/OR SPECIFIC OBLIGATORY REQUIREMENTS TO ENSURE COMPLIANCE

### 14.1 Administrative & Legal Requirements

| OHS Act Section/ Regulation | Subject | Requirements |
|---|---|---|
| Construction. Regulation 3 | **Notice of carrying out Construction work** | Department of Labour notified<br>Copy of Notice available on Site |
| General Admin. Regulation 4 | ***Copy of OH&S Act (Act 85 of 1993)** | Updated copy of Act & Regulations on site.<br>Readily available for perusal by employees. |
| COID Act Section 80 | ***Registration with Compens. Insurer** | Written proof of registration/Letter of good standing available on Site |
| Construction. Regulation 4 & 5(1) | **H&S Specification & Programme** | H&S Spec received from Client and/or its Agent on its behalf<br>OH&S programme developed & Updated regularly |
| Section 8(2)(d) Construction. Regulation 7 | ***Hazard Identification & Risk Assessment** | Hazard Identification carried out/Recorded<br>Risk Assessment and – Plan drawn up/Updated<br>RA Plan available on Site<br>Employees/Sub-Contractors informed/trained |
| Section 16(2) | ***Assigned duties (Managers)** | Responsibility of complying with the OH&S Act assigned to other person/s by CEO. |
| Construction. Regulation 6(1) | **Designation of Person Responsible on Site** | Competent person appointed in writing as Construction Supervisor with job description |
| Construction. Regulation 6(2) | **Designation of Assistant for above** | Competent person appointed in writing as Assistant Construction Supervisor with job description |
| Section 17 & 18 General Administrative Regulations 6 & 7 | ***Designation of Health & Safety Representatives** | More than 20 employees - one H&S Representative, one additional H&S Rep. for each 50 employees or part thereof.<br>Designation in writing, period and area of responsibility specified in terms of GAR 6 & 7<br>Meaningful H&S Rep. reports.<br>Reports actioned by Management. |
| Section 19 & 20 General Administrative Regulations 5 | ***Health & Safety Committee/s** | H&S Committee/s established.<br>All H&S Reps shall be members of H&S Committees<br>Additional members are appointed in writing.<br>Meetings held monthly, Minutes kept.<br>Actioned by Management. |
| Section 37(1) & (2) | ***Agreement with Mandataries/ (Sub-)Contractors** | Written agreement with (Sub-)Contractors<br>List of (Sub-)Contractors displayed.<br>Proof of Registration with Compensation Insurer/Letter of Good Standing<br>Construction Supervisor designated<br>Written arrangements re.<br>H&S Reps & H&S Committee<br>Written arrangements re. First Aid |

| | | |
|---|---|---|
| Section 24 & General Admin. Regulation 8 COID Act Sect.38, 39 & 41 | ***Reporting of Incidents (Dept. of Labour)** | Incident Reporting Procedure displayed.<br>All incidents in terms of Sect. 24 reported to the Provincial Director, Department of Labour, within 3 days. (Annexure 1?)(WCL 1 or 2) and to the Client and/or its Agent on its behalf<br>Cases of Occupational Disease Reported<br>Copies of Reports available on Site<br>Record of First Aid injuries kept |
| General Admin. Regulation 9 | ***Investigation and Recording of Incidents** | All injuries which resulted in the person receiving medical treatment other than first aid, recorded and investigated by investigator designated in writing.<br>Copies of Reports (Annexure 1) available on Site<br>Tabled at H&S Committee meeting<br>Action taken by Site Management. |
| Construction. Regulation 8 | **Fall Prevention & Protection** | Competent person appointed to draw up and supervise the Fall Protection Plan<br>Proof of appointees competence available on Site<br>Risk Assessment carried out for work at heights<br>Fall Protection Plan drawn up/updated<br>Available on Site |
| Construction. Regulation 8(5) | **Roof work** | Competent person appointed to plan & supervise Roof work.<br>Proof of appointees competence available on Site<br>Risk Assessment carried out<br>Roof work Plan drawn up/updated<br>Roof work inspect before each shift. Inspection register kept<br>Employees medically examined for physical & psychological fitness. Written proof on site |
| Construction. Regulation 9 | **Structures** | Information re. the structure being erected received from the Designer including:<br>- geo-science technical report where relevant<br>- the design loading of the structure<br>- the methods & sequence of construction<br>- anticipated dangers/hazards/special measures to construct safely<br>Risk Assessment carried out<br>Method statement drawn up<br>All above available on Site<br>Structures inspected before each shift. Inspections register kept |
| Construction. Regulation 10 | **Formwork & Support work** | Competent person appointed in writing to supervise erection, maintenance, use and dismantling of Support & Formwork<br>Design drawings available on site<br>Risk Assessment carried out<br>Support & Formwork inspected:<br>- before use/inspection<br>- before pouring of concrete<br>- weekly whilst in place<br>- before stripping/dismantling.<br>- Inspection register kept |

| | | |
|---|---|---|
| Construction. Regulation 14 | **Scaffolding** | Competent persons appointed in writing to:<br>- erect scaffolding (Scaffold Erector/s)<br>- act as Scaffold Team Leaders<br>- inspect Scaffolding weekly and after inclement weather (Scaffold Inspector/s)<br>Written Proof of Competence of above appointees available on Site<br>Copy of SABS 085 available on Site<br>Risk Assessment carried out<br>Inspected weekly/after bad weather. Inspection register/s kept |
| Construction. Regulation 15 | **Suspended Platforms** | Competent persons appointed in writing to:<br>- control the erection of Suspended platforms<br>- act as Suspended platforms Team Leaders<br>- inspect Suspended Scaffolding weekly and after inclement weather<br>Risk Assessment conducted<br>Certificate of Authorisation issued by a registered professional engineer available on Site/copy forwarded to the Department of Labour<br>The following inspections of the whole installation carried out by a competent person<br>- after erection and before use<br>- daily prior to use. Inspection register kept<br>The following tests to be conducted by a competent person:<br>- load test of whole installation and working parts every three months<br>- hoisting ropes/hooks/load attaching devices quarterly. Tests log book kept<br>Employees working on Suspended Platform medically examined for physical & psychological fitness. Written proof available |
| Construction. Regulation 11 | **Excavations** | Competent person/s appointed in writing to supervise and inspect excavation work<br>Written Proof of Competence of above appointee/s available on Site<br>Risk Assessment carried out<br>Inspected:<br>- before every shift<br>- after any blasting<br>- after an unexpected fall of ground<br>- after any substantial damage to the shoring<br>- after rain. Inspections register kept<br>Method statement developed where explosives will be/ are used |
| Construction. Regulation 12 | **Demolition Work** | Competent person/s appointed in writing to supervise and control Demolition work |

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| | | Written Proof of Competence of above appointee/s available on Site<br>Risk Assessment carried out<br>Engineering survey and Method Statement available on Site<br>Inspections to prevent premature collapse carried out by competent person before each shift. Inspection register kept |
| Construction. Regulation 17 | **Materials Hoist** | Competent person appointed in writing to inspect the Material Hoist<br>Written Proof of Competence of above appointee available on Site.<br>Materials Hoist to be inspected weekly by a competent person. Inspections register kept. |
| Construction. Regulation 19 | **Explosive Powered Tools** | Competent person appointed to control the issue of the Explosive Powered Tools & cartridges and the service, maintenance and cleaning. Register kept of above<br>Empty cartridge cases/nails/fixing bolts returns recorded<br>Cleaned daily after use **Work areas are demarcated!** |
| Construction. Regulation 18 | **Batch Plants** | Competent person appointed to control the operation of the Batch Plant and the service, maintenance and cleaning. Register kept of above<br>Risk Assessment carried out<br>Batch Plant to be inspected weekly by a competent person. Inspections register kept |
| Construction. Regulation 20/ Driven Machinery Regulations 18 & 19 | **Cranes & Lifting Machines Equipment** | Competent person appointed in writing to inspect Cranes, Lifting Machines & Equipment<br>Written Proof of Competence of above appointee available on Site.<br>Cranes & Lifting tackle identified/numbered<br>Register kept for Lifting Tackle<br>Log Book kept for each individual Crane<br>Inspection: - All cranes - **daily by operator**<br>- Tower Crane/s - **after erection/6monthly**<br>- Other cranes - **annually by comp. person**<br>- Lifting tackle(slings/ropes/chain slings etc.) - daily or before every new application |
| **Construction. Regulation 22/Electrical Machinery Regulations 9 & 10/ Electrical Installation Regulations** | ***Inspection & Maintenance of Electrical Installation & Equipment (including portable electrical tools)** | Competent person appointed in writing to inspect/test the installation and equipment.<br>Written Proof of Competence of above appointee available on Site.<br>Inspections:<br>- Electrical Installation & equipment inspected after installation, after alterations and quarterly. Inspection Registers kept<br>Portable electric tools, electric lights and extension leads must be uniquely identified/numbered.<br>Weekly visual inspection by User/Issuer/Storeman. Register kept. |

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| Construction. Regulation 26/ General Safety Regulation 8(1)(a) | ***Designation of Stacking & Storage Supervisor**. | Competent Person/s with specific knowledge and experience designated to supervise all Stacking & Storage<br>Written Proof of Competence of above appointee available on Site |
| Construction. Regulation 27/ Environmental Regulation 9 | ***Designation of a Person to Co-ordinate Emergency Planning And Fire Protection** | Person/s with specific knowledge and experience designated to co-ordinate emergency contingency planning and execution and fire prevention measures<br>Emergency Evacuation Plan developed:<br>- Drilled/Practiced<br>- Plan & Records of Drills/Practices available on Site<br>Fire Risk Assessment carried out<br>All Fire Extinguishing Equipment identified and on ***register***.<br>Inspected weekly. Inspection Register kept<br>Serviced annually |
| General Safety Regulation 3 | ***First Aid** | Every workplace provided with sufficient number of First Aid boxes. (Required where 5 persons or more are employed)<br>First Aid freely available<br>Equipment as per the list in the OH&S Act.<br>One qualified First Aider appointed for every 50 employees. (Required where more than 10 persons are employed)<br>List of First Aid Officials and Certificates<br>Name of person/s in charge of First Aid box/es displayed.<br>Location of First Aid box/es clearly indicated.<br>Signs instructing employees to report all Injuries/illness including first aid injuries |
| General Safety Regulation 2 | **Personal Safety Equipment (PSE)** | PSE Risk Assessment carried out<br>Items of PSE prescribed/use enforced<br>Records of Issue kept<br>Undertaking by Employee to use/wear PSE<br>PSE remain property of Employer, not to be removed from premises GSR 2(4) |
| General Safety Regulation 9 | ***Inspection & Use of Welding/Flame Cutting Equipment** | Competent Person/s with specific knowledge and experience designated to Inspect Electric Arc, Gas Welding and Flame Cutting Equipment<br>Written Proof of Competence of above appointee available on Site<br>All new vessels checked for leaks, leaking vessels NOT taken into stock but returned to supplier immediately<br>Equipment identified/numbered and entered into a register<br>Equipment inspected weekly. Inspection Register kept<br>Separate, purpose made storage available for full and empty vessels |
| Hazardous Chemical Substances **(HCS)** | ***Control of Storage & Usage of HCS and Flammables** | Competent Person/s with specific knowledge and experience designated to Control the Storage & Usage of **HCS** (including Flammables) |

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| Regulations Construction Regulation 23 | | Written Proof of Competence of above appointee available on Site<br>Risk Assessment carried out<br>Register of HCS kept/used on Site<br>Separate, purpose made storage available for full and empty containers |
| Vessels under Pressure Regulations | **Vessels under Pressure (VUP)** | Competent Person/s with specific knowledge and experience designated to supervise the use, storage, maintenance, statutory inspections & testing of VUP's<br>Written Proof of Competence of above appointee available on Site<br>Risk Assessment carried out<br>Certificates of Manufacture available on Site<br>Register of VUP's on Site<br>Inspections & Testing by Approved Inspection Authority (AIA):<br>- after installation/re-erection or repairs<br>- every 36 months.<br>- Register/Log kept of inspections, tests. Modifications & repair |
| Construction. Regulation 21 | **Construction Vehicles & Earth Moving Equipment** | Operators/Drivers appointed to:<br>- Carry out a daily inspection prior to use<br>- Drive the vehicle/plant that he/she is competent to operate/drive<br>Written Proof of Competence of above appointee available on Site. Record of Daily inspections kept |
| General Safety Regulation 13A | ***Inspection of Ladders** | Competent person appointed in writing to inspect Ladders<br>Ladders inspected at arrival on site and weekly there after. Inspections register kept<br>Application of the types of ladders (wooden, aluminium etc.) regulated by training and inspections and noted in register |
| General Safety regulation 13B | **Ramps** | Competent person appointed in writing to Supervise the erection & inspection of Ramps. Inspection register kept.<br>Daily inspected and noted in register |

### 14.2 Education & Training

| Subject | Requirement |
|---|---|
| *Company OH&S Policy Section 7(1) | Policy signed by CEO and published/Circulated to Employees<br>Policy displayed on Employee Notice Boards<br>Management and employees committed. |
| *Company/Site OH&S Rules (Section 13(a) | Rules published<br>Rules displayed on Employee Notice Boards<br>Rules issued and employees effectively informed or trained: written proof<br>Follow-up to ensure employees understand/adhere to the policy and rules. |
| *Induction & Task Safety | All new employees receive OH&S Induction Training.<br>Training includes Task Safety Instructions. |

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| Training (Section 13(a) | Employees acknowledge receipt of training.<br>Follow-up to ensure employees understand/adhere to instructions. |
| *General OH&S Training (Section 13(a) | All current employees receive specified OH&S training: written proof<br>Operators of Plant & Equipment receive specified training<br>Follow-up to ensure employees understand/adhere to instructions. |
| *Occupational Health & Safety Promotion | Incident Experience Board indicating e.g.<br>* No. of hours worked without an Injury<br>* No. of days worked without an Injury<br>Mission, Vision and Goal<br>Star Grading - Board kept up to date.<br>Safety Posters displayed & changed regularly<br>Employee Notice Board for OH&S Notices.<br>Site OH&S Competition.<br>Company OH&S Competition.<br>Participation in Regional OH&S Competition<br>Suggestion scheme. |

### 14.3 Public Safety, Security Measures & Emergency Preparedness

| Subject | Requirement |
|---|---|
| *Notices &Signs | Notices & Signs at entrances / along perimeters indicating **"No Unauthorised Entry".**<br>Notices & Signs at entrance instructing visitors and non - employees what to do, where to go and where to report on entering the site/yard with directional signs. e.g. **"Visitors to report to Office"**<br>Notices & Signs posted to warn of overhead work and other hazardous activities. e.g. **General Warning Signs** |
| Site Safeguarding | Nets, Canopies, Platforms, Fans etc. to protect members of the public passing / entering the site. |
| *Security Measures | Access control measures/register in operation<br>Security patrols after hours during weekends and holidays<br>Sufficient lighting after dark<br>Guard has access to telephone/ mobile/other means of emergency communication |
| *Emergency Preparedness | Emergency contact numbers displayed and made available to Security & Guard<br>Emergency Evacuation instructions posted up on all notice boards (including employees' notice boards)<br>Emergency contingency plan available on site/in yard<br>Doors open outwards/unobstructed<br>Emergency alarm audible all over (including in toilets) |
| ***Emergency Drill & Evacuation** | Adequate No. of employees trained to use Fire Fighting Equipment.<br>Emergency Evacuation Plan available, displayed and practiced.<br>**(See Section 1 for Designation & Register)** |

### 14.4 Personal Protective Equipment

| Subject | Requirement |
|---|---|
| *PPE needs analysis | Need for PPE identified and prescribed in writing.<br>PPE remain property of Employer, not to be removed from premises GSR 2(4) |
| *Head Protection | All persons on site wearing Safety Helmets including Sub-contractors and Visitors (where prescribed) |
| *Foot Protection | All employees on site wearing Safety Footwear including Gumboots for concrete / wet work and non-slip shoes for roof work.<br>Visitors to wear same upon request or where prescribed |
| *Eye and Face Protection | Eye and Face (also Hand and Body) Protection (Goggles, Face Shields, Welding Helmets etc.) used when operating the following:<br>* Jack/ Kango Hammers<br>* Angle / Bench Grinders<br>* Electric Drills (Overhead work into concrete / cement / bricks<br>* Explosive Powered tools<br>* Concrete Vibrators / Pokers<br>* Hammers & Chisels<br>* Cutting / Welding Torches<br>* Cutting Tools and Equipment<br>* Guillotines and Benders<br>* Shears<br>* Sanders and Sanding Machines<br>* CO2 and Arc Welding Equipment<br>* Skill / Bench Saws<br>* Spray Painting Equipment etc. |
| *Hearing Protection | Hearing Protectors (Muffs, Plugs etc.) used when operating the following:<br>* Jack / Kango Hammers<br>* Explosive Powered Tools<br>* Wood/Aluminium Working Machines e.g. saws, planers, routers |
| *Hand Protection | Protective Gloves worn by employees handling / using:<br>* Cement / Bricks / Steel / Chemicals<br>* Welding Equipment<br>* Hammers & Chisels<br>* Jack / Kango Hammers etc. |
| *Respiratory Protection | Suitable/efficient prescribed Respirators worn correctly by employees handling / using:<br>* Dry cement<br>* Dusty areas<br>* Hazardous chemicals<br>* Angle Grinders<br>* Spray Painting etc. |
| *Fall Prevention Equipment | Suitable Safety Belts / Fall Arrest Equipment correctly used by persons working on / in unguarded, elevated positions e.g.:<br>* Scaffolding<br>* Riggers<br>* Lift shafts<br>* Edge work<br>* Ring beam edges etc.<br>Other methods of fall prevention applied e.g. catch nets |

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| *Protective Clothing | All jobs requiring protective clothing ( Overalls, Rain Wear, Welding Aprons etc.) Identified and clothing worn. |
| *PPE Issue & Control | Identified Equipment issued free of charge.<br>All PPE maintained in good condition. (Regular checks).<br>Workers instructed in the proper use & maintenance of PPE.<br>Commitment obtained from wearer accepting conditions and to wear the PPE.<br>Record of PPE issued kept on H&S File.<br>PPE remain property of Employer, not to be removed from premises GSR 2(4) |

**14.5 Housekeeping**

| Subject | Requirement |
|---|---|
| *Scrap Removal System | All items of Scrap/Unusable Off-cuts/Rubble and redundant material removed from working areas on a regular basis. (Daily)<br>Scrap/Waste removal from heights by chute/hoist/crane.<br>Nothing thrown/swept over sides.<br>Scrap disposed of in designated containers/areas<br>Removal from site/yard on a regular basis. |
| Stacking & Storage<br><br>**(See Section 1 for Designation & Register)** | <u>Stacking:</u><br>* Stable, on firm level surface/base.<br>* Prevent leaning/collapsing<br>* Irregular shapes bonded<br>* Not exceeding 3x the base<br>* Stacks accessible<br>* Removal from top only.<br><u>Storage:</u><br>* Adequate storage areas provided.<br>* Functional – e.g. demarcated storage areas/racks/bins etc.<br>* Special areas identified and demarcated e.g. flammable gas, cement etc.<br>* Neat, safe, stable and square.<br>* Store/storage areas clear of superfluous material.<br>* Storage behind sheds etc. neat/under control.<br>* Storage areas free from weeds, litter etc. |
| *Waste Control/Reclamation | Re-usable off-cuts and other re-usable material removed daily and kept to a minimum in the work areas.<br>All re-usable materials neatly stacked/stored in designated areas. (Nails removed/bent over in re-usable timber).<br>Issue of hardware/nails/screws/cartridges etc. controlled and return of unused items monitored. |
| Sub-contractors (Housekeeping) | Sub-contractors required to comply with Housekeeping requirements. |

### 14.6 Working at Heights (including roof work)

| Subject | Requirement |
|---|---|
| Openings | Unprotected openings adequately guarded/fenced/barricaded/catch nets installed |
| | Roof work discontinued when bad/hazardous weather<br>Fall protection measures (including warning notices) when working close to edges or on fragile roofing material<br>Covers over openings in roof of robust construction/secured against displacement |

### 14.7 Scaffolding / Formwork / Support Work

| Subject | Requirement |
|---|---|
| Access/System Scaffolding | Foundation firm / stable<br>Sufficient bracing.<br>Tied to Structure/prevented from side or cross movement<br>Platform boards in good condition/sufficient/secured.<br>Handrails and toe boards provided.<br>Access ladders / stairs provided.<br>Area/s under scaffolding tidy.<br>Safe/unsafe for use signs<br>Complying with OH&S Act/SABS 085 |
| Free Standing Scaffolding | Foundation firm / stable<br>Sufficient bracing.<br>Platform boards in good condition/sufficient/secured.<br>Handrails and toe boards provided.<br>Access ladders / stairs provided.<br>Area/s under scaffolding tidy.<br>Safe/unsafe for use signs<br>Height to base ratio correct<br>Outriggers used /tied to structure where necessary<br>Complying with OH&S Act/SABS 085 |
| *Mobile Scaffolding | Foundation firm / stable<br>Sufficient bracing.<br>Platform boards in good condition/sufficient/secured.<br>Handrails and toe boards provided.<br>Access ladders / stairs provided.<br>Area/s under scaffolding tidy.<br>Safe/unsafe for use signs |
| *Mobile Scaffolding | Wheels / swivels in good condition<br>Brakes working and applied.<br>Height to base ratio correct.<br>Outriggers used where necessary<br>Complying with OH&S Act/SABS 085 |
| Suspended Scaffolding | Outriggers securely supported and anchored.<br>Correct No. of steel wire ropes used.<br>Platform as close as possible to the structure.<br>Handrails on all sides<br>All winches / ropes / cables / brakes inspected regularly and replaced as prescribed<br>Scaffolding complies with OHS Act (Act 85/93)<br>Winch(es) maintained by competent person(s) |

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| Formwork / Support Work | All components in good condition.<br>Foundation firm / stable.<br>Adequate bracing / stability ensured.<br>Good workmanship / uprights straight and plumb.<br>Good cantilever construction.<br>Safe access provided.<br>Areas under support work tidy.<br>Same standards as for system scaffolding. |
| Special Scaffolding | Special Scaffolding e.g. Cantilever, Jib and Truss-out scaffolds erected to an acceptable standard and inspected by specialists. |
| Edges & Openings | Edges barricaded to acceptable standards.<br>Manhole openings covered / barricaded.<br>Openings in floor / other openings covered, barricaded/fenced.<br>Stairs provided with handrails.<br>Lift shafts barricaded / fenced off. |

### 14.8 Ladders

| Subject | Requirement |
|---|---|
| *Physical Condition / Use & Storage | Stepladders - hinges/stays/braces/stiles in order.<br>Extension ladders - ropes/rungs/stiles/safety latch/hook in order.<br>Extension / Straight ladders secured or tied at the bottom / top.<br>No joined ladders used<br>Wooden ladders are never painted except with varnish<br>Aluminium ladders NOT to be used with electrical work<br>All ladders stored on hooks / racks and not on ground.<br>Ladders protrude 900 mm above landings / platforms / roof.<br>Fixed ladders higher than 5 m have cages/Fall arrest system |

### 14.9 Electricity (as part of, or additional to the manual "Safety & Switching Procedures for Electrical Installations"- see attached document)

| Subject | Requirement |
|---|---|
| *Electrical Distribution Boards & Earth Leakage | Colour coded / numbered / symbolic sign displayed.<br>Area in front kept clear and unobstructed.<br>Fitted with inside cover plate / openings blanked off / no exposed "live" conductors / terminals/Door kept close<br>Switches / circuit breakers identified.<br>Earth leakage protection unit fitted and operating.<br>Tested with instrument: Test results within 15 – 30 milliamps<br>Aperture/Opening/s provided for the plugging in and removal of extension leads without the need to open the door<br>Apertures and openings used for extension leads to be protected against the elements and especially rain |

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| *Electrical Installations & Wiring | Temporary wiring / extension leads in good condition / no bare or exposed wires.<br>Earthing continuity / polarity correct:<br>**Looking at the open connectors to connect the wiring, the word "Brown" has the letter 'R' in it, so the b'R'own wire connects to the 'R'ight hand connector. "Blue" has the letter 'L' in it, so the b'L'ue wire connects to the 'L'eft hand connector.**<br>Cables protected from mechanical damage and moisture.<br>Correct loading observed e.g. no heating appliance used from lighting circuit etc.<br>Light fittings/lamps protected from mechanical damage/moisture.<br>Cable arrestors in place and used inside plugs |
| *Physical condition of Electrical Appliances & Tools | Electrical Equipment and Tools: (includes all items plugging in to a 16 Amp supply socket)<br>Insulation / casing in good condition.<br>Earth wire connected/intact where not of double insulated design<br>Double insulation mark indicates that no earth wire is to be connected.<br>Cord in good condition/no bare wires/secured to machine & plug.<br>Plug in good condition, connected correctly and correct polarity. |

### 14.10 Emergency and Fire Prevention and Protection

| Subject | Requirement |
|---|---|
| *Fire Extinguishing Equipment | Fire Risks Identified and on record<br>The correct and adequate Fire Extinguishing Equipment available for:<br>* Offices<br>* General Stores<br>* Flammable Store<br>* Fuel Storage Tank/s and catchment well<br>* Gas Welding / Cutting operations<br>* Where flammable substances are being used / applied.<br>* Equipment Easily Accessible |
| *Maintenance | Fire equipment checked minimum monthly, serviced yearly |
| *Location & Signs | Fire Extinguishing Equipment:<br>* Clearly visible<br>* Unobstructed<br>* Signs posted including "No Smoking" / "No Naked Lights" where required. (Flammable store, Gas store, Fuel tanks etc.) |
| * Storage Issue & Control of Flammables (incl. Gas cylinders | Storage Area provided for flammables with suitable doors, ventilation, bund etc.<br>Flammable store neat / tidy and no Class A combustibles. Decanting of flammable substances carried out in ignition free and adequately ventilated area.<br>Container bonding principles applied<br>Only sufficient quantities issued for one task or one day's usage<br>Separate, special gas cylinder store/storage area.<br>Gas Cylinders stored / used / transported upright and secured in trolley/cradle/structure and ventilated.<br>Types of Gas Cylinders clearly identified as well as the storage area and stored separately.<br>Full cylinders stored separately from empty cylinders.<br>All valves, gauges, connections, threads of all vessels to be checked regularly for leaks.<br>Leaking acetylene vessels to be returned to the supplier **IMMEDIATELY**. |

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| *Storage, Issue & Control of Hazardous Chemical Substances (HCS) | HCS storage principles applied: products segregated<br>Only approved, non-expired HCS to be used<br>Only the prescribed PPE shall be used as the minimum protection<br>Provision made for leakage/spillage containment and ventilation<br>Emergency showers/eye wash facilities provided<br>HCS under lock & key controlled by designated person<br>Decanted/issued in containers as prescribed with information/warning labels<br>Disposal of unwanted HCS by accredited disposal agent<br>No dumping or disposal of any HCS on or inside the storage area or anywhere else on the project site<br>All vessels or containers to be regularly checked for leaks |

### 14.11 Excavations

| Subject | Requirement |
|---|---|
| Excavations deeper than 1.5 m. | Shored / Braced to prevent caving / falling in.<br>Provided with an access ladder.<br>Excavations guarded/barricaded/lighted after dark in public areas<br>Soil dumped at least 1 m away from edge of excavation<br>On sloping ground soil dumped on lower side of excavation<br>All excavations are subject to daily inspections |

### 14.12 Tools

| Subject | Requirement |
|---|---|
| *Hand Tools | <u>Shovels / Spades / Picks:</u><br>* Handles free from cracks and splinters<br>* Handles fit securely<br>* Working end sharp and true<br><u>Hammers:</u><br>* Good quality handles, no pipe or reinforcing steel handles.<br>* Handles free from cracks and splinters<br>Handles fit securely<br><u>Chisels:</u><br>* No mushroomed heads / heads chamfered<br>* Not hardened<br>* Cutting edge sharp and square<br><u>Saws:</u><br>* Teeth sharp and set correctly<br>* Correct saw used for the job |
| *Explosive Powered Tools. | Only used by trained / authorised personnel.<br>Prescribed warning signs placed / displayed where tool is in use.<br>Work area must be properly isolated/demarcated during use of tool.<br>Inspected at least monthly by competent person and results recorded.<br>Issue and return recorded including cartridges / nails and unused cartridges / nails / empty shells recorded.<br>Cleaned daily after use. |

### 14.13 Cranes

| Subject | Requirement |
|---|---|
| Tower Crane | Only operated by trained authorised operator with valid certificate of training<br>Structure - no visible defects<br>Electrical installation good/safe<br>Crane hook: Throat pop marked/safety latch fitted/functional<br>SWL/MML displayed<br>Limit switches with backup switches fitted/operational<br>Access Ladder fitted with backrests/Fall arrest system installed<br>Lifting tackle in good condition/inspection colour coding<br>Lifting tackle checked daily |
| *Mobile Crane | Only operated by trained authorised operator with valid certificate of training<br>Rear view mirrors<br>Windscreen visibility good<br>Windscreen wipers operating effectively<br>Indicators operational<br>Hooter working<br>Tyres safe/sufficient tread/pressure visibly sufficient<br>No missing Wheel nuts<br>Headlights, taillights operational<br>Reverse alarm working and audible and known by all employees |
| *Mobile Crane continued | Grease nipples and grease on all joints<br>No Oil leaks<br>Hydraulic pipes visibly sound/no leaks<br>No corrosion on Battery terminals<br>Boom visibly in good condition/no apparent damage<br>Cable/sheaves greased/no visible damage/split wires/corrosion and checked daily<br>Brakes working properly<br>Crane hook: Throat pop marked/safety latch fitted/functional<br>SWL/MML displayed<br>By-pass valves operational<br>Deflection chart displayed/visible to operator/driver<br>Outriggers functional used |
| *Gantry Crane | Only operated by trained authorised persons<br>Correct slinging techniques used<br>Recognised/displayed on chart signals used<br>Log book kept/up to date<br>Prescribed inspections conducted on crane &lifting tackle and checked daily<br>“Crane overhead” signage, where applicable<br>Crane hook: Throat pop marked/safety latch fitted/functional<br>SWL/MML displayed/load limiting switches fitted/operational |

### 14.14 Builder’s Hoist

| Subject | Requirement |
|---|---|
| Builder’s Hoist | **“Hoist In Operation”** - sign displayed.<br>General construction strong and free from patent defects.<br>Tower: * Adequately secured / braced.<br>* At least 900 mm available for over travel. |

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| | * Barricaded at least 2 100 mm high at ground level and floors.<br>* Landing place provided with gate at least 1 800 high.<br>Platform: * No persons conveyed on platform<br>* Steel wire ropes with breaking strength of six times max. load.<br>* Signal systems used which may include two way radio connection.<br>* Goods prevented from moving / falling off.<br>* Effective brake capable of stopping and holding max. load. |

### 14.15 Transport & Materials Handling Equipment

| Subject | Requirement |
|---|---|
| *Site Vehicles | All Site Vehicles, Dumpers, Bobcats, Loaders etc; checked daily before use by driver / operator.<br>Inventory of vehicles used/operated on site<br>Inspection by means of a checklist / results recorded.<br>No persons riding on equipment not designed or designated for passengers.<br>Site speed limit posted, enforced and not exceeded.<br>Drivers / Operators trained / licensed and carrying proof.<br>No unauthorised persons allowed to drive / operate equipment. |
| Conveyors | Conveyor belt nip points and drive gear guarded.<br>Emergency stop/lever/brake fitted, clearly marked & accessible and tested to be functional under full load. |

### 14.16 Site Plant and Machinery

| Subject | Requirement |
|---|---|
| Brick Cutting Machine | Operator Trained.<br>Only authorised persons use the machine.<br>Emergency stop switch clearly marked and accessible.<br>Area around the machine dry and slip/trip free/clear of off-cuts<br>All moving drive parts guarded/electrical supply cable protected<br>Operator using correct PPE - eye/face/hearing/foot/hands/body. |
| *Electric Arc Welder | Welder Trained.<br>Only authorised / trained persons use welder.<br>Earth cable adequately earthed to work.<br>Electrode holder in good condition/safe<br>Cables, clamps & lugs/connectors in good condition.<br>Area in which welding machine is used is dry/protected from wet.<br>Welder using correct PPE - eye/ face/foot/body/respirator.<br>Correct transparent screens & warning signs placed |
| *Woodworking Machines | Operators Trained.<br>Only authorised persons use machines.<br>Provided with guards.<br>Guards used.<br>Operators using correct PPE - eye/face/feet/hearing<br>Circular saws strictly operated according to prescribed methods and settings<br>Only prescribed saw blades (cross-cut, ripping blade, smooth cut, aluminium) shall be used for various applications |

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| *Compressors | Relief valves correctly set and locked / sealed.<br>Maximum Safe Working Pressure (MSWP) indicated on face of pressure gauge: not on glass cover.<br>All drives adequately guarded.<br>Receiver/lines drained daily<br>Hoses good condition/clamped, not wired<br>Compressed air NEITHER used to dust off clothing/PPE/ and work areas NOR on bare skin |
| Concrete Mixer / Batch Plant | Top platform provided with guardrails.<br>Dust abatement methods in use.<br>Operators using correct PPE - eye / hands / respirators.<br>All moving drive parts guarded.<br>Emergency stops identified / indicated and accessible.<br>Area kept clean/dry/and free from tripping and slipping hazards.<br>Operators overseer identified and crane signals displayed and used. |
| *Gas Welding / Flame Cutting Equipment | Only authorised/trained persons use the equipment.<br>Torches and gauges in good condition.<br>Flashback arrestors fitted at cylinders and gauges.<br>Hoses in good condition/correct type/all connections with clamps<br>Cylinders stored, used and transported in upright position, secured in trolley / cradle / to structure.<br>All cylinders regularly checked for leaks, leaking cylinders returned immediately<br>Fire prevention/control methods applied/hot work permits |

### 14.17 Plant & Storage Yards/Site Workshops Specifics

| Subject | Requirements |
|---|---|
| Section 8(2)(1) General Machinery Regulation 2(1): **Supervision of the Use & Maintenance of Machinery** | Person/s with specific knowledge and experience designated in writing to Supervise the Use & Maintenance of Machinery<br>Critical items of Machinery identified/numbered/placed on register/inventory<br>Inspection/maintenance schedules for abovementioned<br>Inspections/maintenance carried out to above schedules<br>Results recorded |
| General Machinery Regulation 9(2): **Notices re. Operation of Machinery** | Schedule D Notice posted in Work areas |
| Vessels under Pressure Regulation 13(1)(b): **Supervision of the Use & Maintenance of Vessels under Pressure (VuP)** | Person/s with specific knowledge and experience designated in writing to Supervise the Use & Maintenance of VuP's<br>VuP's identified/numbered/placed on register/Manufacturers plate intact<br>Inspection/maintenance schedules for abovementioned<br>Inspections/maintenance carried out to above schedules<br>Results recorded/Test certificates available |

| | |
|---|---|
| Lock-out Procedure | Lock-out procedure in operation |
| Ergonomics | Ergonomics survey conducted – results on record<br>Survey results applied |
| Demarcation & Colour Coding | Demarcation principles applied<br>All services, pipes, electrical installation, stop-start controls, emergency controls etc. colour coded to own published or SABS standard<br>Employees trained to identify colour coding |
| Portable & Bench Grinders | Area around grinder clear/trip/slip free<br>Bench grinders mounted securely/grinder generally in good condition/No excessive vibration<br>On/Off switch/button clearly demarcated/accessible<br>Adequate guards in place<br>Tool rest – secure/square/max. 2 mm gap, perpendicular to drive shaft<br>Stone/disk - correct type and size/mounted correctly/dressed<br>Use of Eye protection enforced |
| Battery Storage & Charging | Adequately ventilated, ignition free room/area/no smoking sign/s<br>Batteries placed on rubber/wooden surface<br>Emergency shower/eye wash provided<br>No acid storage in area<br>Prescribed methods in place and adhered to when charging batteries |
| Ancillary Lifting Equipment | Chain Blocks/Tirfors/jacks/mobile gantries etc. identified/ numbered on register<br>Chains in good condition/links no excessive wear/checked daily<br>Lifting hooks – throat pop marked/safety latch fitted<br>SWL/MML marked/displayed |
| Presses/Guillotines/ Shears | Only operated by trained/authorised persons<br>Interlocks/lock-outs fitted/PPE worn or used at all times |

### 14.18 Workplace Environment, Health and Hygiene

| Subject | Requirement |
|---|---|
| *Lighting | Adequate lighting in places where work is being executed e.g. stairwells and basements.<br>Light fittings placed / installed causing no irritating/blinding glare.<br>Stroboscopic effect eliminated (not only reduced) where moving objects or machinery is used |
| *Ventilation | Adequate ventilation / extraction / exhausting in hazardous areas e.g. chemicals / adhesives / welding / petrol or diesel/ motors running and in confined spaces / basements. |
| *Noise | Tasks identified where noise levels exceeds 85 dB at any one time.<br>All reasonable steps taken to reduce noise levels at the source.<br>Hearing protection used where noise levels could not be reduced to below 85 dB. |
| *Heat Stress | Measures in place to prevent heat exhaustion in heat stress problem areas e.g. steel decks, when the WBGT index reaches 30. (See Environmental Regulation 4)<br>Cold drinking water readily available at all times. |
| *Ablutions | Sufficient hygiene facilities provided - 1 toilet per 30 employees (National Building Regulations prescribe chemical toilets for Construction sites)<br>Toilet paper available.<br>Sufficient showers provided.<br>Facilities for washing hands provided |

| | |
|---|---|
| | Soap/cleaning agent available for washing hands<br>Means of drying hands available<br>Lock-up changing facilities / area provided.<br>Ablution facilities kept hygienic and clean. |
| *Eating / Cooking Facilities | Adequate storage facilities provided.<br>Weather protected eating area provided, separate from changing area<br>Refuse bins with lids provided.<br>Facilities kept clean and hygienic. |
| *Pollution of Environment | Measures in place to minimize dust generation.<br>Accumulation or littering of empty cement pockets, plastic wrapping / bags, packing materials etc. prevented.<br>Spillage / discarding of oil, chemicals and dieseline into storm water and other drains or into existing or newly dug holes/cavities on site expressly prohibited. |
| *Hazardous Chemical Substances | All substances identified and list available e.g. acids, flammables, poisons etc.<br>Material Safety Data Sheets (MSDS) indicating hazardous properties and emergency procedures in case of incident on file and readily available.<br>Substances stored safely.<br>Expiry dates meticulously checked where applicable |

## 15. THE PRINCIPAL CONTRACTOR'S GENERAL DUTIES

The Principal Contractor shall at all times ensure his status of an "employer" as referred to in the Act, and will abide by his/her responsibilities, duties and functions as per the requirements of the Act and Regulations with specific reference to Section 8 of the Act.

The Principal Contractor shall keep, and on demand make available, a copy of the Act on site at all times and in addition to that he/she will introduce and maintain a file titled "Health and Safety File", or other record in permanent form, which shall contain all relevant aspects and information as contemplated in the Construction Regulations. He/she will make this file available to the client or his representative whenever necessary or on request to an interested party.

## 16. THE PRINCIPAL CONTRACTOR'S SPECIFIC DUTIES

The Principal Contractor's specific duties in terms of these specifications are detailed in the Construction Regulations as published under government notice No.R1010 dated 18 July 2003.

The Principal Contractor is specifically referred to the following elements of the Construction Regulations:

| | | |
|---|---|---|
| Regulation No. 1 | - | Definitions |
| Regulation No. 2 | - | Scope of application |
| Regulation No. 3 | - | Notification of construction work |
| Regulation No. 5 | - | Principal Contractor and Contractor |
| Regulation No. 6 | - | Supervision of construction work |
| Regulation No. 7 | - | Risk Assessment |
| Regulation No. 26 | - | Stacking & Storage on construction sites |
| Regulation No. 28 | - | Construction welfare facilities |
| Regulation No. 29 | - | Approved Inspection authorities |
| Regulation No. 30 | - | Offences and penalties |

This list must not be taken to be exclusive or exhaustive!

The Principal Contractor shall ensure compliance to the Act and its Regulations and specifically to the above regulations, and document each record in the Health and Safety File.

## 17. THE PRINCIPAL CONTRACTOR'S SPECIFIC RESPONSIBILITIES WITH REGARD TO HAZARDOUS ACTIVITIES

The following activities are identifiable as hazardous in terms of the Construction Regulations.

The contractor shall execute the activities in accordance with the following Construction Regulations and other applicable regulations of the Act:

| | | |
|---|---|---|
| Regulation No. 8 | - | Fall protection |
| Regulation No. 9 | - | Structures |
| Regulation No. 10 | - | Formwork and support work |
| Regulation No. 11 | - | Excavation work |
| Regulation No. 12 | - | Demolition work |
| Regulation No. 13 | - | Tunneling |
| Regulation No. 14 | - | Scaffolding |
| Regulation No. 15 | - | Suspended platforms |
| Regulation No. 16 | - | Boatswain's chairs |
| Regulation No. 17 | - | Material hoists |
| Regulation No. 18 | - | Batch plants |

| | |
|---|---|
| Regulation No. 19 | - Explosive powered tools |
| Regulation No. 20 | - Cranes |
| Regulation No. 21 | - Construction vehicles & mobile plant. |
| Regulation No. 22 | - Electrical installations and machinery on construction sites |
| Regulation No. 23 | - Use and temporary storage of flammable liquids on construction sites |
| Regulation No. 24 | - Water environments |
| Regulation No. 25 | - Housekeeping on construction sites |
| Regulation No. 27 | - Fire precautions on construction sites. |

This list must not be taken to be exclusive or exhaustive!

All of the above requirements will be read in conjunction with the relevant regulations and health and safety standards as required by the Act. All documents and records required by the Construction Regulations will be kept in the Health and Safety File and will be made available at any time when required by the client or his representative, or on request to an interested party.

## 18. GENERAL NOTES TO THE PRINCIPAL CONTRACTOR

**Legal Framework**

Part of legal obligations

The more important Acts and relevant subordinate/secondary legislation as well as other (inter alia Local Government) legislation that also apply to the State as well as to State owned buildings and premises: -

(i) The latest issue of SABS 0142: "Code of Practice for the Wiring of Premises"
(ii) The Local Government Ordinance 1939 (Ordinance 17 of 1939) as amended and the municipal by-laws and any special requirements of the local supply authority
(iii) The Fire Brigade Services Act 1987, Act 99 of 1987 as amended
(iv) The National Building Regulations and Building Standards Act 1977 (Act 103 of 1977) as amended and relevant proclaimed Regulations (SABS 0400)
(v) The Post Office Act 1958 (Act 44 of 1958) as amended
(vi) The Electricity Act 1984, Act 41 of 1984
(vii) The Regulations of Local Gas Board(s), including Publications of the SABS Standards and Codes of Practice, with specific reference to GNR 17468 dated 4th October 1997
(viii) Legislation pertaining to water usage and the environment
(ix) Legislation governing the use of equipment, which may emit radiation (e.g. X-Rays etc.)
(x) Common Law

**Legal Liabilities**

Common Law and Legislation

Based on two main criteria –

- Would the reasonable person have foreseen the hazard?
  **That is a reasonable person in that specific position, taking experience, qualifications, authority, position in the organization etc. into consideration**

- Would the reasonable person have taken precautionary measures (action) to prevent or limit the hazard?

Negligence can be proven on failure on **any** or **both** of the above criteria
(There may not necessarily be a relationship between criminal and civil liability!)

## 19. HOUSE KEEPING

Good housekeeping will be maintained at all times as per Construction Regulation No. 25. Poor housekeeping contributes to three major problems, namely, costly or increased accidents, fire or fire hazards and reduction in production. Good housekeeping will enhance production time.

Particular emphasis is to be placed on the following crucial elements of a construction site:

- Phase priorities and production/plant layout
- Enclosures
- Pits, openings and shoring
- Storage facilities
- Effective, sufficient and maintained lighting or illumination
- Principal sources of injuries e.g. stairways, runways, ramps, loose building material
- Oil, grease, water, waste, rubble, glass, storm water
- Colour coding
- Demarcations
- Pollution
- Waste disposal
- Ablution and hygiene facilities
- First aid

This list must not be taken to be exclusive or exhaustive!

In promotion of environmental control all waste, rubble, scrap etc, will be disposed of at a registered dump site and records will be maintained. Where it is found to be impractical to use a registered dump site or it is not available, the Principal Contractor will ensure that the matter is brought to record with the client or his representative, after which suitable, acceptable alternatives will be sought and applied.

Dross and refuse from metals, and waste matters or by-products whose nature is such that they are poisonous or capable of fermentation, putrefaction or constituting a nuisance shall be treated or disposed of by methods approved of by an inspector.

NOTE: No employer (Principal Contractor) shall require or permit any person to work at night or after hours unless there is adequate, suitable artificial lighting including support services in respect of Health and Safety.

## 20. LOCKOUT SYSTEMS - *ELECTRICAL!*

A system of control shall be established in order that no unauthorized person can energize a circuit, open a valve, or activate a machine on which people are working or doing maintenance, even if equipment, plant or machinery is out of commission for any period, thus eliminating injuries and damage to people and equipment as far as is reasonably practicable.

Physical/mechanical lock-out systems shall be part of the safety system and included in training. Lockouts shall be tagged and the system tested before commencing with any work or repairs.

## 21. INCIDENT INVESTIGATION

Inspection and reporting is the best way in which a responsible contractor can control his area of responsibility. All incidents therefore, irrespective of whether it gave rise to loss, injury, damage or not, shall be investigated and the results recorded in the Health and Safety File. (attached GAR 9)

## 22. GENERAL

The project under control of the Principal Contractor shall be subject to periodic health and safety audits that will be conducted by the client at intervals agreed upon between the Principal Contractor and the client, provided such intervals will not exceed periods of one month. The Principal Contractor is to ensure that he/she and all persons under his control on the construction site shall adhere to the above specifications, as non-conformance will lead to the client taking action as directed by Construction Regulation 4.1(e). The Principal Contractor should note that he/she shall be held liable for any anomalies including costs and resulting deficiencies due to delays caused by non-conformance and/or non-compliance to the above Health and Safety Specifications and the Health and Safety Plan based on these specifications.

## 23. IMPORTANT LISTS AND RECORDS TO BE KEPT

The following are lists of several records that are to be kept in terms of the Construction Regulations. The lists are:

1 List of appointments
2 List of record keeping responsibilities
3 Inspection checklist

These lists and documents are to be used as a point of reference to determine which components of the Act would be applicable to a particular site or task or project, as was intended under paragraph 1 ("Preamble") above.

### 1. LIST OF APPOINTMENTS

| *ITEM* | **REGULATION** | **APPOINTMENT** | **RESPONSIBLE PERSON** |
|---|---|---|---|
| 1. | 4(1)(c) | Principal contractor for each phase or project | Client |
| 2. | 5.(3)(b) | Contractor | Principal Contractor |
| 3. | 5(11) | Contractor | Contractor |
| 4. | 6(1) | Construction supervisor | Contractor |
| 5. | 6(2) | Construction supervisor sub-ordinates | Contractor |
| 6. | 6(6) | Health and Safety Officer | Contractor |
| 7. | 7(1) | Person to Carry Out Risk Assessment | Contractor |
| 8. | 7(4) | Trainer/Instructor | Contractor |
| 9. | 8(1)(a) | Fall Protection Planner | Contractor |
| 10. | 10 (a) | Formwork & Support Work Supervisor | Contractor |
| 11. | 10(e) + (f) | Formwork & Support Work Examiner | Contractor |
| 12. | 11(1) | Excavation Supervisor | Contractor |
| 13. | 11(3)(b)(ii)(b) | Professional Engineer or Technologist | Contractor |
| 14. | 11(3)(k) | Explosives Expert | Contractor |
| 15. | 12(1) | Supervisor Demolition Work | Contractor |
| 16. | 12(2) + (3) | Demolition Expert | Contractor |
| 17. | 12(11) | Explosives Expert | Contractor |
| 18. | 14(2) | Scaffold Supervisor | Contractor |
| 19. | 15(1) | Suspended Platform Supervisor | Contractor |
| 20. | 15(2)(c) | Compliance Plan Developer | Contractor |
| 21. | 15(8)(c) | Suspended Platform Expert | Contractor |
| 22. | 15(13) | Outrigger Expert | Contractor |
| 23. | 17(8)(a) | Material Hoist Inspector | Contractor |
| 24. | 18(1) | Batch Plant Supervisor | Contractor |
| 25. | 18(7) | Batch Plant Operator | Contractor |
| 26. | 19(2)(b) | Power Tool Expert | Contractor |
| 27. | 19.2 (g) (i) | Power Tool Controller | Contractor |
| 28. | 20(f) | Tower Crane Operator | Contractor |
| 29. | 21(1)(d)(i) | Construction Vehicle and Mobile Plant Operator | Contractor |
| 30. | 21(1)(j) | Construction Vehicle and Mobile Plant Inspector | Contractor |
| 31. | 22(d) | Temporary Electrical Installations Inspector | Contractor |
| 32. | 22 (e) | Temporary Electrical Installations Controller | Contractor |
| 33. | 26 (a) | Stacking and Storage Supervisor | Contractor |
| 34. | 27 (h) | Fire Equipment Inspector | Contractor |

**LIST OF RECORD KEEPING RESPONSIBILITIES**

| *ITEM* | *CR* | *RECORD TO BE KEPT* | **RESPONSIBLE PERSON** |
|---|---|---|---|
| 1. | 3(3) | Notification to Provincial Director – Annexure A<br>Available on site | Principal Contractor |
| 2. | 4(3) | Copy of Principal Contractor's Health & Safety Plan<br>Available on request | Client |
| 3. | 5(6) | Copy of Principal Contractor's Health & Safety Plan<br>As well as each Contractor's Health & Safety Plan<br>Available on request | Principal Contractor |
| 4. | 5(7) | Health and Safety File opened and kept on site (including all documentation required i.t.o. OHSA & Regulations<br>Available on request | Every Contractor |
| 5. | 5(8) | Consolidated Health and Safety File handed to Client on completion of Construction work.<br>To include all documentation required i.t.o. OHSA & Regulations and records of all drawings, designs, materials used and similar information on the structure | Principal Contractor |
| 6. | 5(9) | Comprehensive and Updated List of all Contractors on site, the agreements between the parties and the work being done<br>Included in Health and Safety file and available on request | Principal Contractor |
| 7. | 6(7) | Keep record on the Health and Safety File of the input by Construction Safety Officer [CR 6 (7)] at design stage or on the Health and Safety Plan | Contractor |
| 8. | 7(2) | Risk Assessment - Available on site for inspection | Contractor |
| 9. | 7 (9) | Proof of Health and Safety Induction Training | Every Employee on site |
| 10. | 8(3) | Construction Supervisor [CR 6(1)] has latest updated version of Fall Protection Plan [CR 8(1)] | Contractor |
| 11. | 9(2)(b) | Inform contractor in writing of dangers and hazards relating to construction work | Designer of Structure |
| 12. | 9(3) | All drawings pertaining to the design of structure<br>On site available for inspection | Contractor |
| 13. | 9(4) | Record of inspections of the structure [First 2 years – once every 6 months, thereafter yearly] - Available on request | Owner of Structure |
| 14. | 9(5) | Maintenance records - safety of structure - Available on request | Owner of Structure |
| 15. | 10(d) | Drawings pertaining to the design of formwork/support work structure - Kept on site, available on request | Contractor |
| 16. | 11(3)(h) | Record of excavation inspection - On site available on request | Contractor |
| 17. | 15(11) | Suspended Platform inspection and performance test records<br>Kept on site available, on request | Contractor |
| 18. | 17(8)(c) | Material Hoist daily inspection entered and signed in record book kept on the premises | Contractor |
| 19. | 17(8)(d) | Maintenance records for Material Hoist - Available on site | Contractor |
| 20. | 18(9) | Records of Batch Plant maintenance and repairs<br>On site available for inspection | Contractor |
| 21. | 19(2)(g)(ii) | Issuing and collection of cartridges and nails or studs (Explosive Powered Tools) recorded in register – recipient signed for receipt as well as return | Contractor |
| 22. | 21(1)(j) | Findings of daily inspections (prior to use) of Construction Vehicles and Mobile Plant | Contractor |
| 23. | 22(d) | Record of temporary electrical installation inspections [once a week] and electrical machinery [daily before use] in a register and kept on site | Contractor |
| 24. | 27(*l*) | Fire Evacuation Plan | Contractor |

**INSPECTION CHECKLIST**

| **Employer Particulars** | |
|---|---|
| Employer: | |
| Registered Name of Enterprise: | |
| Trade Name of Enterprise: | |
| Company Registration No.: | |
| SARS Registration No.: | |
| UIF Registration No.: | |
| COIDA Registration No.: | |
| Relevant SETA for EEA purposes: | |
| Industry Sector: | |
| Bargaining Council: | |
| Contact Person: | |
| Address of Premises: | |
| Postal Address: | |
| Telephone Number: | |
| Fax Number: | |
| E-mail Address: | |
| Chief Executive Officer: | |
| Chief Executive Officer Address: | |
| Competent Person: | |
| Maximum power demand: in KW | |
| Health and Safety Representatives: | |
| Activities, products manufactured and/ services rendered: | |
| Raw materials, materials and chemical/ biological substances: | |
| Total Number of Employees: | Male:<br>Female: |

| **Contractor Particulars** | |
|---|---|
| Contractors: | |
| Site Address: | |
| Contracts Manager: | |
| Managing Director: | |
| Competent Persons: | |
| CR14: SCAFFOLDING: | |
| CR15: SUSPENDED SCAFFOLDING: | |
| CR17(6): MATERIAL HOIST (S): | |
| CR18(1): BATCH PLANT: | |
| CR8(1)(a): FALL PROTECTION: | |
| CR11(1)(1): EXCAVATION WORK: | |
| CR12: DEMOLITION WORK: | |
| CR19(2)(b): EXPLOSIVE POWER TOOLS | |
| CR26(a): STACKING | |

INSPECTION

| SECTION/REGS | ITEM CHECKED | N/A | YES | NO |
|---|---|---|---|---|
| | **APPOINTMENTS** | | | |
| CR6(1) | Supervisor: | | | |
| CR6(2) | Assistant Supervisor: | | | |
| S17(1) | Health & Safety Representative: (ratio) | | | |
| S19(1) | Health & Safety Committees | | | |
| CR 12(1) | Demolition Director | | | |
| | **DOCUMENTS** | | | |
| GAR 9(1) | Records of Incidents | | | |
| GAR 4 | Copy of the Act | | | |
| GAR 7 | Safety Reps Report | | | |
| GAR 8 | Safety Committee Minutes | | | |
| DMR 18(7) | Lifting Machinery Log (Crane) | | | |
| CR 3(3) | Notification of Construction Work | | | |
| CR 7(2) | Risk Assessment | | | |
| CR 7(9)(e) | Proof of the Health & Safety Induction Training | | | |
| CR 11(13)(h) | Inspection of Excavation (Records) | | | |
| CR 20(g) | Crane Operator Medical Certificate | | | |
| CR 21(11) | Mobile Plant Operator Medical Certificate | | | |
| CR 18(9) | Batch Plant Repairs & Maintenance Records | | | |
| CR22(d) | Temporary Electrical Installation Record | | | |
| CR 5(7) | Health & Safety File | | | |
| CR 15(11) | Suspended Platforms' Performance Records | | | |
| CR 17(b)& (c ) | Material Hoists Record Book | | | |
| | | | | |
| IMPROV NOTICE | Scaffolding Log Book | | | |
| CR 21(1)(d)(ii) | Medical Certificate of Fitness | | | |
| CR 21(1)(I) | Construction Vehicle & Mobile Plant Register | | | |
| CR 22(d) | Electrical Installation & Machinery Register | | | |
| | **INCIDENTS** | | | |
| GAR 8(1) S24 | Reported | | | |
| GAR 9(1) | Recorded<br>Investigated<br>Action Taken | | | |
| | **PUBLIC SITE** | | | |
| FR 2(1) | Sanitary Facilities | | | |
| CR 28(1) (c) | Changing Facilities for each sex | | | |
| CR 25(d) | Perimeter fence & no admittance | | | |
| CR 25(e) | Overhead protection netting/falling objects | | | |
| NB Notice | Pedestrian warning | | | |
| | **PERSONAL SAFETY EQUIPMENT** | | | |
| | Items Issued: | | | |
| GSR 2(3) | Items Required: | | | |
| S23 | (What is the payment on each item?) | | | |

| | | | | |
|---|---|---|---|---|
| | **SAFETY PLANS** | | | |
| | FIRST AID | | | |
| GSR 3(6) | Name(s) of First Aider(s): | | | |
| CR 4(1)(3) | Client's Health & Safety Specification | | | |
| CR5 | Principal's contractor H&S Plan | | | |
| | **FIRE HAZARD & PRECAUTIONS** | | | |
| GSR 4 | Flammables used, waste, hot work, diesel, fuel, gas | | | |
| ER 9(1) | Portable Extinguishers | | | |
| | **ELECTRICAL INSTALLATIONS & MACHINERY** | | | |
| CR22 | Guarding & PPE to Electrical Installations | | | |
| | **ILLUMINATION** | | | |
| ER 3(6) | Dangerous Places and signage as well | | | |
| | Housekeeping | | | |
| ER6(2)(b),(c),(d) | Clear space storage | | | |
| ER6(3) | Disposal of waste | | | |
| | **EXCAVATIONS** | | | |
| CR 11(3)(l) | Barricades (plus illumination!) | | | |
| CR 11(3)(c) | Safe Depth Shoring/Bracing | | | |
| CR 11(1)(a) | Monitored | | | |
| CR 11(3)(h) | Excavation Inspection Record | | | |
| | | | | |
| | **GUARDING** | | | |
| ER 6(2)(f) | Floor Openings (plus illumination!) | | | |
| | Floor slab sides, Shafts (plus illumination!) | | | |
| | **SITE EQUIPMENT** | | | |
| GSR 13A(a) | Ladders condition, secured | | | |
| IMPROV | Scaffold condition, secured | | | |
| | Platforms no. of boards condition Support 1.25. Toe Boards | | | |
| IMPROV | Hand Rails | | | |
| | **SITE MACHINES** | | | |
| DMR 3(2)(3) | Circulars, guards, riving knives | | | |
| DMR 2(a) | Mixers guarded | | | |
| | **ELECTRIC POWER** | | | |
| EMR 6(1) | Supply Board, condition E.L Relay Test | | | |
| GMR 3(1) | Condition of Tools, Leads, Plugs, etc | | | |
| | **LIFTING MACHINE/TACKLE** | | | |
| DMR 18(8) | Lifting of persons | | | |
| DMR 18(8) | Condition, Securing of Load | | | |
| | **EXPLOSIVE POWERED TOOLS** | | | |
| CR 19(1) | Safe Use and Storage | | | |
| IMPROV | Warning Notice | | | |

| | | | | |
|---|---|---|---|---|
| | **ROOF WORK** | | | |
| CR 8(1) | Safety equipment & precautions | | | |
| CR 8(2) | Fall protection plan | | | |
| CR 8(3) | Updated fall protection plan | | | |
| | **ASBESTOS CEMENT** | | | |
| AR 10(a) | Suitable Tools | | | |

**WARNING: Under no circumstances shall any work of any nature whatsoever on any ASBESTOS material be undertaken unless the work is entrusted and mandated to a "REGISTERED ASBESTOS CONTRACTOR" in terms of the Asbestos Regulations. [CR 12(9)] (contact the Regional Manager's Office)**

## 24. HEALTH AND SAFETY FILE COMPILATION AND CONTENT (Document attached)

## 25. SAFETY AND SWITCHING PROCEDURES FOR ELECTRICAL INSTALLATIONS (Document attached)

**NOTE:**

The guidelines and conditions provided in this attached document form an integral constituent of the Health and Safety Specifications. It is therefore a condition of acceptance that no Health and Safety Plan shall be complete unless all relevant elements of this document applicable to the above project have been included in the Health and Safety Plan. The final approval of the Health and Safety Plan in terms of CR 4(2) shall be subject to this requirement based on the following certification by the Principal Contractor or his Agent:

*" I hereby certify that I have taken cognisance of the content of the document titled '**SAFETY AND SWITCHING PROCEDURES FOR ELECTRICAL INSTALLATIONS'** and have included the relevant elements of the document applicable to the above project in my Health and Safety Plan and shall ensure adherence to the requirements thereof."*

The contents of CR 5 is pivotal when mandatary appointments are contemplated.

## 26. GUIDE TO THE GENERAL ADMINISTRATIVE REGULATIONS (Document attached)

## 27. IMPORTANT CONTACT DETAILS (HEALTH & SAFETY ONLY) (Document attached)

# ATTACHMENTS

14. HEALTH AND SAFETY FILE COMPILATION AND CONTENT

15. SAFETY AND SWITCHING PROCEDURES FOR ELECTRICAL INSTALLATIONS

16. GUIDE TO THE GENERAL ADMINISTRATIVE REGULATIONS

17. IMPORTANT CONTACT DETAILS - HEALTH & SAFETY ONLY

# "HEALTH AND SAFETY FILE"

**FOR**

**PROJECTS AND MAINTENANCE (BUILDING/ELECTRICAL/MECHANICAL)**

**MANAGED ON BEHALF OF**

## THE NATIONAL DEPARTMENT OF PUBLIC WORKS

**(THE "CLIENT")**

| | |
|---|---|
| **PROJECT:** | **THOYANDOU PRISON (MEDIUM B): REPLACEMENT OF KITCHEN EQUIPMENT** |
| **WCS NO:** | **050733** |

This document serves as a guide to Principle Contractors and Contractors (and their agents) to assist them in complying with the requirements of the Act and more specifically the Construction Regulations and to ensure a most comprehensive Health and Safety File. Kindly note the following extractions from the Construction Regulations:

*"Every contractor shall ensure that a health and safety file, which shall include all documentation required in terms of the provisions of the Act and the Regulations, is opened and kept on site and made available to an inspector, client, client's agent or principle contractor upon request. [CR 5(7)]*

*A Principal Contractor shall hand over a consolidated health and safety file to the client upon completion of the construction work and shall, in addition to the documentation referred to in sub regulation (7) [above], include a record of all drawings, designs, materials used and other similar information concerning the completed structure. [CR 5(8)]*

*A Principal Contractor shall ensure that in addition to the documentation required in the health and safety file as determined in the two sub regulations above, 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 are included and available. [CR 5(9)]"*

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The information, documentation and lists required to be included in the Health and Safety File as contemplated in the Construction Regulations [CR 5(7)], shall be suitably and sufficiently documented in terms of the following items listed below to ensure compliance with the Act as far as is reasonably practicable.

**Note: In the event that any of the items listed below may not have reference to the planning, implementation and completion of the work to be done pertaining to the project on the construction site, it must clearly be indicated as such with a proper statement e.g. 'Not Applicable'. All other relevant references or items below shall relate to the information required as contemplated in the Act and Regulations.**

**IMPORTANT -** ***This Health and Safety File shall be regarded as the property of the Client as it has to be consolidated and handed over to the Client upon completion of the project. The Principal Contractor shall ensure that this file is adequately protected against any form of damage, abuse or fraud.***

***Registers as follows:***

* Accident/Incident Register (Annexure 1 of the General Administrative Regulations)
* H&S Representatives ('SHE - Reps') Inspection Register
* Arc & Gas Welding & Flame Cutting Equipment Inspections
* Inspection of Cranes
* Inspection of Ladders
* Inspection of Vessels under Pressure plus all other excluded under VUP regulations
* Fire fighting equipment

The H&S Representatives (SHE-Reps) will be required to submit the abovementioned registers as well as other legally required registers, also from the list below, on a monthly basis to the chairman of the H&S committee for submission to, and endorsement by the H&S Committee. Also refer to the suggested Agenda for the H&S Committee under 12.8.3

***Documents as follows:***

Copy of OH&S Act (updated) (General Administrative Regulation 4.)
Proof of Registration and good standing with a COID Insurer (Construction Regulation 4(1)(g)
Appointments – in terms of the Construction Regulations * [See references Page 4]
Notification of Construction Work – Annexure 1 [CR 3]
H&S Specifications [CR 4]
H&S Plan – Principal Contractor, Contractor & Sub-contractors [CR 5(1) & (4)]
Proof of Periodic Audits [CR 4, 5 & 6]
List of all Contractors (accountable to Principal Contractor) on site [CR 5(9)]
Contractor Agreements [CR 5(9)]
Type of work done on site [CR 5(9)]
Records of drawings, designs, materials used and similar information concerning the completed structure [CR 5(8)]
Input by Construction Safety Officer [CR 6(7)]
Risk Assessment [CR 7(1)]
Copy of Risk Assessment [CR 7(2)]
Proof of H&S Induction Training [CR 7(4) & (7) & (9)(b)]
Proof of training on Hazards and Work Related Procedures [CR (7(4)]
Fall Protection Plan [CR 8]
Designer notice to contractor of dangers and hazards relating to construction work [CR 9(2)(b)]
Drawings design of structure [CR 9(3)]
Records of Inspections of Structure [CR 9(4)]
Maintenance records – structure safety [CR 9(5)]
Record Excavation Inspection [CR 11(3)(h)]
Method Statement [CR 11(3)(k)]
Method Statement [CR 12(2)]
Method Statement [CR 12(11)]
Operational Compliance Plan [CR 15(2)(c)]
Certificates, design calculations, sketches and test results [CR 15(3)]
Examination results [CR 15(9)]

Suspended Platform Inspection and Performance Test records [CR 15(11)]
Medical Certificate of Fitness [CR 15(12)(b)]
Proof of Training [CR 15(12)(c)]
Material Hoist Inspections [CR17(8)(c)]
Maintenance Records Material hoist [CR17(8)(d)]
Record Batch Plant Maintenance & Repair [CR18(9)]
Register for control of cartridges/nails studs – explosive powered tools [CR19(2)(g)(ii)]
Medical Certificates of Fitness [CR 20(g)]
Medical Certificates of Fitness [CR 21(1)(d)(ii)]
Findings of daily inspections Construction Vehicles & Mobile Plant [CR21(1)(j)]
Record of Temporary Electrical Installation Inspections [CR22(d)]
Record of Electrical Machinery Inspections [CR22(d)]
Proof of Training [CR 27(i)]
Evacuation Plan [CR 27(l)]
H&S Rep & Committee Members details
H&S Committee Meetings' Minutes
Other appointments in terms of OHASA

***The following further identified requirements in terms of the Act and other Regulations of the Act are similarly applicable as part of the contents of the 'Health and Safety File':***

Details of Inspections (by DoL)
Recording and Investigation of Incidents – Annexure 1 [GAR 9(1-3)]
Action taken on all incidents [GAR 9(4)]
Certificates of Competency in First Aid [GSR 3(4)]
Record of Medical Surveillance required in terms of OHASA
Proof of compliance with Asbestos Regulation requirements
Proof of compliance with Major Hazard Installation requirements

****The Appointments to be made in writing with job descriptions as per the Construction Regulations may include some or all of the following:***

PRINCIPAL CONTRACTORS - [CR 4(1)(c)]

CONTRACTORS – [CR 5(3)(b) + (11)]

COMPETENT PERSONS
- [CR 6(1) + (2)]
- [CR 6(6)]
- [CR 7(1) + (4)]
- [CR 8(1)(a)]
- [CR 10(a) + (e) + (f)]
- [CR 11(1) + (3)(b)(ii)(b) + (3)(k)]
- [CR 12(1) + (2) + (3) + (11)]
- [CR 14(2)]
- [CR 15(1) + (2)(c) + (8)(c) + (13)]
- [CR 17(8)(a)]
- [CR 18(1) + (7)]
- [CR 19(2)(b) + (2)(g)(i)]
- [CR 20(f)]
- [CR 21(1)(d)(i) + (1)(j)]
- [CR 22(d) + (e)]
- [CR 26(a)]
- [CR 27(h)]

CONSTRUCTION SAFETY OFFICER - [CR 6(6)]

DESIGNER - [CR 9(2)]

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**IMPORTANT:**

A copy of the following certification in terms of the **"SAFETY AND SWITCHING PROCEDURES FOR ELECTRICAL INSTALLATIONS"** (Document attached) signed by the prospective tenderer / contractor is to be included in the Health and Safety File:

**" I hereby certify that I have taken cognisance of the content of the document titled 'SAFETY AND SWITCHING PROCEDURES FOR ELECTRICAL INSTALLATIONS', and have included the relevant elements of the document applicable to the above project in my Health and Safety Plan and shall ensure adherence and compliance to the requirements thereof."**

# NATIONAL DEPARTMENT OF PUBLIC WORKS

## SAFETY AND SWITCHING PROCEDURES

## FOR

## ELECTRICAL INSTALLATIONS

**JANUARY 2003**

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## 1 REGULATIONS AND DEFINITION OF COMPETENT PERSON:

### 1.1 REGULATIONS:

All persons who carry out or arrange for work of any description for the Department in connection with electrical apparatus shall make themselves acquainted with the Occupational Health and Safety Act (Act 85 1993) with particular reference to the Electrical Machinery Regulations, Regulations 1 to 23 inclusive.

Access to the above Act and its Regulations can be arranged with the Regional Manager.

### 1.2 DEFINITION OF COMPETENT PERSON:

"competent person" in relation to machinery, means any person who—

(a) has served an apprenticeship in an engineering trade which included the operation and maintenance of machinery, or has had at least five years' practical experience in the operation and maintenance of machinery, and who during or subsequent to such apprenticeship or period of practical experience, as the case may be, has had not less than one year's experience in the operation and maintenance appropriate to the class of machinery he is required to supervise;

(b) has obtained an engineering diploma in either the mechanical or electrotechnical (heavy current) fields with an academic qualification of at least T3 or N5, or of an equivalent level, and who subsequent to achieving such qualification has had not less than two years' practical experience in the operation and maintenance appropriate to the class of machinery he is required to supervise;

(c) is a graduate engineer and has had not less than two years' post-graduate practical experience in the operation and maintenance appropriate to the class of machinery he is required to supervise and who has passed the examination on the Act and the regulations made there-under, held by the Commission of Examiners in terms of regulations E5 (2) of the regulations published under Government Notice R.929 of 28 June 1963; or

(d) is a certificated engineer;

## 2 SAFETY EQUIPMENT

The following equipment required for working on electrical installations and distribution systems, must be maintained in good order and repair and must be made available:-

Safety belt, overalls, hard hat, safety shoes or boots, rubber gloves, "Men Working" notice boards, locks for locking off switches, buss bar shutters in truck-type switchgear, isolators or earthing links, rubber sheet and length of rope with short circuiting earthing-chains, earthing sticks and testing/phasing sticks rated for the voltage of the equipment to be tested.

Under no circumstances shall work be carried out on electrical apparatus unless the proper safety equipment is used

With regard to overhead linesmen, no work shall be carried out unless use is made of a non-metallic ladder and the appropriate safety belt, rubber gloves, overalls, hardhat and safety shoes or boots are worn. The buddy system must also be implemented.

## 3 DEFINITION OF OPERATING TERMS

### 3.1 Alive or live

This means electrically connected to the power system and/or electrically charged.

Consider an isolated overhead line that is not earthed. An overhead line can be electrically connected to the system in the following ways:

(a) By means of a metallic conductor such as links and breakers or switches. This is the normal way of transmitting electrical energy.

(b) Electromagnetic induction or transformer action from a nearby current carrying line will induce a dangerous voltage in the isolated lines and are a hazard to all personnel that must work on or with the line.

(c) Electrostatic induction or condenser action from a nearby live line will induce a dangerous voltage in any isolated, but not earthed, overhead line. Electrically charged means at a potential difference or voltage above zero

3.2 Dead

This means that any apparatus so described is isolated from the power system. Rotating plant shall not be regarded as dead until it is stationary or is being slowly rotated by means of barring gear and is not excited.

The Occupational Health and Safety Act defines dead as: “dead” means at or about zero potential and isolated from any live system. Disconnected has the same meaning as isolated. An overhead line disconnected from all sources of supply but not earthed, cannot be regarded as dead because:

(a) It can retain a static charge.

(b) It can acquire a static charge due to atmospheric conditions.

(c) It can accidentally be made alive.

(d) Nearby lines continually induce voltage in them.

The regulations recognise only the following devices as disconnects or isolators:-

(a) Links.
(b) Fuses.
(c) Truck type switchgear.

3.3 Earthing

This means the connecting of apparatus electrically to the general mass of earth in such a manner as will ensure at all times an immediate safe discharge of electrical energy. This is done through an earth bar or spike by means of a good metallic conductor.

To fully appreciate this definition we must refer to the Electrical Machinery Regulations, Regulation 3 of the Occupational Health and Safety Act which states:

"Work on Disconnected Electrical Machinery. —Without derogating from any specific duty imposed on employers or users of machinery by the Act, the employer or user shall, whenever work is to be carried out on any electrical machinery which has been disconnected from all sources of electrical energy but which is liable to acquire or to retain an electrical charge, as far as is practicable, cause precautions to be taken by earthing or other means to discharge the electrical energy to earth from such electrical machinery or any adjacent electrical machinery if there is danger if there is danger therefrom before it is handled and to prevent any electrical machinery from being charged or made live while persons are working thereon.”

Electrical apparatus and in particular overhead lines may become charged due to:-

(a) Direct lightning strokes.

(b) Electro magnetically induced currents due to a lightning stroke in the immediate vicinity of the line.

(c) Electro statically induced charges on the lines due to the presence of thunderclouds.

(d) Electrostatic charges imparted to the line by the friction of dust or snow blowing past the conductors.

(e) Electrostatic charges imparted to the line due to changes in line altitude"

These changes are responsible for tremendously high voltages between overhead lines and earth, in fact, sometimes high enough to cause a flash over on insulators. A spark may span several centimetres of air to a person's hand should he approach too closely to an isolated unearthed overhead line.

An overhead line or apparatus can be made alive by:

(a) Unauthorised operating, i.e., closing the wrong links and breaker.

(b) Faulty wiring on consumer's stand-by sets. (Back feed from consumer)

(c) A broken overhead conductor from a different line falling onto the isolated line.

(d) Synchronising plugs.

From the foregoing paragraphs it is clear that the purpose of earthing isolated lines and apparatus are:

(a) To discharge them should there be a residual voltage or charge.

(b) To prevent them acquiring a static charge.

(c) To prevent danger to persons working on apparatus in the event of someone accidentally making it alive.

(d) To dissipate induced voltages continuously and safely.

Earthing gear means the fixed or portable appliances used for earthing electrical apparatus. The dangers from inadequate or improper earth connections are:

(a) Electrocution.
(b) Burns from arcing.
(c) Electric shock leading to falls.

Earthing may be done by the closing of earthing links, or by the attaching of fixed earthing devices or by the affixing of portable earthing straps. In each case the main idea is to ensure the safety of personnel.

In affixing portable earth straps, the connection to the earthbar or earthed metal or spike must be made first and in removing such earthing straps, the disconnecting from the earthbar or earthed metal or spike must be done last. Also, a link stick or an insulated stick should be used to connect the earth wires to the overhead lines or apparatus.

These requirements are most important because connecting the portable strap first to earth and then to the conductors by means of a link stick avoids the risk of a shock to the operator from static charges or induced voltages.

**REMEMBER: Always safety test before applying earths.**

3.4 Isolate

This means to disconnect from all Sources of electrical potential by means of opening of links or fuses or the withdrawal of truck-type circuit-breakers.

All sources of electrical potential mean all points or circuits from where the apparatus can be made alive. Links, fuses and truck-type switchgear can be regarded as isolators because:

(a) They leave a visible air gap in a circuit when open, removed or withdrawn.
(b) They contain no stored energy and will not close due to defects.
(c) They can be locked in a physical condition and thus can only be operated by the person with the correct key.

Opening links and locking them in the open position; removing fuses and locking them away; withdrawing truck-type switchgear and locking the buss bar shutters are the only safe methods of isolating.

3.5 Circuit Breaker

This is a device designed to make or break electric current under normal and fault conditions. A breaker can make or break an electric current because it is designed to extinguish the arc very rapidly and effectively. It is also designed to withstand the tremendous forces under short circuit conditions. The arc-extinguishing medium for high-voltage breakers is normally air, oil or vacuum and should this medium be lost, the breaker becomes a link. Never use a breaker without an arc-extinguishing medium to interrupt current flow because the breaker will probably explode or it will sustain severe damage.

A fault condition is any condition that will cause an excessive amount of current flow. The normal fault conditions are:

(a) Phase faults.
(b) Earth faults.
(c) Open circuit in one line of a three-phase system (Single-phasing).
(d) Too low a voltage. (Motors will draw a large current or even stall).
(e) Too high a voltage.
(f) Overloading.

For the following reasons breakers cannot be regarded as isolators:

(a) They leave no visible gap in a circuit.
(b) They contain stored energy and can close on their own due to various defects.
(c) It is normally not possible to lock them in an open position.
(d) Oil circuit-breakers are subjected to carbon tracking which could cause a flash-over between contacts.

3.6 Link

This is a device for making or breaking a circuit when no load current is flowing.
Links differ from breakers and switches in the following respects:

(a) They are not equipped with an arc extinguishing medium/device.
(b) Their movement is very slow.

Should current be interrupted by means of links, an uncontrollable arc will be struck at the points where the contacts part.

The temperature of the arc is so high (+ 2 000°C) that it will simply melt the parting contacts. As the contacts move further apart, the arc will lengthen and burn everything away. Molten metal could splash onto the operator and cause severe injuries.

As the arc lengthens, considerable noise is generated and the light intensity is so severe that the operator could suffer from “welding flash” of the eyes.

When apparatus equipped with earthing links is required to be earthed at more than one place, the earthing links shall always be closed first and thereafter, any necessary portable earthing gear may be affixed to the apparatus.

In removing the earths in readiness for making the apparatus alive, all portable earthing gear shall first be removed and earthing links shall be opened last.

Closing the earthing links first ensures maximum safety to the operator. These links are easily operated, make good contact and the operating handles are at a safe distance from the contact points.

Locks and keys shall also be provided for links. The operating mechanism of all manually operated links shall be fitted with fastenings for locks. The operating mechanisms of each set of manually operated links shall normally be locked whether the links are in the open or in the closed position.

The locking of links provides a safeguard against their being opened or closed in error by other persons apart from the one with the correct key and a written instruction to operate.

3.7 Operating methods

This means switching, linking, safety testing and earthing. This definition also indicates the order of operating when making apparatus safe to work on.

(a) Switching -

(i) Open breaker or switch to interrupt current flow safely, i.e. prevent arcs.
(ii) Close breaker or switch to start current flow - the only safe way.

(b) Linking - open at least one set of links from where the apparatus can be made alive and lock the links in the open position. Always ensure that you are not going to start or interrupt current flow with the links by ensuring that the breaker or switch is open.

(c) Safety test - test all three phases to ensure that the apparatus is disconnected from all sources of supply and that there is no back-feed from a consumer's standby set or other source.

(d) Apply earths - ensure safety of the workers by:-

(i) Discharging the line or apparatus.
(ii) Preventing the line from acquiring a static charge.
(iii) Preventing the line or apparatus from being accidentally made alive.

Before applying portable earths, ensure that they are mechanically and electrically in good condition. There should be no broken strands, the clamps should be rigid and without defect and when applied properly, should make intimate contact with the conductors and earthbar or spike. The earthing cable tails should be as short as possible. The current carrying capacity of the portable earth is greatly reduced by broken strands. It will act as a fuse and increase the danger to workmen.

## 4 GENERAL SAFETY PRECAUTIONS

**No person shall carry out work of any description (including maintenance, repairs, cleaning and testing) on any part of electrical apparatus unless such parts of the apparatus are:**

(a) dead;

(b) disconnected, isolated and all practicable steps taken to lock off from live conductors;

(c) efficiently connected to earth with the appropriate earthing sticks or gear designed for this purpose at all points of disconnection of supply;

(d) screened where necessary to prevent danger, and caution and danger notices fixed;

and unless such person is fully conversant with the nature and extent of the work to be done.

It is the duty of the competent person in charge of the work to ensure that the foregoing provisions are complied with. He shall also ensure that when the work has been completed, the apparatus is safe to be made alive and that all earths and temporary danger notices have been removed.

Provided that cleaning and painting of earthed metal enclosures, connections or disconnections of circuits to or from live systems may be carried out in accordance with instructions issued by the competent person concerned.

Provided also that where the design of the apparatus precludes the strict compliance with all details of these precautions, the work shall be carried out to the instructions of the senior competent person present.

When any person receives instructions: regarding work on or the operation of high voltage apparatus he shall report any objection to the carrying out of such instructions to the competent person who shall have the matter investigated and, if necessary, referred to higher authority.

## 5 ACCESS TO HIGH VOLTAGE ENCLOSURES AND APPARATUS

Enclosures, chambers, cubicles or cells containing high voltage conductors shall be kept locked and shall not be opened except by a competent person.

## 6 SWITCHING:

(a) No switching shall be carried out without the sanction of the appropriate competent person except for agreed routine switching or in cases of emergency.

All telephone instructions/messages relating to the switching operation shall be written down and be repeated in full to the sender to ensure that the message has been accurately received.

(b) When a switch shows any sign of distress after operating, its condition shall be immediately reported to the appropriate competent person, and it shall be examined before further operation.

(c) The examination of and necessary adjustments including inspection and/or changing of oil of any high voltage oil immersed circuit-breaker which has operated under fault conditions shall be carried out if possible before the circuit-breaker is re-closed, or at the earliest available opportunity thereafter.

## 7 WORK IN SUBSTATIONS AND SWITCHING STATIONS CONTAINING EXPOSED LIVE CONDUCTORS.

7.1 Safety Clearances to Live Conductors:

Unless the whole equipment is “dead”, the section which is made dead for work to be carried out shall be defined by the use of barriers or roping such that the minimum clearance from the nearest exposed conductor to ground level or platform or access way shall be:-

| Rated Voltage | Clearance |
|---|---|
| Up to 11 kV | 3.0 m. |
| From 11kV to 33kV | 3.4 m |

The area at ground level shall be only that in which the work is to be carried out.

7.2 Insufficient Clearances

If the above clearances are not sufficient to avoid danger, other suitable arrangements shall be made to provide the requisite degree of safety.

7.3 Ladders and Other Long Objects

Ladders and other long objects shall not be used without the permission of the senior authorised person in charge of the work and the movement and erection of such ladders shall be under his/her direct supervision at all times.

## 8 WORK ON METAL CLAD SWITCHGEAR SPOUTS:

(i) The section of bus bars on which work is to be carried out shall be made dead and isolated from all points of supply.

(ii) The shutters of live spouts shall be locked closed.

(iii) The busbars shall be earthed with approved earthing equipment if possible, at a panel other than that at which work is to be carried out. Temporary earths shall in any case be applied to all phases on the busbar at the point of work. These earths may then be removed one phase at a time for work to be carried out. Each phase earth shall be replaced before a second phase earth is removed.

For the earthing of metal clad switchgear, approved appliances only shall be used. The insertion of the hand or any other tool in contact spouts for this purpose is forbidden.

## 9 WORK ON TRANSFORMERS:

When work is carried out on transformers, both the primary and secondary switches and isolators shall be opened. The transformer shall also be isolated from all common neutral earthing equipment from which it may become live. This does not require the disconnection of solidly earthed neutrals.

## 10 WORK ON CABLES, CONDUCTORS AND OVERHEAD LINES:

10.1 Cables and Conductors

(a) No person shall touch the insulation, which covers or supports any high voltage conductor unless the conductor is dead and earthed.

(b) Before carrying out work involving cutting into a high voltage cable, the responsible person shall satisfy himself that the cable has been made dead, isolated and earthed where practicable and identified. In all cases of doubt, the cable shall be spiked in an approved manner.

10.2 Overhead Lines

(a) All persons while at work on towers, poles and high structures or when working on live lines shall make proper use of their safety belts and safety equipment, and no man shall work alone at any tower or high structure, or on live equipment.

(b) The senior authorised person in charge of the work shall satisfy himself that the line conductors are short circuited and earthed before work is commenced. When work has been completed, the responsible person shall ensure that all temporary earths have been removed and that the line is safe to be made alive.

(c) When work is carried out on a high voltage line, earths shall be placed at the point or points where the work is being done in addition to the earths provided at the points of disconnection.

(d) In the event of the near approach of a lightning storm, all work on overhead lines shall cease immediately and the authorised person in general charge of the work shall be informed.

(e) For the safety of the public, strain insulators shall be placed in all stays on overhead lines.

## APPENDIX 1

## EMERGENCY FIRST AID, RESCUE AND RESUSCITATION IN THE CASE 0F ELECTRIC SHOCK

### 1. FIRST AID:

1.1 Burns:

Treat with Vaseline to exclude air.

1.2 Shock:

In addition to suffering from electric shock, it is also probable that the patient will be suffering from physical shock and important that this condition be treated.

The patient must be kept warm with blankets and/or coats, and if available, hot water bottles should be applied to the feet.

1.3 Drinks:

Drinks must on no account be administered unless the patient is fully conscious.

Alcoholic drinks should not be administered unless recommended by a doctor.

### 2. RESCUE

The procedure to rescue persons from contact with a live conductor cannot definitely be laid down for all cases. However, certain principles and methods are outlined which all persons working on electrical apparatus or assisting in such work should know.

### 3. RELEASES FROM CONTACT WITH LIVE CONDUCTORS

3.1 Low voltage

(a) Observe quickly the general circumstances of the case, whether special difficulties are involved and if special precautions are necessary. Every second is precious and delay may be fatal; be prepared, therefore, to act promptly. Speed of action must be accompanied with due care.

(b) Take precautions against receiving a shock your self. Remember that the patient, until released, is electrified at the same voltage of the live conductor.

(c) In cases where the contact has been made on a live conductor with adjacent switch control, the switch should be opened immediately and then the patient pulled clear. If in doubt about which switch to open, all switches should be opened; but assume all conductors are still alive unless some method is available to determine that the conductors are dead.

(d) When conductors cannot be de-energised immediately by adjacent switch control, the procedure will depend on the voltage of the live conductor.

In all cases it is necessary for the rescuer to be adequately insulated against shock from a conductor to earth and against shock from a conductor to conductor, or by touching the patient.

For low and medium voltage (up to 650 V) rubber gloves, rubber sheeting or dry cloth, including loose portions of the patients clothing, provide adequate insulation for the rescuer's hands. The use of such insulating guards should always be aimed for; but a dry pole with no associated earthed metal on it provides adequate insulation for the rescuer against shock from a conductor (or patient's body to earth).

(e) Cutting away a conductor (carrying up to 650 V only) may provide a quick and easy method of release in some cases. It is useful especially when delay might otherwise occur in releasing the patient. This method requires that the rescuer has sound knowledge of what he/she is doing.

(f) Prevention of patient falling from aloft; when a patient is being rescued above ground level, care must be taken to ensure that he does not fall from a dangerous height when pulled clear or when conductors are de-energised.

(g) Be prepared to use considerable force when releasing a patient who is holding a live conductor. Punch the wrist heavily on the inner side or strike the back of the hand. It may be easier in some cases to use one's foot to force the patient's hand clear.

3.2 High voltage

For high voltage it is necessary to put an extra long, say 2 m or more, dry insulating material, such as wood or rope, between the rescuer's hands and the patient to enable the patient to be pushed or pulled clear of the conductor, or enable the conductor to be cleared from the patient.

## 4. RESUSCITATION AFTER CONTACT WITH LIVE CONDUCTORS

Immediately after rescue, a rapid but careful examination of the patient must be made to determine the extent of treatment necessary.

Electric shock may cause breathing to stop because of a sudden paralysis of the respiratory centre and it may also cause a failure of the circulation because the shock has affected the heart.

The method of resuscitation will therefore depend on the patient's condition.

4.1 Patient breathing

If the patient is breathing and his heart is beating then in a large majority of cases recovery will be rapid.

Do not apply artificial respiration if the patient is breathing. Let the patient have plenty of fresh air. If the patient is in a collapsed condition, lay him on his back in as comfortable a position as practicable with his head tilted slightly back. This will keep his airway open and assist breathing. A pad, if available, placed under the patient's shoulders will assist in keeping his head back. Loosen any tight clothing.

4.2 Patient not breathing

If breathing has stopped or is very weak or appears to be failing, commence artificial respiration without delay.

4.3 Circulation

In cases of electric shock, failure of the heart should be suspected if the patient does not quickly show some response to artificial respiration. Circulation should be assessed within fifteen seconds after the commencement of artificial respiration.

Feel for a pulse in one of the carotid arteries in the patient's neck. This is done with the pads of the fingers at the level of and at either side of the Adam's apple. Do not feel both carotid arteries at the same time, as this would stop the flow of blood to the brain. If the heart is beating, a pulse will be felt.

If no pulse is felt, lift the patient’s eyelids. If the heart is not beating the pupils of the eyes will be large and will not become smaller when exposed to light by the lifting of the eyelids. If the heart is beating the pupils will become smaller when exposed to the light.

The absence of a pulse in the carotid artery and the enlarged pupil of the eye, which does not become smaller when exposed to light, indicate that the heart has stopped beating.

(a) Patient's heart beating. Do not apply external cardiac (heart) massage when a pulse can be felt.

(b) Patient's heart not beating. If the heart has stopped beating commence external cardiac (heart) massage without delay.

4.4 General

Immediately resuscitation is commenced, send for medical assistance and an ambulance and notify the hospital if applicable.

If the patient is not breathing and his heart has stopped beating, artificial respiration by the expired air method should be carried out in conjunction with external cardiac (heart) massage.

Every second you wait can cause severe brain damage through lack of blood and oxygen.

Artificial respiration and external cardiac (heart) massage must be commenced without delay and should be continued until breathing is restored and the heart starts beating or until a doctor advises that further efforts will be of no avail.

Care should be taken to avoid, as far as possible, aggravating any injuries the patient may have sustained.

4.5 Artificial respiration

If available in order to reduce the risk of infection it is recommended that a facemask or shield be used for both mouth to mouth or mouth to nose artificial respiration. However, time should not be lost in getting a face mask/shield.

**Examples of Masks**



Alternatively a clean cotton handkerchief can be used to cover the mouth.

It is not necessary to be highly trained in resuscitation methods to carry out artificial respiration effectively.

Simply stated, artificial respiration is a means of supplying oxygen to the patient's lungs, and thus, through the blood, to his brain to keep him alive while his own breathing is suspended.

The expired air method of artificial respiration is recommended as the best universally applicable field type of artificial respiration.

For artificial respiration the patient's head must be kept well back to ensure a free passage to the lungs. Exact rhythm and timing in carrying out artificial respiration are unimportant. The only purpose of artificial respiration is to get oxygen into the patient's lungs.

Artificial respiration must be continued until breathing is restored or until a doctor advises that further efforts will be of no avail.

4.5.1 Expired air artificial respiration

In the expired air method of artificial respiration the rescuer breaths his own exhaled breathe into the patient's lungs.

The normal air we breathe in contains 20 per cent oxygen. The air we exhale contains about 16 per cent oxygen and this is ample to keep the oxygen content in the patient's blood normal if it is breathed into him at about the rate of normal breathing.

Therefore, quickly ensure that the patient's throat is free from foreign matter. Next place him on his back and tilt the head well back (Fig.A1.1) this ensures an open passageway to the lungs. Placing a pad under the patient's shoulders will make the tilting of the head easier. However, time should not be lost in getting a pad.

The rescuer may then breathe into the patient's mouth or nose.

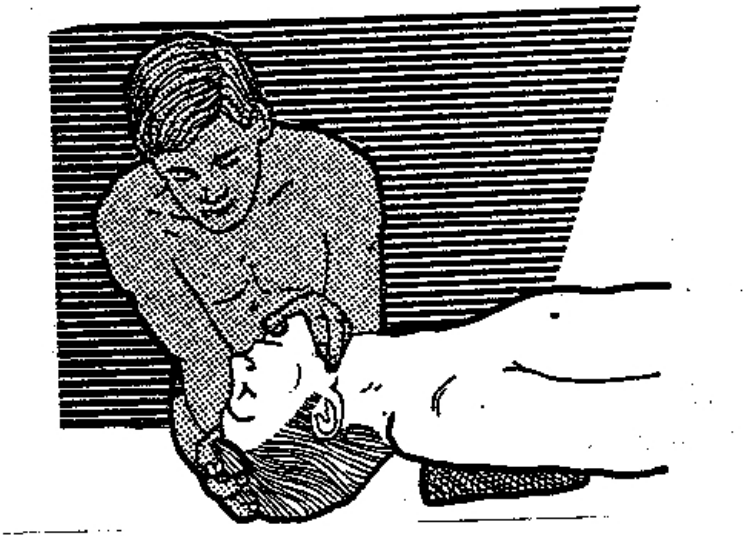


**Figure A1.1**

Lift the neck and tilt the head back. Hold the head tilted so that the skin over the throat is stretched tight. With one hand push the crown of the head down, remove the other from below the neck and use it to pull up the chin. This prevents the tongue from causing an obstruction.

4.5.2 Mouth-to-mouth method

The patient's head is tilted well back as in Figure A1.1 his mouth is opened and the rescuer opens his mouth wide and makes an air-tight seal around the patient's mouth as shown in Figure A.1.2. The rescuer's cheeks will normally seal the patient's nostrils, but if necessary the nostrils must be pinched closed with the fingers. The rescuer then breathes into the patient. The resistance to the rescuer's breath is about the same as that experienced when blowing up a balloon. The chest should be seen to rise.

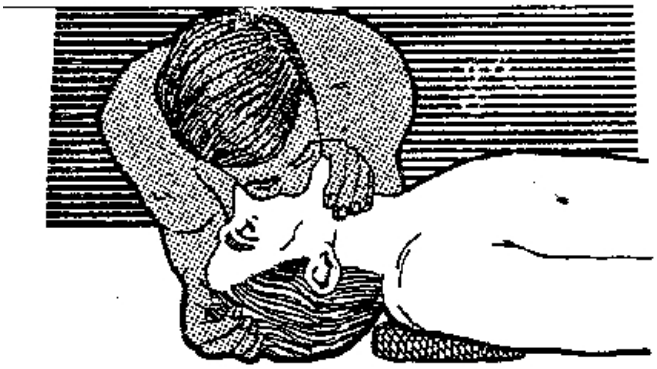


**Figure A1.2**

Seal your lips widely around the victim's mouth. Fold his lower lip down to keep his mouth open during inflation and exhalation. To prevent leakage, press your cheek against his nostrils during inflation. Blow air into the victim until you see the chest rise. Then remove your mouth to let him breathe out. Take your next breath as you listen to the sound of his breath escaping. Re-inflate his lungs as soon as he has exhaled.

Having breathed into the patient's lungs, the rescuer removes his mouth and, turning his face to one side to avoid the patient's exhaled breath, takes another deep breath and again breathe into the patient's lungs. This is kept up at a steady rate of from ten to fifteen times per minute.

One rescuer can take over from another. Remember rhythm and timing are not important but the patient must under no circumstances be left without air for longer than a minute.

4.5.3 Mouth-to-nose method:

The patient's head is tilted well back as in Figure A1.1. The rescuer opens his mouth and places it right over the patient's nose making an airtight contact (Figure A1.3) The lips do not contact the nostrils as this would tend to close them. The patient's mouth is held closed and the rescuer breathes into his patient as in the mouth-to-mouth method.

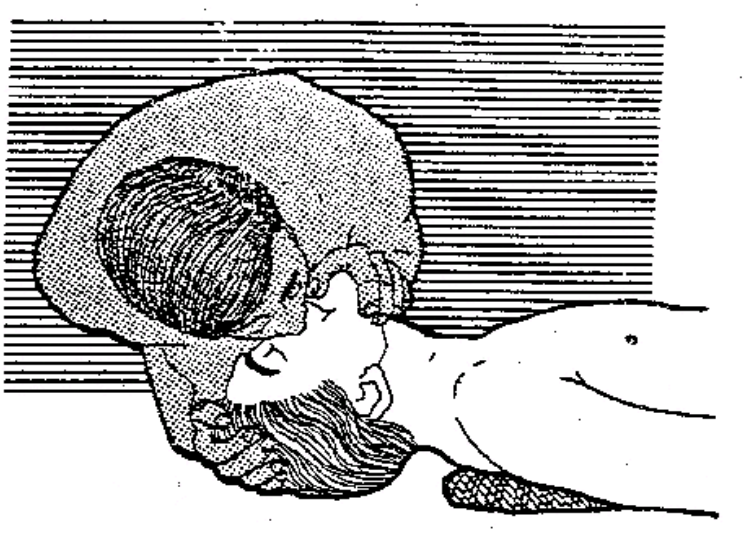


**Figure A1.3 ~ Mouth-to-nose method**

4.5.4 Filling the lungs:

The rescuer blows steadily and firmly, not with a jerk, and the patient's chest should be seen to rise. If air does not appear to be entering the lungs, quickly look for any blockage in the air passage, check the head again, making sure the jaw is well forward and the head tilted well back, and commence blowing again.

About ten good quick breaths should first be breathed into the patient as soon as he is reached. This will oxygenate his blood and give the rescuer a minute or so to get his patient into a more convenient location for continuing artificial respiration, for example, to lower a linesman from a pole.

## 5. EXTERNAL CARDIAC (HEART) MASSAGE

The lives of people whose hearts have ceased to function can often be saved by the prompt application of a form of resuscitation known as external cardiac (heart) massage (for example, massage of the heart without opening the chest). This massage may be performed by anyone.

The heart is in the centre of the chest between the breast-bone and the spine and if pressure is applied to the lower half of the breast-bone, the heart is compressed and the blood is squeezed out of it into the arteries. When the pressure is released the breast-bone springs back into place, the heart, like a rubber ball, resumes its shape and in so doing allows blood from the veins to enter. Valves in the heart prevent blood flowing back into the heart from the arteries.

In this way a heart which has either stopped beating altogether or which has gone into ventricular fibrillation (a state of ineffective quivering often caused by electric shock) can be made to circulate the blood.

This compressing and releasing of pressure on the heart carried out rhythmically at a rate of approximately 60 compressions per minute is called external cardiac (heart) massage. It can keep a person alive if breathing is maintained, until his heart resumes its proper beating. A heart in ventricular fibrillation will require hospital treatment to restore normal heartbeat, but the heart can be made to circulate blood by external cardiac (heart) massage until the necessary medical aid is obtained.

It is desirable that adequate training in external cardiac (heart) massage be given to develop the technique. This can best be achieved with a training aid.

5.1 Technique:

Lay the patient on his back on a firm surface.

Feel for the notch at the top of the breast-bone (sternum) with one hand and for the lower end with the other. It is on the lower half of this bone that the pressure has to be made (see Figure A1 4)

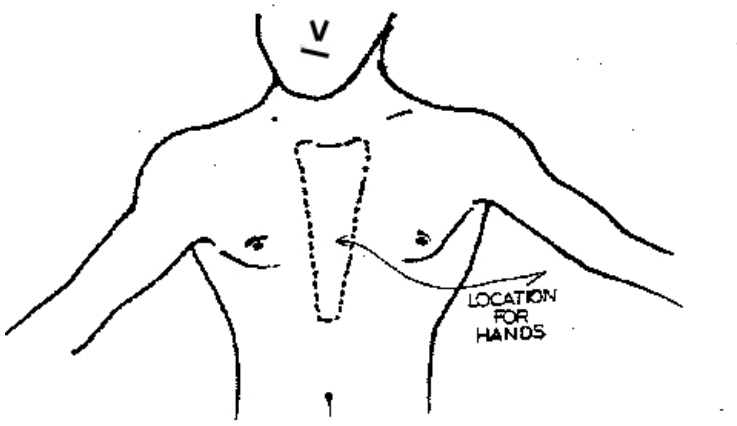



**Fig A1.4: Location of the rescuers hands for external cardiac (heart) massage**.

The rescuer leans directly over the patient and places the heel of one hand (either hand) on the lower half of the patient's breast-bone and places the heel of his other hand on the back of the first (one hand for a child' two fingers for an infant). The fingers should not press on the patient's chest as this would reduce the effectiveness of the pressure on the heels of the hands.

Keeping the arms straight, the rescuer presses down sharply and firmly to depress the patient's breast-bone from 30 to 50 mm in the case of an adult, depending on his build. Immediately release the pressure to allow the chest wall to recoil. If the technique is correctly applied it will not damage the patient's ribs.

If the patient is not breathing, external cardiac (heart) massage will be of no avail unless artificial respiration (expired air method) is carried out at the same time.

If only one rescuer is available, two breaths are given by the expired air method followed by fifteen chest compressions at the rate of approximately one per second.

Where two rescuers are available, one breathes into the patient and the other gives five chest compressions between each chest inflation. The rescuer giving the breaths should also feel for the pulse in the patient's carotid artery during resuscitation.

The chest should not, of course, be compressed at the same time as it is being inflated.

## APPENDIX II

### TESTING PROCEDURES AND PRECAUTIONS FOR COMMISSIONING OF ELECTRICAL CABLES

The aim of this section is to create an awareness of the latest standards and testing procedures for the commissioning of new and the re-commissioning of repaired electrical cables.

Before commissioning or re-commissioning cables tests must be carried out to ensure the integrity of the cable/s and to ensure the safety of operating personnel.

1. Low voltage Cables

1.1 Initial Tests

Carry out a meter test to ensure that the insulation resistance complies with the manufacture's and the relevant SABS requirements. For L.V. cables a 500V d.c. meter is adequate for this purpose.

1.2 Voltage Tests

This covers extruded solid dielectric cables (covered by SABS 1507), voltage ranges are as indicated in Table 1

After installation the cable has to be tested to ensure the integrity of the cable and the quality of the work. A.C. testing of solid dielectric cables is preferred. Very low frequency high voltage sinusoidal electrical testing methods are recommended to avoid the use of cumbersome large testing equipment.

Method: The test voltage should be applied between conductors and between each conductor and the metallic protection or earthed surroundings of the cable as appropriate. The voltage to be raised gradually to the specified values in the table and maintained for 15 minutes.

Table1 -Test Voltages After Installation

| 1 | 2 | 3 | 4 |
|---|---|---|---|
| ble operating voltage | e test voltage is to be applied | Test Voltage V | |
| | | .m.s) | d.c. |
| 300/500 | een Conductors and conductors/earth | ) | ) |
| 600/1000 | een Conductors and conductors/earth | ) | ) |
| 1900/3300 | een conductors | ) | ) |
| 1900/3300 | een Conductors and conductors/earth | ) | ) |

2. Medium/High Voltage

Each section of the cable installation between substations shall be subjected to a preliminary voltage or insulation resistance test to prove the insulation resistance.

The installation resistance can be measured with a high voltage meter with a rating of 5000V.

2.1 Paper Insulated Lead covered Double Steel Tape or Wire Armoured Cable (covered by SABS 97), voltage ranges are as indicated in Table 2

The test voltage should be applied between conductors and between each conductor and the metal sheath, which should be held at earth potential. In each case, the voltage should be increased steadily to the stipulated value and maintained at this value for 15 minutes.

Table 2 in-situ test voltages.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| age Rating of Cable kV | Test Voltage | | | | | |
| | Belted Cables | | | | le–core and screened cables | |
| | Between conductors | | From conductor to sheath | | veen conductor and sheath or screen | |
| | a.c. | d.c. | a.c. | d.c. | a.c. | d.c. |
| 3.3/3.3 | 7 | 9 | 7 | 9 | - | - |
| 3.8/6.6 | 13 | 19 | 8 | 11 | 8 | 11 |
| 6.6/6.6 | 13 | 19 | 13 | 19 | - | - |
| 6.35/11 | 22 | 31 | 13 | 19 | 13 | 19 |
| 11/11 | 22 | 31 | 22 | 31 | - | - |
| 12.7/22 | - | - | - | - | 25 | 36 |
| 19/33 | - | - | - | - | 38 | 54 |

2.2 XLPE-Insulated Cables covered by SABS 0198 Part 13.

NOTE: If circumstances necessitate testing that is not in accordance with the recommendations of this section, the cable manufacturer or a test expert should be consulted before any testing is carried out.

The use of inappropriate or excessive test voltages or of unsuitable fault location methods can damage XLPE-insulated cables. Cables that are particularly prone to damage during testing are those that have water trees and those that have a construction that differs from that specified in the 1981 and in subsequent editions of SABS 1339.

The Types of Test Waveforms to be applied are:

a) Very low frequency (VLF): An Alternating waveform that is either sinusoidal or pseudo-square/cosine rectangular, of nominal frequency 0,1 Hz.
b) Power frequency: An alternating sinusoidal waveform of frequency in the range 25 Hz to 100 Hz.
c) Surge: A step waveform that has a rise time of a few microseconds and that gradually decays to zero within 5 s.

These waveforms are referred to in the various test tables below.

Note: Where the capacity of the test set permits, all three cores of a three-core cable may be tested together.

2.2.1 PRELIMINARY TESTS

2.2.1.1 Leakage Resistance. Before carrying out any testing or fault location, determine and accurately record the leakage resistance to earth and, if relevant, between conductors. Use an instrument that generates a d.c test voltage of not less than 250 V and not more than 5 kV. Typical minimum values of leakage resistance are given in Table 3.

TABLE 3—MINIMUM LEAKAGE RESISTANCE

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Cable Operating voltage *U*, kV | Minimum leakage resistance, MΩ | | | |
| | Cable length, m | | | |
| | 100 | 300 | 1 000 | 3 000 |
| 6,6 | 150 | 50 | 15 | 5 |
| 11 | 240 | 80 | 24 | 8 |
| 22 | 460 | 153 | 46 | 15 |
| 33 | 680 | 227 | 68 | 23 |

NOTE:

1 The value of leakage resistance multiplied by the cable length should not be less than (2 U + 2) MΩ.km, where U is the voltage rating of the cable in kilovolt.

2 This test is repeated after the required sequence of tests (see 2.2.2.7).

2.2.2 TESTING

2.2.2.1 Over voltage Commissioning Tests. When newly installed cables are being commissioned, they should be tested at the test voltages given in Table 4, appropriate to the test waveforms and test durations given in columns 1 and 2 of the table.

TABLE 4—COMMISSIONING TEST VOLTAGES (r.m.s.)

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Test waveform (see 2.2) | Duration, Min | Commissioning test voltage, kV | | | |
| | | Cable Operating voltage, kV | | | |
| | | 6.6 | 11 | 22 | 33 |
| VLF (0,1 Hz) | 60 | 11 | 19 | 38 | 57 |
| Power frequency | 60 | 8 | 13 | 25 | 38 |

NOTE:

1. Test sets for the above are commercially available.
2. Where the above test levels cannot be achieved, a reduced voltage for an extended time may be negotiated.

2.2.2.2 Overvoltage Maintenance/Repair Tests. When cables are tested for maintenance or repair purposes, they should be tested at the test voltages given in Table 5, appropriate to the waveforms and test durations given in columns 1 and 2 of the table.

2.2.2.3 Surge Test Method (see Table 5). The surge test is intended to be a practical basic safety test. It can be used as a non-damaging means of identifying fairly serious existing or potential faults when power frequency or VLF equipment is not available. The test avoids the application of a continuous d.c. voltage (see 2.2.2.4), but it is not as conclusive or rigorous as the other methods.

CAUTION: During the surge test, a peak voltage of up to twice the test voltage can be generated in the cable.

Method. Charge the surge generator to the appropriate test voltage given in Table 5. Using single-shot mode, release a surge into the cable and then soft-discharge the cable (see 2.2.5.5) within 5 s. Repeat the procedure up to five times and then fully discharge the cable by solidly earthing it for at least 5 min.

TABLE 5—MAINTENANCE/REPAIRS TEST VOLTAGES (r.m.s.)

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Test waveform (see 2.2) | Duration | Maintenance/repair test voltage, kV | | | |
| | | Cable operating voltage, kV | | | |
| | | 6.6 | 11 | 22 | 33 |
| VLF (0,1 Hz) | 15 min | 8 | 13 | 25 | 38 |
| Power frequency | 15 min | 7 | 11 | 22 | 33 |
| Surge test (see 2.2.1.3) | 5 surges, max. | 7 | 11 | 22 | 33 |

2.2.2.4 D.c. Over voltage Testing. D.c. over voltage testing is likely to cause irreversible damage to XLPE-insulated cable systems, particularly if the cables have water trees. It often fails to identify potentially hazardous conditions in the cable. If d.c. testing has to be carried out because no other test methods are available, the voltage and duration should be limited to the appropriate values given in Table 6, which are recommended for quick identification of gross faults only. Use a d.c. test set or a surge generator in d.c. mode to apply the test voltage. After applying the voltage, soft-discharge the cable (see 2.2.2.5), using either the d.c. test set or a discharge stick. Fully discharge the cable by solidly earthing it for at least 8 h but preferably for 24 h.

TABLE 6—D.C. TEST VOLTAGES

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Duration, s | D.c. test voltage, kV | | | |
| | Cable operating voltage, kV | | | |
| | 6.6 | 11 | 22 | 33 |
| 10 | 6 | 10 | 20 | 30 |

2.2.2.5 SOFT DISCHARGE OF CABLE. An XLPE-insulated cable should always be soft-discharged through a resistance of at least 200 kΩ, for example by using a discharge stick. Discharging a conductor direct to earth by short-circuiting it with a lead can severely damage the cable. After the initial discharge, a cable should be solidly earthed for at least 5 min. If the cable has been subjected to any form of d.c. test, it should be solidly earthed for at least 8 h, but preferably for 24 h.

2.2.2.6 CABLE SHEATH TESTING. To avoid problems caused by the ingress of water into the cable, a cable should be subjected to sheath testing:

a) at commissioning,
b) annually, and
c) after the location and repair of a fault.

Cable sheath testing can also be used to locate conductor earth faults that have punctured the outer sheath, provided that multiple sheath faults are not present. A direct current sheath test voltage of 5 kV should be applied for 1 min, with a leakage current of 1 mA/km being regarded as acceptable.

2.2.2.7 AFTER TESTING. After completion of any of the above tests, the leakage test described in 2.2.1.1 should be repeated. A tenfold reduction in the value of leakage resistance could indicate a potential problem.

2.2.3 CIRCUIT-BREAKER CLOSURE

2.2.3.1 Faulty or Unknown Cable Conditions. Closing a circuit-breaker on an untested cable can be hazardous to the operator and can damage the cable. A fault should never be re-established by repeated closing of a circuit-breaker.

2.2.3.2 Voltage Doubling. During switch-in onto open circuit, voltage doubling occurs at the remote end of the cable. Voltages of up to 20 kV can occur on an 11 kV system. Switching onto a load such as a transformer avoids this voltage doubling.

**Published: March 2003**




**Department of Labour**

# GUIDE GENERAL ADMINISTRATIVE REGULATIONS, 2003

**Chief Directorate of Occupational Health and Safety**

*NO: OHC 5*

## INTRODUCTION

As the name of the regulation indicates, the General Administrative Regulations determines the administrative procedure of the Occupational Health and Safety Act. This procedure was not placed in the Act itself owing to the fact that changes can be made to a Regulation with greater ease than that of a Section in the Act. A change to a Section of the Act needs to be passed by parliament whereas the Minister of the relevant Department can approve a change in a Regulation.

The General Administrative Regulations, as is the case with all other regulations, is an extension of the Act and should therefore be seen as a complete unit.

Terms, which were previously defined in the Act, are not redefined in the Regulations. If a specific definition does not appear in the Regulations, then it should be available in Section 1 of the Act.

## DEFINITIONS

All new phrases as well as words (expressions and words which differ from the standard dictionary definitions) that are used in this regulation, which have not been defined in the Act, will be defined in this regulation. Where the Act or regulation refers to "mean" the definition in the Act or regulation must be considered and where there's reference made to "It Includes" definition from the Act and regulation including the oxford dictionary must be considered

## ACCESS TO PREMISES

It is prohibited for an employer to refuse an inspector entry to perform his or her function because an inspector is entitled by the law to enter employer's workplace.

Employers should always ensure that inspectors are accompanied by a person who has knowledge and experience of the activities and safety requirements of the workplace.

## EXEMPTIONS

Any exemption, which has been granted to any person shall be signed by the Chief Inspector of the Department of Labour. An person who wishes to apply for an exemption should forward his/her application to the office of the Chief Inspector in Pretoria. The application for exemption should indicate proof that the health and safety of persons who are likely to be affected by the exemption will not bee prejudiced in consequences of it. Health and safety representatives and committees must be consulted during the whole process and given time to comment.

## COPY OF THE ACT

Employees together with employers have certain duties and rights, which have been assigned to them in terms of the Act. In order to comply with the provisions of the Act and regulations, each employee must have access to a copy of the Act. This regulation requires that—

(a) Each employer with 5 or more employees shall have a copy of at least one Act, which will be made readily available for perusal by the employee. Owing in the fact that a workplace can be made up of a very large area, and that the legislator did not intend to be unreasonable, various concessions are made. For example, a meter-reader in the town of Brits' workplace is the Municipal area of Brits. In such a case it is expected that a copy of the Act be made available at the point where the employee reports for duty in the morning, or any other suitable position as agreed upon with the employer.

(b) Each employer with less than 5 employees, shall, if requested provide a copy of the Act for perusal by the employees. This includes farm workers and domestic servants.

The copy of the Act may be an electronic reproduction or from a library. The Act and Regulations are amended from time to time, and it is therefore important to remember that one must obtain a copy of the latest amendments to keep up to date with the current legislation.

## HEALTH AND SAFETY COMMITTEES

The Health and Safety committees are made up of all the Health and Safety Representatives together with an equal amount of employer appointee representatives to represent the employer (there can be more than one committee to avoid a large congregation of representatives). If more than two committees are established, each health and safety representative must be member of at least one of the committees. These committees are the point around which self-regulation revolves.

Employer should provide necessary equipment, facilities and stationary required by the committee in order them to perform their functions.
It is important to keep the records of the meeting as they can be used as evidence for action taken to eliminate hazards and vice versa

## NEGOTIATIONS AND CONSULTATIONS BEFORE DESIGNATION OF HEALTH AND SAFETY REPRESENTATIVES

The regulation prescribe the items which must be agreed upon during negotiations between the employer and employees representatives. If a dispute arises between the employees and employers or his authorised representative, the matter should be referred for arbitration. Both parties shall submit a statement within a prescribed period to both the arbitrator and the other party concerned.

The statement is to contain the following information:

(a) The proposal for the arrangements and procedures for the nomination of the Health and Safety Representatives.

(b) The decision which is sought.

The arbitrator should then:

(a) Determine when and where the arbitration procedure shall be held. The arbitration may be held in the absence of the party who failed to submit a statement to the arbitrator and other party;

(b) Determine whether a pre-hearing conference shall be held;

(c) Determine which arbitration procedures shall be followed;

(d) Determine the procedures for the admission of evidence;

(e) Determine the admissibility of hearsay evidence; and

(f) Determine other relevant procedural matters.

In terms of Section 17(2) of the Act both parties are to come to a decision within 14 days as to who the arbitrator shall be. If no decision can be made, the president of the Labour Court is to be notified in writing. The president of the Labour Court in consultation with the Chief Inspector shall appoint an arbitrator, whose decision shall be final. This arbitrator will be entitled to receive remuneration as is payable to an additional member of the Labour Court.

## DESIGNATION OF HEALTH AND SAFETY REPRESENTATIVES

The employer must designate Health and Safety Representatives as follows:

- Shops and offices— one for up to 100 employees; and
- Workplaces other than shops and offices— one for up to 50 employees.

The employer shall ensure that employees designated as health and safety representatives meet the following requirements:

- Employed in a full-time capacity in the specific workplace or section thereof;
- Acquainted with conditions and activities at that workplace or section thereof, and
- Taking into account the nature of hazards associated with the activities of the workplace or section thereof, the employer shall provide as far as is reasonable practicable health and safety training to the health and safety representatives on how to identify health and safety risks and how to conduct inspections of the workplace or section thereof.

## REPORTING OF INCIDENTS AND OCCUPATIONAL DISEASES

Section 24 of the Act refers to certain incidents occurring at the workplace, or in connection with the use of machinery whereby a person dies or is injured to be extent where he is likely to die or could have resulted in a major incident. Such incidents should be reported to the Provincial Director on a WCL 1 or WCL 2 form within seven days.

Certain other types of incidents must be reported to the Provincial Director telephonically, facsimile or similar means of communication and these types of incidents are as follows—

(a) Where a person, as a result of the incident;

i) Dies;
ii) Becomes unconscious;
iii) Suffers the loss of a limb or part thereof;
iv) Is injured to the extent that he is likely to die;
v) Is injured to the extent that he is likely to be permanently disabled;
vi) Is injured to the extent that he is likely to be off for a period of 14 days or more;
vii) Cannot perform his normal duties (those duties for which he was employed).

(b) An incident of major consequence arising out of the use of industrial equipment or machinery or industrial practices at a workplace.

(c) The health and safety of any person is endangered and where –

i) A dangerous substance was spilled;
ii) The uncontrolled release of any substance under pressure (pressure greater than 1 atmosphere) took place;
iii) Machinery or any part thereof fractured or failed, resulting in flying, falling or uncontrolled moving objects; or
iv) Machines, which ran out of control.

These incidents should also be recorded and investigated in accordance to Regulation 8 of the General Administrative Regulations.

If an injured person is to die as a result of an incident, which has already been reported in terms of the above, the employer or user should report such death to the Provincial Director.

Any registered medical practitioner should, in terms of Section 25 of the Act, report all (to the employer and Chief Inspector) cases of occupational diseases or any other disease, which he believes arose out of a person's employment, which he/she has treated. This must be done within 14 days in the form of a WCL 22 form.

Any other person may in writing, give notice of any disease suspected to be an occupational disease, to the employer and chief inspector.

## RECORDING AND INVESTIGATION OF INCIDENTS

The employer or user of machinery should keep record and investigate all incidents referred to in terms of Section 24 of the Act together with any other incident, which resulted in the person concerned having had to receive medical treatment other than first aid.

These incidents must be recorded in the form of Annexure 1 of these regulations and be kept for a period of at least 3 years. This record shall be kept on the premises and available for perusal by an inspector.

The employer, a designated person, a health and safety representative or a member of the health and safety committee must investigate the above-mentioned incidents. This investigation should take place within 7 days from the date of incident and completed as soon as is reasonable practicable or within the contracted period of contract workers. The employer should record the result of the investigation in the Annexure 1. The purpose of the investigation is to establish the cause of the incident together with the safety measures that can be implemented to prevent the re-occurrence of such incidents in the future.

The health and safety committee shall examine this record at their next meeting.

## WITNESS AT AN INQUIRY

The chief inspector can, in terms of Section 32, direct an inspector to hold a formal inquiry as a result of an incident reported in terms of Section 24 (refer to Regulation 6). In such an instance, the inspector shall inform the employer or user of machinery of his intentions, and request the following from him/her:

a) That all persons witness to the incident; and
b) That any other person as required by the inspector,

be notified in connection with the time, date and venue of the formal inquiry.

The employer or user of machinery is to establish which persons are likely not to attend the inquiry, and shall advise the inspector of the names and addresses of such persons to allow the inspector to subpoena such persons.

## RETURNS

An employer or user shall furnish the inspector with such information as requested for the purpose of the Administration of the Act.

# IMPORTANT CONTACT DETAILS

## (FOR HEALTH & SAFETY ASPECTS ONLY)

The contractor is to add all the important contact information about essentials services, support and assistance.

| | SERVICE | NUMBER | CONTACT PERSON |
|---|---|---|---|
|  | Hospital | | |
| | | | |
|  | Ambulance | | |
| | | | |
|  | Water | | |
| | Electricity | | |
|  | Police | | |
| | | | |
|  | Fire Brigade | | |
| | | | |
|  | Engineer | | |
| | | | |

**ADD OTHER IMPORTANT HEALTH & SAFETY CONTACT DETAILS AS MAY BE FOUND NECESSARY.**

public works
Department:
Public Works
REPUBLIC OF SOUTH AFRICA

**CONSTRUCTION HEALTH & SAFETY SPECIFICATIONS**

PROJECT:

| | |
|---|---|
| Full name and site address of project | Thohoyandou Prison: Medium B |
| WCS No. | |
| Compiled by | Mr. Eric Nqampi |
| Reviewed by | |
| Approved by | |

**MANAGED ON BEHALF OF (THE "CLIENT") THE DEPARTMENT OF PUBLIC WORKS**

**- COMPLIER**
**Mr. /Ms. /Me**

.....

.....

**Signature**..... **Date** .....

**- REVIEWER**
**Mr. /Ms. /Me**

.....

.....

**Signature**..... **Date** .....

**Approved By on behalf of Public Workers:**

**Mr. /Ms. /Me**

.....

.....

**Signature**..... **Date** .....

**October 2016**

public works
Department:
Public Works
REPUBLIC OF SOUTH AFRICA

**SUPERVISION BY THE DEPARTMENT OF PUBLIC WORKS:[as per CR5 of the Act]**

**Mr. /Ms. /Me** **- PROJECT MANAGER**
**(Add full details of the project manager)**

……

……

**Signature**..... **Date** .....

**SUPERVISION BY THE CONSTRUCTION AND HEALTH AND SAFETY AGENT: [as per CR5 (7)of the Act]**

**Mr. /Ms. /Me** **- AGENT**

.....
**Eric Nqampi** .....

**Contact Number: 063 553 0025**
**Email: info@ecotroopers.co.za**
**Registration Number: CHSA/066/2017**

**Signature:**..... **Date: 2019/10/30** .....

**SUPERVISION BY THE PRINCIPAL CONTRACTOR:[as per CR8 (1), (2), (5), (7)& (8) of the Act]**

**Mr. /Ms. /Me** **- PRINCIPAL CONTRACTOR**
**(Add full details)**

……
……

**Signature**..... **Date** .....

public works
Department:
Public Works
REPUBLIC OF SOUTH AFRICA

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## 1. Introduction

Public works' responsibility and commitment to ensure safe working environment are in line with our Safety, Health, and Environmental Policy, along with legislative obligations. The objective of this Specification is to outline the requirements appropriate to the Occupational Health and Safety Act 85/1993 and Regulations and to ensure that a common approach is adopted when engaging in construction work.

The Health and safety of employees and contractors is of paramount importance within Public Workers. This is a safety and health specification, specific to this project which details the necessary information and requirements that the contractor and the sub- contractors (that will be contracted on site) are required to be aware of.

## 2. Purpose

In terms of Construction Regulation 5(1)(b) of the OHSACT, the Client is required to compile an occupational health and safety specification for any intended project and provide such specification to prospective tenderers/bidders.The client is obligated to implement measures to ensure the health and safety of all people and properties affected under its custodianship or contractual commitments, and is further obligated to monitor that these measures are structured and applied according to the requirements of these Health and Safety Specifications.

This specification has as objective to ensure that the principal contractor entering into a contract with the Client achieves and maintain an acceptable level of occupational health and safety performance and compliance. This document forms an integral part of the contract between the Client and the principal contractor and the principal- and other contractors should make it part of any contract/s that they may have with other contractors and/or suppliers as far as this project is concerned.

The purpose of this specification document is to provide the relevant Principal Contractor (and his /her contractor) with any information other than the standard conditions pertaining to construction site which might affect the health and safety of persons at work and the health and safety of persons in connection with the use of plant and machinery; and to protect persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work during the carrying out of construction work. The Principal Contractor (and his /her contractor) is to be briefed on the significant health and safety aspects of the project and to be provided with information and requirements on inter alia:

a) safety considerations affecting the site of the project and its environment;

b) health and safety aspects of the associated structures and equipment;

c) submissions on health and safety matters required from the Principal Contractor(and his /her contractor); and

d) the Principal Contractor's (and his /her contractor) health & safety plan.

To serve to ensure that the Principal Contractor (and his /her contractor) is fully aware of what is expected from him/her with regard to the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and the Regulations made there-under including the applicable safety standards, and in particular in terms of Section 8 of the Act.

Compliance with this document does not absolve the principal contractor from complying with any other minimum legal requirements and the principal contractor remains responsible for the health and safety of his employees, those of his mandataries as well as any persons coming on site or on adjacent properties as far as it relates to the construction activities.

## 3. Description of work

The Department of Public Works has implemented an upgrading of the kitchen and replacement of kitchen equipment contract to address renovations and repair of facilities for which they are responsible at Thohoyandou Prison: Medium-B.

## 4. Scope

The Health and Safety Specifications pertaining to the project, upgrading of the kitchen and replacement of kitchen equipment at Thohoyandou Prison: Medium-B cover the subjects contained in the index and is intended to outline the normal as well as any special requirements of the Thohoyandou Prison: Medium-B pertaining to the health and safety matters (including the environment) applicable to the project in question. These Specifications should be read in conjunction with the Act, the Construction Regulations and all other Regulations and Safety Standards which were or will be promulgated under the Act or incorporated into the Act and be in force or come into force during the effective duration of the project. The stipulations in this specification, as well as those contained in all other documentation pertaining to the project, including contract documentation and technical specifications shall not be interpreted, in any way whatsoever, to countermand or nullify any stipulation of the Act, Regulations and Safety Standards which are promulgated under, or incorporated into the Act.

Any contractor interested in submitting a bid in response to the Client's formal tender for any construction project, has to prepare and include a draft occupational health and safety plan based on this specification and the OHSACT in its tender submission. The Client will evaluate this plan as part of its formal tender adjudication processes to ensure compliance with Construction Regulation 5 that stipulates that the Client may only appoint a contractor who has the necessary competencies and resources to carry of the work appointed for safely.

### 4.1. Definitions

**"Purpose of the Act" –**

To provide for the health and safety of persons at work and the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work; to establish an advisory council for occupational health and safety; and to provide for matters connected therewith.

**"Client" –**

Means any person for whom construction work is performed;

"**Competent Person"**

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 South African Qualifications Authority Act, 1995 (act 58 of 1995), these qualifications and training shall be deemed to be the required qualifications and training.

**''Construction Work'' –**is defined as 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

"**Contractor" –**
Means an employer, as defined in Section 1 of the Act, who performs construction work and includes Principal Contractors;

**"Designer"-means**

(a) a competent person who-

(i) prepares a design;

(ii) checks and approves a design;

(iii) arranges for a person at work under his or her control to prepare a design; including an employee of that person where he or she is the employer; or

(iv) design temporary work, including its components;

"**Employer"**
Means any person who employs or provides work for any person and remunerates that person or expressly or tacitly undertakes to remunerate him/her.

**"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.

**"Health and Safety File" –**

Means a file, or other record in permanent form, containing the information required a contemplated in the regulations;

**"Safety, health, and environmental plan"-**

Means a written plan that addresses hazards identified during a risk assessment as well as the identified impacts in the SHE specification. This would include safe work procedures to mitigate, reduce, or control the hazards identified. It is specific to each construction project undertaken, is compiled by a principal contractor or subcontractor, and must be approved by the client or agent. Both the principal contractor and the client (or agent where applicable) shall be signatories to the SHE plan once acceptable.

**"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;

**"Method Statement" –**

Means a document detailing the key activities to be performed in order to reduce as reasonably as practicable the hazards identified in any risk assessment;

**"Principal Contractor" –**

Means an employer, 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;

**"Project manager"-**

Means the person who has the responsibility for the successful planning and execution of a project. The project manager must satisfy the certification requirements set by the South African Council for the Project and Construction Management Professions.

**"Risk Assessment" –**

Means a program 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.

**"Subcontractor"-**

Means a contractor who is employed by a principal contractor and has no direct formal agreement of employment with the client/agent.

## 5. Occupational Health & Safety Management

### 5.1. Structure and Organisation of OH&S Responsibilities

#### 5.1.1. Overall Supervision and Responsibility for OH&S

- The Client and/or its Agent on its behalf to ensure that the Principal Contractor,appointed in terms of Construction Regulation 5(1)(k), implements and maintains the agreed and approved H&S Plan. Failure on the part of the Client or Agent to comply with this requirement will not relieve the Principal Contractor from any one or more of his/her duties under the Act and Regulations.
- The Chief Executive Officer (in terms of Section 16(1) of the OHSACT) of the principal contractor is to ensure that the Employer (as defined in the OHSACT) complies with the OHSACT. Annexure 1 "Legal Compliance Checklist" may be used for this purpose and assistance.
- The principal contractor's Chief Executive Officer may appoint any person reporting to him/her as Designated Person in terms of Section 16 (2) of the OHSACT. Such Designated Person is responsible to assist the Chief Executive Officer to ensure that the Employer complies with the requirements of the OHSACT.
- All OH&S Act (85 /1993), Section 16 (2) appointee/s as detailed in his/her/their respective appointment forms to regularly, in writing, report to their principals on matters of health and safety per routine and ad hoc inspections and on any deviations as soon as observed, regardless of whether the observation was made during any routine or ad hoc inspection and to ensure that the reports are made available to the principal Contractor to become part of site records (Health & Safety File).
- The Construction Supervisor and Assistant Construction Supervisor/s appointed in terms of Construction Regulation 8 to regularly, in writing, report to their principals on matters of health and safety per routine and ad hoc inspections and on any deviations as soon as observed, regardless of whether the observation was made during any

routine or ad hoc inspection and to ensure that the reports are made available to the principal Contractor to become part of site records (Health & Safety File).

- All Health and Safety Representatives (SHE-Reps) shall act and report as per Section 18 of the Act.

### 5.1.2. Further (Specific) Supervision Responsibilities for OH&S

Several appointments or designations of responsible and /or competent people in specific areas of construction work are required by the Act and Regulations. The following competent appointments, where applicable, in terms of the Construction Regulations are required to ensure compliance to the Act, Regulations and Safety Standards.

***Required appointments as per the Construction Regulations:-***

| Item | Construction Regulation | Appointment | Responsible Person |
|---|---|---|---|
| 1. | 5(1)(k) | Principal contractor for each phase or project | Client |
| 2. | 7(1)(c)(v) | Contractor | Principal Contractor |
| 3. | 7(3) | Contractor | Contractor |
| 4. | 8(1) | Construction manager | Contractor |
| 5. | 8(2) | Assistant Construction manager | Contractor |
| 6. | 8(5) | Construction Safety Officer | Contractor |
| 7. | 8(7) | Construction Supervisor | Contractor |
| 8. | 8(8) | Assistant Construction Supervisor | Contractor |
| 9. | 9(1) | Person to carry out risk assessment | Contractor |
| 10. | 9(4) | Trainer/Instructor | Contractor |
| 11. | 10(1)(a) | Fall protection supervisor | Contractor |
| 12. | 10(5)(e) + (f) | Formwork & support work examiner | Contractor |
| 13. | 13(2)(b)(ii)(b) | Professional engineer or technologist | Contractor |
| 14. | 14 (1) | Demolition Supervisor | Contractor |
| 15. | 16(1) | Scaffold supervisor | Contractor |
| 16. | 17(1) | Suspended platform supervisor | Contractor |
| 17. | 17(2)(c) | Compliance plan developer | Contractor |
| 18. | 17(8)(c) | Suspended platform expert | Contractor |
| 19. | 17(13) | Outrigger expert | Contractor |
| 20. | 19(8)(a) | Material hoist inspector | Contractor |
| 21. | 19(2)(b) | Power tool expert | Contractor |

| | | | |
|---|---|---|---|
| 22. | 19(2)(g)(I) | Power tool controller | Contractor |
| 23. | 23 (1)(d)(I) | Construction vehicle and mobile plant operator | Contractor |
| 24. | 23(1)(k) | Construction vehicle and mobile plant inspector | Contractor |
| 25. | 24 (1)(c) | Electrical installation and appliances inspector | Contractor |
| 26. | 28 (a) | Stacking and storage supervisor | Contractor |
| 27. | 29 (h) | Emergency, security and Fire coordinator | Contractor |
| 28. | Pressure Equipment Regulation 17(1)(c) | Gas/Pressure equipment Supervisor | Contractor |
| 29. | General Safety Regulation 3 | First Aiders | Contractor |
| 30. | General Safety Regulation 9 | Welding supervisor | Contractor |
| 31. | General Safety Regulation 13(a) | Ladder inspector | Contractor |
| 32. | General Administrative Regulation 9 | Incident investigator | Contractor |
| 33. | General Machinery Regulation 2 | Person responsible for machinery | Contractor |
| 34. | Hazardous Chemicals Substances Regulations 10 | Hazardous chemical substances supervisor | Contractor |
| 35. | OHSACT Section 17 | Occupational health and safety representatives | Contractor |
| 36. | OHSACT Section 19 | Occupational health and safety committee | Contractor |

This list may be used as a reference or tool to determine which components of the Act and Regulations would be applicable to a particular site. This list must not be assumed to be exclusive or comprehensive.

**5.2. Communication & Liaison**

I. OH&S Liaison between the Employer, the Principal Contractor, the other Contractors, the Designer and other concerned parties shall be through the H&S Committee as per the procedures determined by the H&S Committee.

II. In addition to the above, communication may be directly to the Client or his appointed Agent, verbally or in writing, as and when the need arises.

III. Consultation with the workforce on OH&S matters will be through their Supervisors and H&S Representatives ('SHE – Reps')

IV. The Principal Contractor will be responsible for the dissemination of all relevant OH&S information to the other Contractors e.g. design changes agreed with the Client and/or its Agent on its behalf and the Designer, instructions by the Client and/or his/her agent, exchange of information between Contractors, the reporting of hazardous/dangerous conditions/situations etc.

## 6. Requirements/ Roles and Responsibilities

### 6.1. General requirement of the Contractor

**The Contractor shall:**

a) Create and maintain a safe and healthy work environment,

b) Execute the works in a manner that complies with all the requirements of the Act and all its associated regulations, and in so doing, minimize the risk of incidents occurring; and

c) Respond to the notices issued by the Employer's Health and Safety Agent as follows:

1) Improvement Notice: improve health and safety performance over time so that repeat notices are not issued;

2) Contravention Notice: rectify contravention as soon as possible;

3) Prohibition Notice: terminate affected activities with immediate effect and only recommence

Activities when it is safe to do so.

**Additional duties of principal contractor**

- The contractor must notify the Department of Labour of the intention to carry out construction work.
- The principal contractor must coordinate the activities of all contractors and sub-contractors in the interests of health and safety.
- The principal contractor must carry out all other duties described in Regulation 7 of the Construction Regulations 2014.
- The principal contractor must register in terms of the Compensation for Occupational Injuries and Diseases Act or any other compensation fund approved by the Commissioner for its workmen, and provides to the Client proof thereof and also that it is in good standing with the Compensation Commissioner or approved insurer.
- The principal contractor must, where the contract meets the requirements laid down in Construction Regulation 4, at least 7 days before construction work is to be carried out, notify the Department of Labour of the intention to carry out construction work and use the form (Annexure 2 in the Construction Regulations) for this purpose. A copy of the notification must be held on the occupational health and safety file and a copy must also be forwarded to the Client for record purposes.
- It is a requirement that the principal contractor, when he appoints contractors or sub-contractors in terms of Construction Regulations 7(1)(c) includes an OHSACT Section 37(2) agreement (i.e. Agreement with Mandatary) in his agreement with such contractor.

### 6.2. General requirements of the designer

**The designer shall:**

(a) ensure that the applicable safety standards incarnated into these Regulations under section 44 of the Act are complied with in the design;
(b) take into consideration the health and safety specification submitted by the client;
(c) before the contract is put out to tender, make available in a report to the client-

(i) all relevant health and safety information about the design of the relevant structure that may affect the pricing of the construction work
(ii) the geotechnical-science aspects, where appropriate; and
(iii) the loading that the structure is designed to withstand
(d) inform the client in writing of any known or anticipated dangers or hazards relating to the construction work, and make available all relevant information required for the safe execution of the work upon being designed or when the design is subsequently altered;
(e) refrain from including anything in the design of the structure necessitating the use of dangerous procedures or materials hazardous to the health and safety of persons, which can be avoided by modifying the design or by substituting materials;
(f) take into account the hazards relating to any subsequent maintenance of the relevant structure and must make provision in the design for that work to be performed to minimize the risk;
(g) when mandated by the client to do so , carry out the necessary inspections at appropriate stages to verify that the construction of the relevant structure is carried out in accordance with the design: Provided that if the designer is not so mandated, the client's appointed agent in this regard is responsible to carry out such inspections;
(h) when mandated as contemplated in paragraph (g), stop any contractor from executing any construction work which is not in accordance with the relevant design's health and safety aspects: Provided that if the designer is not so mandated, the client's appointed agent in that regard must stop that contractor from executing that construction work;
(i) when mandated as contemplated in paragraph (g), in his or her final inspection of the completed structure in accordance with the National Building Regulations, include the health and safety aspects of the structure as far as reasonably practicable, declare the structure safe for use, and issue a completion certificate to the client and a copy thereof not the contractor; and
(j) During the design stage, take cognizance of ergonomic design principles in order to minimize ergonomic related hazards in all phases of the life cycle of a structure.

### 6.3. General requirements of client

**The client must:**

a) Prepare a baseline risk assessment for an intended construction work project;

b) Prepare a suitable, sufficiently documented and coherent site specific health and safety specification for the intended construction work based on the baseline risk assessment contemplated in paragraph (a);

c) Provide the designer with the health and safety specification contemplated in paragraph (b);

d) Ensure that the designer takes the prepared health and safety specification into consideration during the design stage;

E) Ensure that the designer carries out all responsibilities contemplated in regulation 6;

f) Include the health and safety specification in the tender documents; g) ensure that potential principal contractors submitting tenders have made adequate provision for the cost of health and safety measures;

h) Ensure that the principal contractor to be appointed has the necessary competencies and resources to carry out the construction work safely;

I) take reasonable steps to ensure co-operation between all contractors appointed by the client to enable each of those contractors to comply with these Regulations;

j) ensure before any work commences on a site that every principal 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 (Act No. 130 of 1993);

k) Appoint every principal contractor in writing for the project or part thereof on the construction site;

l) discuss and negotiate with the principal contractor the contents of the principal contractor's health and safety plan contemplated in regulation 7(1), and must thereafter finally approve that plan for implementation;

m) Ensure that a copy of the principal contractor's health and safety plan is available on request to an employee, inspector or contractor;

n) Take reasonable steps to ensure that each contractor's health and safety plan contemplated in regulation 7(1) (a) is implemented and maintained;

o) Ensure that periodic health and safety 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;

p) Ensure that a copy of the health and safety audit report contemplated in paragraph (o) is provided to the principal contractor within seven days after the audit;

q) 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 contractor's health and safety plan for the site;

r) where changes are brought about to the design or construction work, make sufficient health and safety information and appropriate resources available to the principal contractor to execute the work safely; and

s) Ensure that the health and safety file contemplated in regulation 7(1) (b) is kept and maintained by the principal contractor.

(2) Where a client requires additional work to be performed as a result of a design change or an error in construction due to the actions of the client, the client must ensure that sufficient

Safety information and appropriate additional resources are available to execute the required work safely.

(3) Where a fatality or permanent disabling injury occurs on a construction site, the client must ensure that the contractor provides the provincial director with a report contemplated in section 24 of the Act, in accordance with regulations 8 and 9 of the General Administrative Regulations, 2013, and that the report includes the measures that the contractor intends to implement to ensure a safe construction site as far as is reasonably practicable.

(4) Where more than one principal contractor is appointed as contemplated in sub regulation (1) (k), the client must take reasonable steps to ensure co-operation between all principal contactors and contractors in order to ensure compliance with these Regulations.

(5) Where a construction work permit is required as contemplated in regulation 3(1), the client must, without derogating from his or her health and safety responsibilities or liabilities, appoint a competent person in writing as an agent to act as his or her representative, and where such an appointment is made the duties that are imposed by these Regulations upon a client, apply as far as reasonably practicable to the agent so appointed.

(6) Where notification of construction work is required as contemplated in regulation 4(1), the client may, without derogating from his or her health and safety responsibilities or liabilities, appoint a competent person in writing as an agent to act as his or her representative, and where such an appointment is made the duties that are imposed by these Regulations upon a client, apply as far as reasonably practicable to the agent so appointed: Provided that, where the question arises as to whether an agent is necessary, the decision of an inspector is decisive.

(7) An agent contemplated in sub regulations (5) and (6) must— a) manage the health and safety on a construction project for the client; and b) be registered with a statutory body approved by the Chief Inspector as qualified to perform the required functions;

(8) When the chief inspector has approved a statutory body as contemplated in sub regulation (7) (b), he or she must give notice of that approval in the Gazette.

## 7. Legislative Requirements

The intended construction work falls within the scope of "construction work" as defined in the Construction Regulations, 2014 made under the Occupational Health and Safety Act 1993. All Contractors entering into a contract with the Client shall, as a minimum, comply with the –

- OHSACT and a current, up-to-date copy of the OHSACT and its Regulations, as amended, must be available on site at all times;
- National Environmental Management Act (No. 107 of 1998) and its associated acts and regulations, as amended;
- Compensation for Occupational Injuries and Diseases Act, No 130 of 1993 (COID Act) as amended. The principal contractor will be required to submit a letter of registration and "good-standing" from the Compensation Commissioner or compensation insurer before being awarded the contract. A current, up-to-date copy of the COID Act must be available on site at all times;
- The Labour Relations Act (No. 66 of 1995) as amended;
- Unemployment Insurance Contributions Act (No. 63 of 2001) as amended;
- Section 26(d) of the Skills Develepoment Act (No. 97 0f 1998) as amended;
- Basic Conditions of Employment Act (No. 75 of 1997) as amended;
- Employment Equity Act (No. 55 of 1998) as amended; and
- Chapter 2 and Section 23 of the Constitution of South Africa.

### 7.1. Potential sources of risk

The following potential sources of risk to the health and safety of persons have been identified, and must, as a minimum, be appropriately addressed by the principal contractor in the principal

contractor's Health and Safety Plan. In addition, the principal contractor must perform its own risk assessments to enable it to take the necessary precautions to protect the health and safety of persons on the site, to comply with the principal contractor's obligations under the Act and all Regulations made thereunder, including the Construction Regulations. All such precautionary measures and procedures must be included in the principal contractor's Health and Safety Plan,

Which must be submitted to the Client for review and approval and where applicable should include detailed plans that address:

- Construction vehicles and mobile equipment/plant
- Electrical installations and electrical machinery
- Gas and/or pressure equipment installations
- Housekeeping
- Stacking and storage practices
- Fire risks and fire precautions
- Welfare facilities on the site
- Hazardous Materials
- Noise
- Portable electrical tools
- Working at heights
- Intoxicated persons on site
- Spread of contagious infections
- Use of ladder
- Dust/ Wind
- Excavations
- Environmental conditions: Heat
- Safety Culture
- Vehicle safety (Including driver behaviour)

**7.2. Policies/Procedures are in support of the mentioned requirements**

**The following Policies/Procedures are in support of the abovementioned requirements**

- SHEQ Policy
- Substance Abuse Policy

No alcohol and other drugs will be allowed on site. No person may be under the influence of alcohol or any other drugs while on the construction site. Any person on prescription drugs must inform his/her superior, who shall in turn report this to the Principal Contractor forthwith. Any person suffering from any illness/condition that may have a negative effect on his/her safety performance must report this to his/her superior, who shall in turn report this to the Principal Contractor forthwith. Any person suspected of being under the influence of alcohol or

other drugs must be sent home immediately, to report back the next day for a preliminary inquiry. The Contractor concerned will follow a full disciplinary procedure and a copy of the disciplinary action must be forwarded to the Principal Contractor for his records.

### 7.3. Welfare Facilities

The Principal Contractor must supply adequate welfare facilities as contemplated in construction regulation 30(1)(2) and the Facilities regulations, 2004. The primary contractor shall also ensure that adequate and appropriate accomodation, sufficient toilets (1 toilet per 30 workers), changing facilities, hand washing facilities, soap, toilet paper, and hand drying material must be provided. Waste bins must be strategically placed and emptied regularly. Safe, clean storage areas must be provided for workers to store personal belongings and personal protective equipment. Workers should not be exposed to hazardous materials/substances while eating and must be provided with adequate, sheltered eating areas.

## 8. Health And Safety File

The Principal Contractor must, in terms of Construction Regulation 7(1)(b), keep a Health & Safety File on site at all times that must include the following documents as a minimum:

1. Copy of the construction work permit (for applicable projects) (Construction Regulation 3)
2. Notification of construction work (Construction Regulation 4.).
3. Updated copies of the OHSACT and its Regulations as well as the COID Act (General Administrative Regulation 4.).
4. Proof of registration and good standing with the Compensation Commissioner or a COID Insurer [Construction Regulation 5(1)(j)].
5. Occupational health and safety plan agreed with the Client including the underpinning risk assessment(s) and method statements [Construction regulation 7(1)].
6. Copies of occupational health and safety committee meetings and other relevant minutes.
7. Designs and/or drawings [Construction Regulation 7(1)(b)].
8. A list of contractors (sub-contractors) including copies of the agreements between the parties, proof of good standing with the Compensation Commissioner or COID Insurer, and the type of work to be undertaken by each contractor (Construction Regulation 7).
9. Appointment and designation forms as per paragraphs 5.1.1 and 5.1.2 above.
10. Copy of the construction health and safety officer's SACPCMP registration certificate.
11. The following registers:
    - Accident and/or incident register (Annexure 1 of the General Administrative Regulations);
    - Occupational health and safety representatives inspection register;
    - Construction vehicles and mobile plant inspections by controller;
    - Daily inspections of vehicles, plant and other equipment by the operator, driver and/or user;
    - Designer's inspections and structures record;
    - Inspection of electrical installations (including inspection of portable electrical tools, electrical equipment and other electrical appliances);
    - Fall protection inspections;
    - First-aid box content;
    - Record of first-aid treatment;
    - Fire equipment inspections and maintenance;

- Record of hazardous chemical substances kept and used on site;
- Ladder inspections;
- Machine safety inspections (including machine guards, lock-outs etcetera);
- Inspection registers and logbooks for lifting machines and – tackle (including daily inspections by drivers/operators);
- Inspections of scaffolding;
- Inspections of stacking and storage;
- Inspections of welding equipment.

12. All medical fitness certificates of all appointees on the project as required by Construction Regulation 7(1)(g).
13. All of the employees competency qualifications, accreditations and registrations and other records.
14. All other applicable records.

## 9. OHS Goals And Objectives And Arrangements For Monitoring And Reviewing OHS Performance

The Principal Contractor is required to maintain an acceptable disabling incident frequency rate (DIFR) and report on this to the Client on its behalf on a monthly basis. Daily Safety Task Observation forms and weekly reports will be used to maintain OHS Goals And Objectives And Arrangements For Monitoring And Reviewing OHS Performance on site throughout the duration of the project.

## 10. Identification Of Hazards And Development Of Risk Assessments, Standard Working Procedures (SWP) And Method Statements.

The Principal Contractor is required to develop Risk Assessments, Standard Working Procedures (SWP) and Method Statements for each activity executed in the contract or project.

The identification of hazards is over and above the hazards identification programme and those hazards identified during the drafting of the Health and Safety Plan. The principal contractor and every contractor under the principal contractor performing construction work on the project shall, before the commencement of any construction work or work associated with the aforesaid construction work and during such work, ensure that risk assessments are undertaken by a competent person, appointed in writing, and the risk assessments shall form part of the occupational health and safety plan and be implemented and maintained as contemplated in Construction Regulation 9(1). The risk assessments shall include, at least:

- The identification of the current as well as emerging risks and hazards to which persons may be exposed to;
- The analysis and evaluation of the risks and hazards identified;
- A documented plan of safe working procedures (SWP) and any method statements to mitigate, reduce or control the risks and hazards that have been identified;
- A plan to monitor the application of the SWPs; and
- A plan to review the risk assessments as the work progresses and changes are introduced or incidents occurred which requires the re-evaluation of the processes/risk mitigation.

Based on the risk assessments, the principal contractor must develop a set of site-specific occupational health and safety rules that will be applied to regulate the occupational health and safety aspects of the construction. The risk assessments, together with the site-specific occupational health and safety rules, must be submitted to the Client before mobilisation on site commences.

The principal contractor is required to conduct a baseline risk assessment and the continous and issue based risk assessments must be incorporated into the baseline risk assessment. The baseline risk assessment must further include the SWPs and the applicable method statements based on the risk assessments.

Hazard identification and risk assessments must be undertaken whilst SWPs must be developed for all out-of-scope work.

## 11. Arrangements For Monitoring And Review

### 11.1. Monthly Audit by Client and/or its Agent on its behalf

The Client and/or its Agent on its behalf will be conducting Periodic Audits at times agreed with the Principal Contractor Audit to comply with Construction Regulation 5(1)(*o*) to ensure that the principal Contractor has implemented, is adhering to and is maintaining the agreed and approved OH&S Plan.

### 11.2. Other audits and inspections by client and/or its agent on its behalf.

The Client and/or its Agent on its behalf reserves the right to conduct any other ad hoc audits and inspections as it and/or its Agent on its behalf deem necessary.

A representative of the Principal Contractor and the relevant Health and Safety Representative(s) (SHE-Reps) must accompany the Client and/or its Agent on its behalf on all Audits and Inspections and may conduct their own audit/inspection at the same time. Each party will, however, take responsibility for the results of his/her own audit/inspection results. The Client and/or its Agent on its behalf may require to be handed a copy of the minutes of the previous Health and Safety Committee meeting reflecting possible recommendations made by that committee to the Employer for reference purposes.

### 11.3. Reports

The Principal Contractor shall report all incidents where an employee is injured on duty to the extent that he/she:

- dies
- becomes unconscious
- loses a limb or part of a limb
- is injured or becomes ill to such a degree that he/she is likely either to die or to suffer a permanent physical defect or likely to be unable for a period of at least 14 days either to work or continue with the activity for which he/she was usually employed.

**OR where:**

- a major incident occurred
- the health or safety of any person was endangered
- where a dangerous substance was spilled
- the uncontrolled release of any substance under pressure took place
- machinery or any part of machinery fractured or failed resulting in flying, falling or uncontrolled moving objects
- machinery ran out of control,

To the Provincial Director of the Department of Labour within seven days and at the same time to the Client and/or its Agent on its behalf.

The Principal Contractor is required to provide the Client and/or its Agent on its behalf with copies of all statutory reports required in terms of the Act and the Regulations.

The Principal Contractor is required to provide the Client and/or its Agent on its behalf with a monthly "SHE Risk Management Report".

### 11.4. Review

The Principal Contractor is to review the Hazard Identification, Risk Assessments and Standard Work Processes at each Production Planning and Progress Report meeting as the construction work develops and progresses and each time changes are made to the designs, plans and construction methods and processes.

The Principal Contractor must provide the Client and/or its Agent on its behalf, other Contractors and all other concerned parties with copies of any changes, alterations or amendments as contemplated in the above paragraph.

### 11.5. Site Rules and other Restrictions

#### 11.5.1. Site OHS Rules

The Principal Contractor must develop a set of site-specific OH&S rules that will be applied to regulate the Health and Safety Plan and associated aspects of the construction.

When required for a site by law, visitors and non-employees upon entering the site shall be issued with the proper Personal Protective Equipment (PPE) as and when necessary.

#### 11.5.2. Security Arrangements

The Principal Contractor must establish site access rules and implement and maintain these throughout the construction period. Access control must include the rule that non-employees shall at all times be provided with fulltime supervision while on site.

The Principal Contractor must develop a set of Security rules and procedures and maintain these throughout the construction period.

**11.6. Training, induction and awareness**

The Contractor shall provide Health and Safety awareness training and safety induction, and does not replace any sector specific, hazard specific or competency specific training. It should focus on the rights and responsibilities of workers, supervisors and employers. The contents and syllabi of all training required by the OHSACT and Regulations must be included in the principal contractor's occupational health and safety plan.

**The following training and awareness which are advised to be done:**

- HIV and AIDS
- Distribution of choice Condoms (contractor can make arrangements with the local clinic to distribute them at the construction site and conduct HIV/ AIDS awareness)
- Eye safety awareness
- Skin Disorders and care
- STDs
- PPE Compliance training
- Material Handling
- Stacking and Storage
- Housekeeping
- Alcohol abuse
- Emergency, Security and Fire Coordinator

All members of the contractor's site management as well as all the persons appointed as responsible for occupational health and safety in terms of the Construction and other Regulations will be required to attend a general induction session. All employees of the principal and other contractors must be in possession of proof of general induction training. All subsequent and newly appointed employees must also be subjected to the induction training as soon as possible after the appointment but prior to starting working on site.

The principal contractor will be required to develop a contract work project specific induction training course based on the risk assessments for the contract work and train all employees and other contractors and their employees in this. All employees of the principal and other contractors must be in possession of proof that they have attended a site-specific occupational health and safety induction training at all times.

1. All operators, drivers and users of construction vehicles, mobile plant and other equipment must be in possession of valid proof of training and where applicable licenses or proof of competency.
2. All employees in jobs requiring training in terms of the OHSACT and Regulations must be in possession of valid proof of training.
3. Occupational health and safety training requirements [as required by the Construction Regulations and as indicated by the occupational health and safety specification and the risk assessment(s)] i.e. -

a. General induction (Section 8 of the OHSACT);
b. Site and job specific induction, including visitors (Sections 8 and 9 of the OHSACT);
c. Site and project manager;
d. Construction supervisor;
e. Occupational health and safety representatives [Section 18 (3) of the OHSACT];

f. Training of the appointees indicated in paragraphs 5.1.1 and 5.1.2;
g. Operators and drivers of construction vehicles and mobile plant (Construction Regulation 23);
h. Basic fire prevention and protection (Environmental Regulations 9 and Construction Regulation 29);
i. Basic first-aid (General Safety Regulations 3);
j. Storekeeping methods and safe stacking (Construction Regulation 28); and
k. Emergency, security and fire coordinator.

The principal contractor is required to have a promotion and awareness programme in place to create an occupational health and safety culture within employees as well as sub-contractors. The following are some of the methods that may be used:

- Toolbox talks
- Posters
- Videos
- Competitions
- Suggestion schemes
- Participative activities such as employee "occupational health and safety circles".

### 11.7. Accident and Incident Investigation

The Contractor is responsible to oversee the investigation of all accidents/incidents where employees and non-employees were injured to the extent that he/she/they had to receive first aid or be referred for medical treatment by a doctor, hospital or clinic. The results of the investigation to be entered into the Accident/Incident Register.

The Contractor is responsible for the investigation of all non-injury incidents as described in Section 24 (1) (b) & (c) of the Act and keeping a record of the results of such investigations including the steps taken to prevent similar incidents in future.

The Contractor is responsible for the investigation of all road traffic accidents relating to the construction site and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.

Notwithstanding the requirements of Section 24 of the Act, ALL incidents shall be investigated and reported on in writing, irrespective of whether such incident gave rise to injury or damage.

### 11.8. H&S Representatives (SHE-Reps – 'safety, health & environment') and H&S Committees

#### 11.8.1. Designation of H&S Representatives('SHE – Reps')

Where the Principal Contractor employs more that 20 persons (including the employees of other Contractors (sub-contractors) he has to appoint one H&S Representatives for every 50 employees or part thereof. (Section 17 of the Act and General Administrative Regulation 6.& 7.)

H&S Representatives have to be designated in writing and the designation shall be in accordance with the Collective Agreement as concluded between the parties as is required in terms of General Administration Regulation 6.

### 11.8.2. Duties and Functions of the H&S Representatives

The Principal Contractor must ensure that the designated H&S Representatives conduct at least a weekly inspection of their respective areas of responsibility using a checklist and report thereon to the Principal Contractor, after which these reports shall be consolidated for submission to the Health and Safety Committee.

H&S Representatives must be included in and be part of accident/incident investigations.

H&S Representatives shall be members of at least one H&S Committee and must attend all meetings of that H&S committee.

### 11.8.3. The requirements for the SHE REP HSE, OHS Manager, and OHS Officer are as follows:

OHS Officer

- NOF (level 3-5) 4years work experience
- NQF (LEVEL 6-7)-3 + work experience
- -1st Aider

OHS Manager

- NQF (level 3-5) 6 + work experience
- NQF (level 6-7) 4 +years' experience
- SACPCM stating that they are OHS manager

OHS Officer

- 1-3 years' experience
- Certificate /diploma in health and Safety
- SACPCM stating that they are a qualified OHS officer

### 11.8.4. Establishment of H&S Committee(s)

The Principal Contractor must establish H&S Committees consisting of designated H&S Representatives together with a number of Employers Representatives appointed as per Section 19(3) that are not allowed to exceed the number of H&S Representatives on the committee.

The persons nominated by the employer on a H&S Committee must be designated in writing for such period as may be determined by him. The H&S Committee shall co-opt advisory (temporary) members and determine the procedures of the meetings including the chairmanship.

The H&S Committee must meet minimum monthly and consider, at least, the following Agenda for the first meeting. Thereafter the H&S Committee shall determine its own procedures as per the previous paragraph.

**Agenda:**

1) Opening and determining of chairmanship (only when necessary)

2) Minutes of Previous Minutes

3) Observations
4) Program and Safety considerations
5) Hygiene
6) Housekeeping improvement
7) Incidents & Accidents / Injuries
8) Registers:
   a H&S Rep. Inspections
   b. Matters of First Aid
   c. Scaffolding
   d. Ladders
   e. Excavations
   f. Portable Electric Equipment
   g. Fire Equipment
   h. Explosive Power Tools
   i. Power Hand tools
   j. Incident! Report Investigation
   k. Pressure Vessels
   l. Personal Protective Equipment
9) Safety performance Evaluations
10) Education & Safety promotion program
11) First Aid Officials and training in First Aid
12) Demarcation of work- /hazardous-/safe areas/walkways
13) Posters and signage
14) Environmental preservation and conservation
15) Specific training programmes
16) General
17) Date of Next Meeting
18) Closing

**12. Notices and Signs**

The following notices and signs are, where applicable, compulsory on the construction site as well as the contractors' yards:

| Area and/or activity where notice or sign is required | Notice or sign required in terms of |
|---|---|
| Display of notices and signs | General Safety Regulation 2B and SABS Code 1186 |
| Entry | General Safety Regulation 2C(2) |
| First-aid | General Safety Regulation 3(6) |
| Toilets and change rooms | Facilities Regulation 2 (5) 4(2)(f) |
| Storage of flammable materials | General Safety Regulation 4(8)(a)(i) and (ii) [10(e) only applicable to contractor's yards] |
| Grinding wheels | Driven Machinery Regulation 8(1)(7) |
| Machinery | General Machinery Regulation 9 (Schedule D) |
| Explosive actuated fastening devises | Construction Regulation 21(2)(f) |
| Prohibition on smoking and eating or drinking at the workplaces where high risk substances [FR5 (1)] are stored or handled | Facilities Regulation 6(b) |
| Non-potable water | Facilities Regulation 7(B) |
| Construction Works Permit | Construction Regulation 3(4) |

## 13. Project/Site Specific Requirements

The following is a list of specific activities and considerations that have been identified for the project and site and for which Risk Assessments, Standard Working Procedures (SWP), management and control measures and Method Statements (where necessary) have to be developed by the Principal Contractor:

- Site Establishment including:
  - Office/s
  - Secure/Safe Storage and storage areas for materials, plant & equipment
  - Ablution facilities
  - Sheltered dining area
  - Accomodation
  - Vehicle access to the site
  - Material srorage facilities
  - Hazardous material storage facilities
- Dealing with existing Structures.
- Location of existing Services.
- Installation & Maintenance of Electrical Supply, Lighting and Equipment.
- Installation & Maintenance ofmechanical and gas/pressure equipment installation
- Health risks arising from neighboring as well as own activities and from the environment e.g. threats by dogs, bees, snakes, lightning, allergies etc.

- Exposure to Noise
- Exposure to Vibration
- Protection against dehydration and heat exhaustion
- Protection from wet & cold conditions
- Dealing with HIV/Aids and other diseases as per specific programme provided by the client and/or its Agent on its behalf
- Use of Portable Electrical Equipment including:
    - Angle grinder
    - Electrical Drilling machine
    - Skill saw
- Excavations including:
    - Ground/soil conditions
    - Trenching
    - Daily inspections
- Loading & Offloading of Trucks
- Aggregate/Sand and other Materials Delivery
- Manual and Mechanical Handling
- Lifting and Lowering Operations
- Driving & Operation of Construction Vehicles, Machinery and Mobile Plant etc.
- Brickwork
- Cutting of pipes
- Demolition
- Fire prevention and protection
- Fuel supply
- Hand and spray painting
- Hand tools
- Levelling – of materials
- Machine operator
- Material handling
- Placing concrete
- Plastering
- Portable ladders
- Refuelling vehicles/plant
- Scaffolding
- Tile stacking

- Traffic control
- Use of portable electrical tools
- Work in elevated positions
- Working close to existing services i.e. electrical, waste water etc
- Working close to traffic

## 14. Costing

To enable the Client to comply with Construction Regulation 5(1)(g), all potential principal contractors submitting tenders/bids have to demonstrate to the Client that sufficient provision has been made for the cost to implement and maintain the health and safety plan proposed by the principal contractor to meet the requirements of this health and safety specification as well as that of the OHSACT and its Regulations. A detailed schedule of costs has to be included in the health and safety plan submitted as part of the potential principal contractor's tender document. Failure by the principal contractor to adhere to this requirement will force the Client to reject the tender/bid in terms of Construction Regulation 5(1)(h).

## 15. Operational Control

### 15.1. Emergency preparedness, contingency planning and response

- The Contractor must appoint a competent person to act as emergency controller and/or coordinator.
- The principal contractor must conduct an emergency identification exercise and establish what emergencies could possibly develop. He/she must then develop detailed contingency plans and emergency procedures, taking into account any emergency plan that the Client may have in place.
- The principal contractor and the other contractors must hold regular practice drills of contingency plans and emergency procedures to test them and familiarise employees with them.

### 15.2. First-aid (General Safety Regulation 3)

- The principal contractor must provide first-aid equipment and have qualified first-aider(s) on site as required by General Safety Regulation 3 of the OHSACT.
- The contingency plan of the principal contractor must include arrangements for the speedily and timeously transportation of injured and/or ill person(s) to a medical facility or getting emergency medical support to person(s) who may require it.
- The principal contractor must have firm arrangements with his contractors in place regarding the responsibility of these contractor's first-aid arrangements as well as treatment of injured and/or ill employees.

### 15.3. Security

- The principal contractor must establish site access rules and implement and maintain these throughout the construction period. Access control must, among others, include the rule that nonemployees will not be allowed on site unaccompanied.
- The principal contractor must develop a set of project applicable security rules and procedures and maintain these throughout the construction period.

### 15.4. Accommodation of traffic

- Where construction work is undertaken in, next to or close to a public road, the use of appropriate as well as a sufficient number of road signs is of paramount importance to protect employees against traffic and to warn all road users of the presence of construction work as well as construction employees/risks/vehicles.
- The principal contractor shall ensure that appropriate as well as a sufficient number of road signs are posted to protect employees against traffic and to warn all road users of the presence of construction work as well as construction employees/vehicles. These signs shall be repeated and utilised, where appropriate, as actual construction work is approached.
- The following signage is required as a minimum where construction work is undertaken in, next to or close to a public road:
    - "Construction work ahead" sign at least 45 meters before the start of the construction work;
    - "Lane narrows" sign 30 meters before the start of the construction work;
    - "Keep right/left" sign 15 meters before the start of the construction work and again where the tapering begins; and
    - Delineators and cones every 5 meters for the entire stretch of construction work.
- Where construction work includes excavations in or next to a public road, warning lights or visible boundary indicators should be provided after dark or when visibility is poor.
- The maintenance of all signage and especially those that is suitable after dark should be duly managed.
- Where appropriate duly trained flag persons should be deployed a good distance ahead of areas where traffic is deviated or lanes closed off. These flag persons should be managed assertively to ensure that they add optimal value and should they not do so they should be retrained and if necessary replaced.
- The community liaison officer (CLO) should also be sensitised on the optimal management of traffic and the risks involved and then be instructed to increase community awareness through talking to all stakeholders including the distribution of suitable information brochures.

### 15.5. Fall protection [Working in fall risk positions (Construction Regulation 10)]

- A pre-emptive risk assessment will be required for any work to be carried out from a fall risk position and will be classified as "work in elevated positions".
- As far as is practicable, any person working in an elevated position will work from a stable platform, ladder or other device that is at least as safe as if he or she is working

at ground level and whilst working in this position be wearing suitable fall arrest equipment to prevent the person falling from the platform, ladder or other device utilised. This fall arrest equipment will be, as far as is possible, secured to a point away from the edge over which the person might fall and the lanyard must be of such a length and strength that the person will not be able to move over the edge. Alternatively any platform, slab, deck or surface forming an edge over which a person may fall may be fitted with suitable guard rails at two different heights as prescribed in SANS 10085 code of practice for the design, erection, use and inspection of access scaffolding.

- Where the requirement in paragraph 15.5 is not practicable, the person will be provided with a full body harness that will be worn and attached above the wearer's head at all times and the lanyard must be fitted with a shock absorbing device or the person must be attached to a fall arrest system that is approved by the Client.
- Where the requirements in paragraph 15.5 are not practicable, a suitable catch net, which must be able to sustain the weight of at least the average person working in the elevated position, must be erected.
- Employees working in elevated positions must be trained to do this safely and without risk to their or other person's health and safety.
- Updated records confirming the physical and psychological fitness of employees working at elevated positions should be kept on the health and safety file at all times.

### 15.6. Access scaffolding (Construction Regulation 16)

Access scaffolding must be erected, used and maintained safely in accordance with Construction Regulation 16 and SA Bureau of Standards Code of Practice, SANS 10085 entitled, "The Design, Erection, Use and Inspection of Access Scaffolding". Detailed consideration must be given to all scaffolding to ensure that it is properly planned to meet the working requirements, designed to carry the necessary loadings and maintained in a sound condition. It must also be ensured that there is sufficient material available to erect the scaffolding properly and safely. Scaffolding must be erected, altered, maintained or dismantled by person(s) who has/have adequate training and experience in this type of work or under the continuous and direct supervision of such a person.

### 15.7. Construction vehicle and mobile plant operators

The following requirements will apply to construction vehicle and mobile plant operators:

a. Only certified and/or competent employees may be allowed to operate any construction vehicle and mobile plant.

b. Every lifting machine operator must be trained specifically for the type of lifting machine that he or she is operating.

c. Only employees duly authorised to do so may operate any construction vehicle and mobile plant.

d. Only employees physically and psychologically fit, i.e. in possession of a medical certificate of fitness, may be allowed to operate any construction vehicle and mobile plant.

### 15.8. Construction vehicles and mobile plant (Construction Regulation 23)

Construction vehicles and mobile plant will initially during the competency evaluation process

be inspected by the Client prior to being allowed on a project site and suppliers of hired vehicles, plant and equipment will be required to comply with this specification as well as the OHS ACT and Regulations.
Construction vehicles and mobile plant must be:
a. Of acceptable design and construction;
b. Maintained in good working order;
c. Used in accordance with their design and intention for which they were designed;
d. Operated and/or driven by trained, competent and authorised operators/drivers. No unauthorised persons to be allowed to drive construction vehicles and mobile plant;
e. Provided with safe and suitable means of access;
f. Fitted with adequate signalling devices to make movement safe including reversing;
g. Excavations and other openings must be provided with sufficient barriers to prevent construction vehicles and mobile plant from falling into same;
h. Provided with roll-over protection;
i. Inspected daily before start-up by the driver, operator and/or user and the findings recorded in a register/log book and any defects addressed as matter of urgency;
j. Fitted with two head and two tail lights that is in good working condition whilst operating under poor visibility conditions; and
k. Used for transporting persons must have seats firmly secured and sufficient for the number of persons being transported.

No loose tools, material etcetera is allowed in the driver and/or operators compartment/cabin nor in the compartment in which any other persons are transported. No person may ride on construction vehicles and mobile plant except for in a safe place designed and provided for this purpose.

The construction site must be organised to facilitate the movement of construction vehicles and mobile plant in such a manner that pedestrians and other vehicles are not endangered. Traffic routes to be suitable, sufficient in number and adequately demarcated. Construction vehicles and mobile plant left unattended after hours adjacent to roads and areas where there is traffic movement must be fitted with lights, reflectors or adequate barricades to prevent moving traffic from a sudden emergency, or to come into contact with the parked construction vehicles and mobile plant.

In addition construction vehicles and mobile plant left unattended after hours must be parked with all buckets, booms etc. full lowered, the emergency brakes engaged and, where necessary, the wheels chocked, the transmission in neutral and the motor switched off and the ignition key removed and stored safely. All construction vehicles and mobile plant daily inspection records must be kept in the occupational health and safety file.

### 15.9. Electrical installations

Any electrical work undertaken as part of the project, including the installation of temporary electricity for construction use shall be in accordance with Construction Regulation 24 and the Electrical Installation Regulations.
The principal contractor must ensure that:
a. Existing services are to be located and clearly marked before construction commences and

during the progress thereof;
b. Where the abovementioned is not possible, employees with jackhammers etc. will be protected against electric shock by the use of suitable protective equipment e.g. rubber mats, insulated handles etcetera;
c. Electrical installations and -machinery are sufficiently robust to withstand normal working conditions on site;
d. Temporary electrical installations must be inspected at least once per week by a competent person and a record of the inspections kept on the occupational health and safety file;
e. Electrical machinery used on a construction site must be inspected daily before start-up by the competent driver/operator or any other competent person and a record of the inspections kept on the occupational health and safety file; and
f. The principal contractor must ensure that a certificate of compliance is issued for any and/or all electrical installation as contemplated in Electrical installation regulation 9.
g. A competent person appointed in writing must control all electrical installations. In terms Electrical installation regulation 11(1) only registered person may issue a certificate of compliance (CoC) and which shall be accompanied by a test report in the format approved by the chief inspector from the Department of Labour.
h. The principal contractor shall ensure that all electrical material used shall have a certificate issued by the manufacturer with a verification signature by an approved inspection authority, which certifies that the electrical equipment has been designed and manufactured in accordance with the relevant health and safety standards incorporated into these regulations under section 44 of the Act.

### 15.10. Electrical and mechanical lockout

An electrical and mechanical lockout procedure must be developed by the principal contractor and submitted to the Client for approval before construction commences. All contractors on site must be informed of and adhere to this lockout procedure.

### 15.11. Gas/Pressure Equipment

The principal contractor shall ensure compliance with pressure equipment regulations for any manufacture, installation, repair, modification, operation, maintenance, testing, and inspection of pressure equipment with a design pressure equal or greater than 50kPa. Furthermore the principal contractor must appoint a competent expert to issue a CoC for any work performed on existing or new pressure equipment and/or systems as contemplated in the pressure equipment regulation 6(2)(c)(d)(e). The pressure equipment regulation 6(2)(b) requires that the principal contractor shall also ensure that all materials purchased to be used on the project have a certificate issued by the manufacturer with a verification signature by an approved inspection authority, which certifies that the pressure equipment has been designed and manufactured in accordance with the relevant health and safety standards incorporated into these regulations under section 44 of the Act.

### 15.12. Use and storage of flammables (Construction Regulation 25)

The principal contractor must ensure that:
a. No person is required or permitted to work in a place where there is the danger of fire or an explosion due to flammable vapors being present unless adequate precautions is taken;

b. Flammables stored on a construction site are stored in a well-ventilated, reasonably fire resistant container, cage or room that is kept locked with consistent access control measures in place and sufficient fire fighting equipment installed and fire prevention methods practiced for example proper housekeeping;
c. Only one day's quantity of flammable is to be kept in the workplace;
d. Containers (including empty containers) to be kept closed to prevent fumes/vapors from escaping and accumulating in low lying areas; and
e. Welding and other flammable gases to be stored segregated as to the type of gas and empty and full cylinders.

### 15.13. Hazardous chemical substances

The principal contractor must ensure that:
a. Employees receive the necessary information and training to be able to use, handle and store hazardous chemical substances safely;
b. The risk assessments required in terms of Construction Regulation 9 include employee exposure to hazardous chemical substances and that the necessary measures be taken to protect persons from being detrimentally affected by hazardous chemical substances present or used in the workplace;
c. Suppliers provide the necessary information in the form of material safety data sheets regarding hazardous chemical substances required to ensure the safe use, handling and storage of these substances;
d. An up-to-date list is kept on site of hazardous chemical substances stored and used together with the material safety data sheet of the said hazardous chemical substances;
e. Hazardous chemical substances containers be clearly marked as to the contents and main hazardous category e.g. "Flammable" or "Corrosive" and the reference number of the hazardous chemical substances on the list indicated above;
f. Ensure compliance with Hazardous Chmeical Substnce Regulations and National Environemntal Management Acts.
g. No person eats or drinks in an area where hazardous chemical substances are stored or utilised; and
h. Hazardous chemical substances waste is disposed of safely in terms of hazardous waste disposal requirements.

### 15.14. Fire prevention and protection

The principal contractor must ensure that:
a. The risk of fire is avoided;
b. Sufficient and suitable storage of flammables is provided;
c. Maintenance must include:
- Regular inspections by a competent person appointed in writing and records of such inspections should be kept in the occupational health and safety fileAnnual inspection and service by an accredited service provider

d. All employees are instructed in the use of the fire fighting equipment and know how to attempt to extinguish a fire;
e. A sufficient number of employees are appointed and trained to act as an emergency team to deal with fires and other emergencies;

f. Employees are informed regarding emergency evacuation procedures and escape routes;
g. Emergency escape routes are kept clear at all times and clearly marked;
h. Evacuation assembly points are demarcated and made known to employees;
i. Evacuation is regularly practiced to ensure that all persons are evacuated timeously and;
j. Roll call is held after evacuation to account for all employees and to ensure that no-one including visitors and disabled persons have been left behind; and
k. A clearly audible, to all persons on site, siren or alarm is fitted and regularly tested.

### 15.15. Housekeeping (Construction Regulation 27)

The principal contractor must ensure that:
a. Housekeeping is continuously implemented and maintained;
b. Materials and equipment is properly stored;
c. Scrap, waste and debris is removed off site regularly;
d. Materials placed for use are placed safely and not allowed to accumulate or cause obstruction to the free-flow of pedestrians and vehicular traffic;
e. Where practicable, construction sites are fenced off to prevent entry of unauthorised persons;
f. An unimpeded work space is maintained for every employee;
g. Every workplace is kept clean, orderly and free of tools and the likes that are not required for the work being done;
h. As far as is practicable, every floor, walkway, stair, passage and gangway is kept in good state of repair, skid-free and free of obstruction, waste and materials;
i. The walls and roof of every indoor workplace be sound and leak-free; and
j. Openings in floors, hatchways, stairways and open sides of floors or buildings are barricaded, fenced, boarded over or provided with protection to prevent persons from falling.

### 15.16. Stacking and storage (Construction Regulation 28)

The principal contractor must ensure that:
a. A competent person is appointed in writing to supervise all stacking and storage on a construction site;
b. Adequate storage areas are provided and demarcated;
c. The storage areas are kept neat and under control;
d. The base of any stack is level and capable of sustaining the weight exerted on it by the stack;
e. The items in the lower layers can support the weight exerted by the top layers;
f. Cartons and other containers that may become unstable due to wet conditions are kept dry;
g. Pallets and containers are in good condition and no material is allowed to spill out;
h. The height of any stack does not exceed 3 times the base unless stepped back at least half the depth of a single container at least every fifth tier or the approval of an inspector of the Department of Labour has been obtained to build the stacks higher with the aid of a machine. (The operator of the machine must be protected against items falling from overhead or off the stack and no items may overhang);
i. The articles that make up a single tier are consistently of the same size, shape and mass;
j. Structures for supporting stacks are structurally sound and able to support the mass of the stack;

k. No articles are removed from the bottom of the stack first but from the top tier first;
l. Anybody climbing onto a stack can and does do it safely and that the stack is sufficiently stable to support him or her;
m. Stacks that are in danger of collapsing are broken down and restacked;
n. Stability of stacks are not threatened by vehicles or other moving plant and machinery;
o. Stacks are built in a header and stretcher fashion and that corners are securely bonded; and
p. Persons climbing onto stacks do not approach unguarded moving machinery or electrical installations.

### 15.17. Eating, changing, washing and toilet facilities (Construction Regulation 30)

#### 15.17.1. Toilets

a. The provision of toilets for each sex is required in terms of the National Building Regulations and Construction Regulation 30.
b. Chemical toilets are allowed instead of the water borne sewerage type. Toilets have to be provided at a ratio of at least 1 toilet per 30 employees.

#### 15.17.2. Showers

At least cold-water showers of some sort for each sex have to be provided at a ratio of at least 1 shower per 15 employees.

#### 15.17.3. Change rooms

Some form of screened off changing facility must be provided separately for each sex.

#### 15.17.4. Eating facility

Some form of eating facility sheltered from the sun, wind and rain must be provided.

### 15.18. Personal and other protective equipment (Sections 8, 15 and 23 of the OHSACT)

The principal contractor is required to proactively identify the hazards in the workplace and deal with them on an ongoing basis. He/she must either remove them or, where impracticable take steps to protect employees and make it possible for them to work safely and without risk to health under the hazardous conditions.

Personal protective equipment should, however, be the last resort and there should always first be an attempt to apply re-engineering and other solutions to mitigating hazardous situations before the issuing of personal protective equipment is considered. Where it is not possible to create an absolutely safe and healthy workplace the principal contractor is required to inform employees regarding this and issue, free of charge, suitable equipment to protect them from any hazards being present and that allows them to work safely and without risk to health in the hazardous environment.

It is a further requirement that the principal contractor maintain the said equipment, that he/she instructs and trains the employees in the use of the equipment and ensures that the prescribed equipment is used by the employee/s in a consistent and correct manner. Employees do not have the right to refuse to use and/or wear the equipment prescribed by the employer and, if it is impossible for an employee to use or wear prescribed protective equipment through health or

any other valid reason, the employee cannot be allowed to continue working under the hazardous condition(s) for which the equipment was prescribed but an alternative solution has to be found that may include relocating the employee.

The principal contractor may not charge any fee for protective equipment prescribed by him or her but may charge for equipment under the following conditions:

- Where the employee requests additional issue in excess of what is prescribed;
- Where the employee has blatantly abused or neglected the equipment leading to early failure; and
- Where the employee has lost the equipment.

**Please note:** Bullet points two and three above should form part of a formal disciplinary process, i.e. following a disciplinary hearing.

### 15.19. Portable electrical tools and equipment (Electrical Machinery Regulation 9)

Portable electrical tools and equipment includes every unit that takes electrical power from a 15 ampere plug point and is moved around for use in the workplace i.e. drills, saws, grindstones, portable lights, etcetera. In addition electrical appliances such as fridges, hotplates, heaters, etcetera must be inspected regularly but at least on a weekly basis and maintained to the same standards as portable electrical tools and appliances. The use, inspection and maintenance of portable electrical tools and equipment must be governed by the following:

- Regular inspections by a competent person appointed in writing;
- Inspection results must be recorded in a register;
- Only competent authorised persons are allowed to use portable electrical tools and equipment; and
- The correct protective equipment is worn/used whilst operating portable electrical tools and equipment.

This equipment -

- Must be maintained in good condition at all times to prevent an electrical shock to the user;
- The main source should incorporate an earth leakage protection device or receive power through a double wound transformer or be double insulated and clearly marked as such; and
- All equipment must be fitted with a switch to allow for safe and easy starting and stopping.

### 15.20. Public health and safety (Section 9 of the OHSACT)

The principal contractor is responsible for ensuring that non-employees affected by the construction work are made aware of the dangers likely to arise from said construction work as well as the precautionary measures to be observed to avoid or minimise those dangers. This includes among others:

a. Non- employees entering the site for whatever reason;
b. The surrounding community; and
c. Passers by the site.

Appropriate signage must be posted to this effect and all employees on site must be instructed to ensure that non-employees are protected at all times. All non-employees entering the site must receive site applicable induction into the hazards and risks and their control measures.

## 15.21. Demolition Work

Demolition work must be carried out under the supervision of acompetent person who has been appointed in writing. A detailed structural engineering survey of the structure to be demolished must be carried out and a method statement on the procedure to be followed in demolishing the structure must be developed by a competent person, before any demolition may be commenced. As demolishing progresses the structural integrity of the structure must be checked at intervals as determined in the method statement by the appointed competent person in order to prevent any premature or uncontrolled collapse.

Steps must be taken to ensure that where a structure is being demolished:

a. no floor, roof or any other part of the structure is overloaded with debris, material or equipment that would make it unsafe;
b. precautions are taken to prevent the collapse of the structure when any frame, support or reinforcement is cut or removed;
c. shoring or propping is applied where necessary;
d. no employee is required or allowed to work under unsupported overhanging material; and
e. the stability of an adjacent building, structure, road or services is maintained at all times.

The demolishing, removal, transportation and disposal of asbestos should be done in accordance with the asbestos regulations as contemplated in OHS Act. The location and nature of any existing services such as water, electricity, gas etcetera must be established before any demolition is commenced with and any service that may be affected by the demolition must be protected and made safe for employees and other persons. Convenient and safe means of access must be provided and maintained at all times. No material may be dropped on the outside of the building unless the area into which it is dropped is fenced off or barricaded.

Waste and debris may only be disposed from a height in a chute with the following design:

a. adequately constructed and rigidly fastened and secured;
b. inclined greater than 45 degrees and enclosed on all four sides;
c. fitted with a gate or control mechanism to control the flow of material that may not freefall down the chute;
d. discharged into a container or a barricaded area; and
e. demolition equipment may only be used on floors or slabs that are able to support it.

## 15.22. Transportation of employees

Any vehicle used to transport employees must have seats firmly secured and adequate for the number of employees to be carried.
Regulation 247 of the National Road Traffic Act, Number 93 of 1996 (NRTA) stipulates that the principal contractor shall not allow employees to be transported in a vehicle unless the portion of the vehicle in which the employees are being conveyed is enclosed to a height of –
a. at least 350 mm above the surface on which employees are seated; or

b. at least 900 mm above the surface on which employees are standing, in a manner and with a material of sufficient strength to prevent employees from falling from such vehicle when it is in motion.

Regulation 247 of the NRTA also stipulates that the principal contractor shall also not allow any employees to be conveyed in the goods compartment of a vehicle together with any tools or goods, except their personal effects, unless that portion in which the employees are being conveyed is separated by means of a partition, from the portion in which such goods are being conveyed.

**16. General**

Nothing contained in or omitted from this Health and Safety Specification, or the Health and Safety Plan based on this specification, shall relieve the principal contractor of any of its obligations or liabilities. The Client shall/ will not be liable for any civil claim because of anything contained in or omitted from this Health and Safety Specification.

I, the undersigned hereby acknowledge that I fully understand the contents of this Health and Safety Specification and the consequences of non-compliance.

Signed at …… on this …….. Day of …… 20….

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(Name) (Signature)

Name & Signature of Service Provider/Contractor Manager

.....

Name of Company Signed

(For and on behalf of the client/agent)

---------- ----------

Date Place






EXPANDED PUBLIC WORKS PROGRAMME

CONTRIBUTING TO A NATION AT WORK

# Guidelines for the Implementation of Labour-Intensive Infrastructure Projects under the Expanded Public Works Programme (EPWP)

SECOND EDITION • JULY 2005



National Treasury




DFID

Prepared with the assistance of the UK Department for International Development






public works

Department:
Public Works
REPUBLIC OF SOUTH AFRICA

# Guidelines for the Implementation of Labour Intensive Projects under the Expanded Public Works Programme (EPWP)

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## Foreword

The Expanded Public Works Programme (EPWP) is one of government's short-to-medium term programmes aimed at alleviating and reducing unemployment. The EPWP will achieve this aim through the provision of work opportunities coupled with training. It is a national programme covering all spheres of government and state-owned enterprises (SOE's). President Mbeki formally announced the programme in his State of the Nation Address in February 2003.

Government's medium-to-long term programmes to address unemployment include increasing economic growth, improving skills levels through education and training, and improving the enabling environment for industry to flourish. The EPWP will continue to exist until these medium-to-long term programmes are successful in reducing unemployment.

The programme involves reorientating line function budgets so that government expenditure results in more work opportunities, particularly for unskilled labour. EPWP projects will therefore be funded through the normal budgetary process, through the budgets of line-function departments, provinces and municipalities.

Opportunities for implementing the EPWP have been identified in the infrastructure, environmental, social and economic sectors. In the infrastructure sector the emphasis is on creating additional work opportunities through the introduction of labour-intensive construction methods. Labour-intensive construction methods involve the use of an appropriate mix of labour and machines, with a preference for labour where technically and economically feasible, without compromising the quality of the product.

All public bodies involved in infrastructure provision are expected to attempt to contribute to the programme. As part of this initiative, the national government has through the 2004 Division of Revenue Act placed some additional conditionalities on the Provincial Infrastructure Grant (PIG) and the Municipal Infrastructure Grant (MIG). These additional conditionalities will require provinces and municipalities to use the "Guidelines for the implementation of labour intensive infrastructure projects under the EPWP" agreed upon between SALGA, National Treasury and the Department of Public Works for identification, design and construction or projects financed through the MIG or PIG. This document contains those guidelines.

International and local experience has shown that, with well-trained supervisory staff and an appropriate employment framework, labour-intensive methods can be used successfully for infrastructure projects involving low-volume roads and sidewalks, stormwater drains, and trenches. On the basis of this experience, and in the context of high levels of unemployment, the national government has decided to require that these infrastructure projects must be carried out labour-intensively.

These guidelines aim to provide provinces and municipalities with the necessary tools to successfully tender these projects as labour-intensive projects. These guidelines have been designed with the aim of minimising the additional work required from provincial and municipal officials. The National Department of Public Works is working with the Construction Education and Training Authority (CETA) to develop the capacity of the construction industry to design and manage labour-intensive infrastructure projects successfully.

The guidelines contain sections which should be copied into the relevant parts of the contract documentation for consulting engineers and contractors. These sections introduce a requirement that certain construction activities must be carried out by hand, under certain conditions. These requirements were formulated on the basis of a thorough review of international and local experience of labour-intensive construction, in order to identify the activities for which it is economically and technically feasible to use labour-intensive methods. The guidelines therefore conform to the Public Finance Management Act requirement for assessing the cost-effectiveness of capital projects. The normal tender evaluation processes are followed under these guidelines, and it is not necessary to apply any special additional preferences for employment creation.

The guidelines include the contents of the Code of Good Practice for Special Public Works Programmes, which has been gazetted by the Department of Labour, and which provides for special conditions of employment for these EPWP projects. In terms of the Code of Good Practice, the workers on these projects are entitled to formal training, which will be provided by training providers appointed (and funded) by the Department of Labour. For projects of up to six months in duration, this training will cover life-skills and information about other education, training, and employment opportunities.

In order to develop the capacity of the construction industry to manage labour-intensive projects, these guidelines also include an eligibility requirement for the appointment of contractors and consulting engineers, i.e. that their key staff involved in the project must undergo special NQF-accredited training programmes in labour-intensive construction.

As an additional means of addressing the capacity in the labour-intensive construction sector, DPW together with the CETA has established a labour intensive contractor learnership programme. The aim of this learnership programme is to produce small contractors qualified to execute work in accordance with these guidelines. The CETA is paying for the classroom training of these contractors.

As part of this learnership programme, learner contractors need to execute projects to gain practical experience. Partnering provinces and municipalities may allocate projects identified and designed using these guidelines to the learner contractors on a negotiated price basis.

An electronic version of these guidelines and electronic copies of the following documents can be obtained on the enclosed CD ROM or downloaded from www.epwp.gov.za:

- Code of Good Practice for Employment and Conditions of Work for Special Public Works Programmes
- Ministerial Determination, Special Public Works Programmes, issued in terms of the Basic Conditions of Employment Act of 1997 by the Minister of Labour in Government Notice N° R63 of 25 January 2002
- Government Gazette (DORA 2004 with MIG and PIG Conditions)
- Documents relating to the Labour Intensive Contractor Learnership Programme

## Amendments to the first edition incorporated in this second edition

Minor amendments to the text of the first edition have been made to:

i) change the deadlines for persons in the employ of the contractor to be accredited in respect of the relevant CETA standards;
ii) align the text with the requirements of the Construction Industry Development Regulations; and
iii) delete text that has now become redundant.

## Terminology

**By hand:** refers to the use of tools which are manually operated and powered
**Form of contract:** refers to a document (conditions of contract) published by industry which establishes the rights, liabilities and obligations of the contracting parties and the procedures for the administration of the contract.
**Labour-intensive:** refers to methods of construction involving a mix of machines and labour, where labour, utilising hand tools and light plant and equipment, is preferred to the use of heavy machines, where technically and economically feasible.
(Note: The normal emphasis on the cost-effectiveness and quality of the asset must be retained.)
**Public body:** refers to a department, trading entity, constitutional institution, municipality, public entity or municipal entity
**Scope of work:** refers to a specification and description of the services or construction works which are to be provided and any other requirements and constraints relating to the manner in which the contract is to be performed

## Abbreviations

**CETA:** Construction Education and Training Authority
**CIDB:** Construction Industry Development Board
**ECSA:** Engineering Council of South Africa
**EPWP:** Expanded Public Works Programme
**FIDIC:** French acronym for the International Federation of Consulting Engineers
**NEC:** New Engineering Contract
**NQF:** National Qualifications Framework
**SANS:** South African National Standard
**SPWP:** Special Public Works Programme

# 1 Introduction

Labour-intensive infrastructure projects under the EPWP include:
- using labour intensive construction methods to provide employment opportunities to local unemployed people;
- providing training or skills development to those locally employed workers;
- building cost-effective and quality assets.

This document is a guiding framework for the implementation of labour-intensive projects under the Expanded Public Works Programme. It provides the means by which labour intensive works can be implemented under the most commonly encountered delivery model, namely design by employer (i.e. the model in which the contractor undertakes construction on the basis of full designs issued by the employer.) It also assumes that the public body will appoint a consultant to design the works and to administer the contract. Adjustments to the text of this document will be necessary to accommodate other delivery models. Where no consultants are appointed, the staff of the public body needs to perform the activities assigned to consultants in this document.

The document in addition provides guidance on the:
- identification of suitable projects;
- appropriate design for labour-intensive construction;
- the specification of labour-intensive works; and
- the compilation of contract documentation for labour-intensive projects.

Specific direction is given regarding contract clauses which must be included to amend or augment standard documentation, in order to implement labour-intensive projects.

These guidelines must be applied to all relevant projects for which the design process commences after the beginning of the 2004-2005 financial year.

Appendix A provides sources of additional information.

The employment of locally employed temporary workers on all EPWP labour-intensive infrastructure projects must be in accordance with the Code of Good Practice for Employment and Conditions of Work for Special Public Works Programmes issued in terms of the Basic Conditions of Employment Act, 1997 (Act N° 75 of 1997) and promulgated in Government Gazettes Notice N° P64 of 25 January 2002. The requirements of this Code have been included in this Guidelines document. However, reference should be made to the full text of the Code of Good Practice and the related Ministerial Determination.

# 2 Responsibilities of the public body

## 2.1 Selection of projects

The public body must implement the following types of civil infrastructure projects labour-intensively, in accordance with these guidelines:

- low-volume roads (typically less than 500 vehicles per day);
- sidewalks and non-motorised transport infrastructure
- stormwater drainage; and
- trenching

where such projects contain a significant amount of the construction activities for which the use of labour is specified in the Generic Labour Intensive Specification in section 3.3.3 below, i.e. excavation, loading, short-distance hauling, offloading, spreading, grassing, and stone-pitching.

There is also potential for additional employment creation in other types of infrastructure and building (see Annexure B). Public bodies are also encouraged to create additional work opportunities in these projects. These guidelines may be used for other labour-intensive projects other than those types of civil infrastructure projects specified above, as long as such projects involve a significant substitution of labour for machines.

The public body must be satisfied that sufficient local labour (willing to work) is available for the project, before proceeding with the project as a labour-intensive project.

The public body is encouraged to send its relevant managers on the applicable skills programmes in labour-intensive construction (See Appendix C).

## 2.2 Setting of rate of pay

In accordance with the Code of Good Practice for Employment and Conditions of Work for Special Public Works Programmes (clause 10.4), the public body must set a rate of pay (task-rate) for workers to be employed on the labour-intensive projects.

Clause 10.4 requires that the following should be considered when setting rates of pay for workers:

*10.4.1 The rate set should take into account wages paid for comparable unskilled work in the local area per sector, if necessary.*

*10.4.2 The rate should be an appropriate wage to offer an incentive for work, to reward effort provided and to ensure a reasonable quality of work. It should not be more than the average local rate to ensure people are not recruited away from other employment and jobs with longer-term prospects.*

*10.4.3 Men, women, disabled persons and the aged must receive the same pay for work of equal value.*

### 2.3 Appointment of consulting engineers and contractors

The public body must ensure that:

i) the design of the labour intensive works by consultants is overseen by persons in their employ who have completed the necessary skills training (see Appendix C);

ii) works contracts are administered by persons in the employ of consultants who have completed the necessary skills training (see Appendix C); and

iii) works contracts are awarded to contractors who have in their employ managers who have completed the necessary skills training (see Appendix C).

As a concession up to 30 June 2006, persons in the employ of contractors identified in Appendix C who have not completed the requisite skills training need only to be registered on the relevant skills programmes.

# 3 Contract documentation for consulting engineers and contractors for labour-intensive construction projects

## 3.1 General

All the standard forms of contract listed in the CIDB Standard for Uniformity in Construction Procurement may be used for labour-intensive projects. It is not necessary to create special new forms of contract or to amend the approved forms of contract to implement labour based works.

Requirements for labour-intensive works need, however, to be established in the scope of work associated with a contract for both consultants and contractors.

The approved standard forms of contract for professional services use different terms to describe the parties to the contract. These guidelines use the terms employer and consultant for the parties engaged in professional service contracts and scope of work for requirements in both professional service and construction contracts.

## 3.2 Contract Documentation for Consulting Engineering Services

The scope of work must establish the manner in which the consultant is to provide the consulting engineering services associated with labour intensive works.

All services relating to the implementation of the works which are to be provided in terms of the these Guidelines are normal services in terms of the Guideline Scope of Service and Tariff of Fees for Persons Registered in terms of the Engineering Professions Act published by the Engineering Council of South Africa in terms of a Board Notice. Any changes in the design of the works to incorporate labour intensive works should not constitute a change in scope or an additional service where the scope of work is framed around such ECSA publications.

**The following must be included in the scope of work in the contract of employment with a Consulting Engineer:**

**Labour-intensive works**

1. The Consultant shall not perform any significant portion of a project involving labour-intensive works under the direction of a staff member who has not completed the NQF level 7 unit standard "Develop and Promote Labour Intensive Construction Strategies" (Details of this skills programmes may be obtained from the CETA ETQA manager (e-mail:gerard@ceta.co.za, tel: 011-265 5900).

2. The staff member of the consultant who is responsible for the administration of any works contract involving labour intensive works must have completed the NQF level 5 unit standard "Manage Labour Intensive Construction Projects" (Details of this skills programmes may be obtained from the CETA ETQA manager (e-mail: gerard@ceta.co.za, tel: 011-265 5900).

3. The Consultant must provide the Employer with satisfactory evidence that staff members satisfy the requirements of 1 and 2.

4. The Consultant must design and implement the construction works in accordance with the Guidelines for the Implementation of the Labour Intensive Projects under the Expanded Public Works Programme (the Guidelines) published by the National Department of Public Works.

5. The Consultant shall, for monitoring purposes, keep monthly records of and transmit to the Client data obtained from the contractor on the following indicators with regard to workers employed:
   - Project budget
   - Actual Project Expenditure
   - Number of job opportunities created
   - Demographics of workers employed (disaggregated by women, youth and persons with disabilities)
   - Minimum day-task wage rate earned on project
   - Number of person-days of employment created
   - Number of persons who have attended a standard EPWP 10 day accredited training course

   The definitions for these indicators are contained in Annexure D of the latest edition of the Guidelines for the Implementation of Labour-Intensive Infrastructure Projects under the Expanded Public Works Programme (EPWP). The values for the indicators shall be submitted to the Employer on the prescribed reporting template (from the EPWP Unit in the DPW) and obtainable from www.epwp.gov.za

6. The Consultant shall certify that the works have been completed in accordance with the requirements of the Guidelines and the Contract:
   a) whenever a payment certificate is presented to the Employer for payment; and
   b) immediately after the issuing of a practical completion certificate that signifies that the whole of the works have reached a state of readiness for occupation or use for the purposes intended although some minor work may be outstanding.

### 3.3 Contract Documentation for the Works

#### *3.3.1 Notice and Invitation to tender / Conditions of tender*

Public bodies must only award contracts to contractors who have suitably qualified senior and middle supervisory staff to supervise the labour-intensive works. Tenderers must be made aware of this requirement in tender documents. Those responsible for evaluating tenders must confirm that the contractor has such staff available for the contract during the tender evaluation process.

The following must be included in the notice and invitation to tender:

Only tenderers who employ staff which satisfy EPWP requirements are eligible to submit tenders.

**The following must be included in the tender data in accordance with the provisions of the CIDB Standard for Uniformity in Construction Procurement:**

| | |
|---|---|
| F.2.1 | Only those tenderers who have in their employ management and supervisory staff satisfying the requirements of the scope of work for labour intensive competencies for supervisory and management staff are eligible to submit tenders. |
| F.2.18 | The tenderer shall, when requested by the Employer to do so, submit the names of all management and supervisory staff that will be employed to supervise the labour-intensive portion of the works together with satisfactory evidence that such staff members satisfy the eligibility requirements. |

#### *3.3.2 Contract Data*

As mentioned in 3.1, any approved standard form of contract for construction works may be used for labour-intensive projects. These forms of contract must not, however, be amended or varied to alter the obligations, liabilities or rights of the employer, representative of the employer (engineer / principal agent / agent / project manager) or contractor where a project manager, materials manager, trainer, mentor or any other person is appointed to support the Contractor.

**The following must be included in the contract data in the contract with the Employer:**

**Payment for the labour-intensive component of the works**

Payment for works identified in the Scope of Work as being labour-intensive shall only be made in accordance with the provisions of the Contract if the works are constructed strictly in accordance with the provisions of the Scope of Work. Any non-payment for such works shall not relieve the Contractor in any way from his obligations either in contract or in delict.

**Applicable labour laws**

The Ministerial Determination, Special Public Works Programmes, issued in terms of the Basic Conditions of Employment Act of 1997by the Minister of Labour in Government Notice N° R63 of 25 January 2002, as reproduced below, shall apply to works described in the scope of work as being labour intensive and which are undertaken by unskilled or semi-skilled workers.

## 1 Introduction

1.1 This document contains the standard terms and conditions for workers employed in elementary occupations on a Special Public Works Programme (SPWP). These terms and conditions do NOT apply to persons employed in the supervision and management of a SPWP.

1.2 In this document –

(a) "department" means any department of the State, implementing agent or contractor;
(b) "employer" means any department, implementing agency or contractor that hires workers to work in elementary occupations on a SPWP;
(c) "worker" means any person working in an elementary occupation on a SPWP;
(d) "elementary occupation" means any occupation involving unskilled or semi-skilled work;
(e) "management" means any person employed by a department or implementing agency to administer or execute an SPWP;
(f) "task" means a fixed quantity of work;
(g) "task-based work" means work in which a worker is paid a fixed rate for performing a task;
(h) "task-rated worker" means a worker paid on the basis of the number of tasks completed;
(i) "time-rated worker" means a worker paid on the basis of the length of time worked.

## 2 Terms of Work

2.1 Workers on a SPWP are employed on a temporary basis.

2.2 A worker may NOT be employed for longer than 24 months in any five-year cycle on a SPWP.

2.3 Employment on a SPWP does not qualify as employment as a contributor for the purposes of the Unemployment Insurance Act 30 of 1966.

## 3 Normal Hours of Work

3.1 An employer may not set tasks or hours of work that require a worker to work–

(a) more than forty hours in any week
(b) on more than five days in any week; and
(c) for more than eight hours on any day.

3.2 An employer and worker may agree that a worker will work four days per week. The worker may then work up to ten hours per day.

3.3 A task-rated worker may not work more than a total of 55 hours in any week to complete the tasks allocated (based on a 40-hour week) to that worker.

## 4 Meal Breaks

4.1 A worker may not work for more than five hours without taking a meal break of at least thirty minutes duration.

4.2 An employer and worker may agree on longer meal breaks.

4.3 A worker may not work during a meal break. However, an employer may require a worker to perform duties during a meal break if those duties cannot be left unattended and cannot be performed by another worker. An employer must take reasonable steps to ensure that a worker is relieved of his or her duties during the meal break.

4.4 A worker is not entitled to payment for the period of a meal break. However, a worker who is paid on the basis of time worked must be paid if the worker is required to work or to be available for work during the meal break.

## 5 Special Conditions for Security Guards

5.1 A security guard may work up to 55 hours per week and up to eleven hours per day.
5.2 A security guard who works more than ten hours per day must have a meal break of at least one hour or two breaks of at least 30 minutes each.

## 6 Daily Rest Period

Every worker is entitled to a daily rest period of at least eight consecutive hours. The daily rest period is measured from the time the worker ends work on one day until the time the worker starts work on the next day.

## 7 Weekly Rest Period

Every worker must have two days off every week. A worker may only work on their day off to perform work which must be done without delay and cannot be performed by workers during their ordinary hours of work ("emergency work").

## 8 Work on Sundays and Public Holidays

8.1 A worker may only work on a Sunday or public holiday to perform emergency or security work.
8.2 Work on Sundays is paid at the ordinary rate of pay.
8.3 A task-rated worker who works on a public holiday must be paid –
(a) the worker's daily task rate, if the worker works for less than four hours;
(b) double the worker's daily task rate, if the worker works for more than four hours.
8.4 A time-rated worker who works on a public holiday must be paid –
(a) the worker's daily rate of pay, if the worker works for less than four hours on the public holiday;
(b) double the worker's daily rate of pay, if the worker works for more than four hours on the public holiday.

## 9 Sick Leave

9.1 Only workers who work four or more days per week have the right to claim sick-pay in terms of this clause.
9.2 A worker who is unable to work on account of illness or injury is entitled to claim one day's paid sick leave for every full month that the worker has worked in terms of a contract.
9.3 A worker may accumulate a maximum of twelve days' sick leave in a year.
9.4 Accumulated sick-leave may not be transferred from one contract to another contract.
9.5 An employer must pay a task-rated worker the worker's daily task rate for a day's sick leave.
9.6 An employer must pay a time-rated worker the worker's daily rate of pay for a day's sick leave.
9.7 An employer must pay a worker sick pay on the worker's usual payday.
9.8 Before paying sick-pay, an employer may require a worker to produce a certificate stating that the worker was unable to work on account of sickness or injury if the worker is –
(a) absent from work for more than two consecutive days; or
(b) absent from work on more than two occasions in any eight-week period.

9.9 A medical certificate must be issued and signed by a medical practitioner, a qualified nurse or a clinic staff member authorised to issue medical certificates indicating the duration and reason for incapacity.

9.10 A worker is not entitled to paid sick-leave for a work-related injury or occupational disease for which the worker can claim compensation under the Compensation for Occupational Injuries and Diseases Act.

## 10 Maternity Leave

10.1 A worker may take up to four consecutive months' unpaid maternity leave.

10.2 A worker is not entitled to any payment or employment-related benefits during maternity leave.

10.3 A worker must give her employer reasonable notice of when she will start maternity leave and when she will return to work.

10.4 A worker is not required to take the full period of maternity leave. However, a worker may not work for four weeks before the expected date of birth of her child or for six weeks after the birth of her child, unless a medical practitioner, midwife or qualified nurse certifies that she is fit to do so.

10.5 A worker may begin maternity leave –

(a) four weeks before the expected date of birth; or

(b) on an earlier date –

(i) if a medical practitioner, midwife or certified nurse certifies that it is necessary for the health of the worker or that of her unborn child; or

(ii) if agreed to between employer and worker; or

(c) on a later date, if a medical practitioner, midwife or certified nurse has certified that the worker is able to continue to work without endangering her health.

10.6 A worker who has a miscarriage during the third trimester of pregnancy or bears a still-born child may take maternity leave for up to six weeks after the miscarriage or stillbirth.

10.7 A worker who returns to work after maternity leave, has the right to start a new cycle of twenty-four months employment, unless the SPWP on which she was employed has ended.

## 11 Family responsibility leave

11.1 Workers, who work for at least four days per week, are entitled to three days paid family responsibility leave each year in the following circumstances -

(a) when the employee's child is born;

(b) when the employee's child is sick;

(c) in the event of a death of –

(i) the employee's spouse or life partner;

(ii) the employee's parent, adoptive parent, grandparent, child, adopted child, grandchild or sibling.

## 12 Statement of Conditions

12.1 An employer must give a worker a statement containing the following details at the start of employment –

(a) the employer's name and address and the name of the SPWP;

(b) the tasks or job that the worker is to perform; and

(c) the period for which the worker is hired or, if this is not certain, the expected duration of the contract;
(d) the worker's rate of pay and how this is to be calculated;
(e) the training that the worker will receive during the SPWP.

12.2 An employer must ensure that these terms are explained in a suitable language to any employee who is unable to read the statement.

12.3 An employer must supply each worker with a copy of these conditions of employment.

## 13 Keeping Records

13.1 Every employer must keep a written record of at least the following –
(a) the worker's name and position;
(b) in the case of a task-rated worker, the number of tasks completed by the worker;
(c) in the case of a time-rated worker, the time worked by the worker;
(d) payments made to each worker.

13.2 The employer must keep this record for a period of at least three years after the completion of the SPWP.

## 14 Payment

14.1 An employer must pay all wages at least monthly in cash or by cheque or into a bank account.

14.2 A task-rated worker will only be paid for tasks that have been completed.

14.3 An employer must pay a task-rated worker within five weeks of the work being completed and the work having been approved by the manager or the contractor having submitted an invoice to the employer.

14.4 A time-rated worker will be paid at the end of each month.

14.5 Payment must be made in cash, by cheque or by direct deposit into a bank account designated by the worker.

14.6 Payment in cash or by cheque must take place –
(a) at the workplace or at a place agreed to by the worker;
(b) during the worker's working hours or within fifteen minutes of the start or finish of work;
(c) in a sealed envelope which becomes the property of the worker.

14.7 An employer must give a worker the following information in writing –
(a) the period for which payment is made;
(b) the numbers of tasks completed or hours worked;
(c) the worker's earnings;
(d) any money deducted from the payment;
(e) the actual amount paid to the worker.

14.8 If the worker is paid in cash or by cheque, this information must be recorded on the envelope and the worker must acknowledge receipt of payment by signing for it

14.9 If a worker's employment is terminated, the employer must pay all monies owing to that worker within one month of the termination of employment.

## 15 Deductions

15.1 An employer may not deduct money from a worker's payment unless the deduction is required in terms of a law.
15.2 An employer must deduct and pay to the SA Revenue Services any income tax that the worker is required to pay.
15.3 An employer who deducts money from a worker's pay for payment to another person must pay the money to that person within the time period and other requirements specified in the agreement law, court order or arbitration award concerned.
15.4 An employer may not require or allow a worker to –
(a) repay any payment except an overpayment previously made by the employer by mistake;
(b) state that the worker received a greater amount of money than the employer actually paid to the worker; or
(c) pay the employer or any other person for having been employed.

## 16 Health and Safety

16.1 Employers must take all reasonable steps to ensure that the working environment is healthy and safe.
16.2 A worker must –
(a) work in a way that does not endanger his/her health and safety or that of any other person;
(b) obey any health and safety instruction;
(c) obey all health and safety rules of the SPWP;
(d) use any personal protective equipment or clothing issued by the employer;
(e) report any accident, near-miss incident or dangerous behaviour by another person to their employer or manager.

## 17 Compensation for Injuries and Diseases

17.1 It is the responsibility of the employers (other than a contractor) to arrange for all persons employed on a SPWP to be covered in terms of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993.
17.2 A worker must report any work-related injury or occupational disease to their employer or manager.
17.3 The employer must report the accident or disease to the Compensation Commissioner.
17.4 An employer must pay a worker who is unable to work because of an injury caused by an accident at work 75% of their earnings for up to three months. The employer will be refunded this amount by the Compensation Commissioner. This does NOT apply to injuries caused by accidents outside the workplace such as road accidents or accidents at home.

## 18 Termination

18.1 The employer may terminate the employment of a worker for good cause after following a fair procedure.
18.2 A worker will not receive severance pay on termination.
18.3 A worker is not required to give notice to terminate employment. However, a worker

who wishes to resign should advise the employer in advance to allow the employer to find a replacement.

18.4 A worker who is absent for more than three consecutive days without informing the employer of an intention to return to work will have terminated the contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.

18.5 A worker who does not attend required training events, without good reason, will have terminated the contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.

**19 Certificate of Service**

19.1 On termination of employment, a worker is entitled to a certificate stating –

(a) the worker's full name;
(b) the name and address of the employer;
(c) the SPWP on which the worker worked;
(d) the work performed by the worker;
(e) any training received by the worker as part of the SPWP;
(f) the period for which the worker worked on the SPWP;
(g) any other information agreed on by the employer and worker.

### *3.3.3 Scope of work*

Standard specifications (those normally used by the public bodies) are to be utilised. It is necessary, however, to include certain requirements in the scope of work to implement labour-intensive works in accordance with the provisions of these Guidelines.

Appendix E outlines the earthworks which are to be executed by hand in terms of the South African Nation Standard 1921-5.

**The following wording, as appropriate, must be included in the scope of work in the contract with the contractor**

**DESCRIPTION OF THE WORKS**

**Employer's objectives**

The employer's objectives are to deliver public infrastructure using labour intensive methods

**Labour-intensive works**

Labour-intensive works comprise the activities described in SANS 1921-5, *Earthworks activities which are to be performed by hand*, and its associated specification data . Such works shall be constructed using local workers who are temporarily employed in terms of this Scope of Work.

**LABOUR INTENSIVE COMPETENCIES OF SUPERVISORY AND MANAGEMENT STAFF**

Contractors having a CIDB contractor grading designation of 5CE and higher shall only engage supervisory and management staff in labour intensive works who have either completed, or for the period 1 April 2004 to 30 June 2006, are registered for training towards, the skills programme outlined in Table 1.

The managing principal of the contractor, namely, a sole proprietor, the senior partner, the managing director or managing member of a close corporation, as relevant, having a contractor grading designation of 1CE, 2CE, 3CE and 4CE shall have personally completed, or for the period 1 April 2004 to 30 June 2006 be registered on a skills programme for the NQF level 2. All other site supervisory staff in the employ of such contractors must have completed, or for the period 1 April 2004 to 30 June 2006 be registered on a skills programme for, the NQF level 2 unit standards or NQF level 4 unit standards.

**Table 1: Skills programme for supervisory and management staff**

| Personnel | NQF level | Unit standard titles | Skills programme description |
|---|---|---|---|
| Team leader / supervisor | 2 | Apply Labour-Intensive Construction Systems and Techniques to Work Activities | This unit standard must be completed, **and** |
| | | Use Labour-Intensive Construction Methods to Construct and Maintain Roads and Stormwater Drainage | any one of these 3 unit standards |
| | | Use Labour-Intensive Construction Methods to Construct and Maintain Water and Sanitation Services | |
| | | Use Labour-Intensive Construction Methods to Construct, Repair and Maintain Structures | |
| Foreman/ supervisor | 4 | Implement Labour-Intensive Construction Systems and Techniques | This unit standard must be completed, **and** |
| | | Use Labour-Intensive Construction Methods to Construct and Maintain Roads and Stormwater Drainage | any one of these 3 unit standards |
| | | Use Labour-Intensive Construction Methods to Construct and Maintain Water and Sanitation Services | |
| | | Use Labour-Intensive Construction Methods to Construct, Repair and Maintain Structures | |
| Site Agent / Manager (i.e the contractor's most senior representative that is resident on the site) | 5 | Manage Labour-Intensive Construction Processes | Skills Programme against this single unit standard |

## EMPLOYMENT OF UNSKILLED AND SEMI-SKILLED WORKERS IN LABOUR-INTENSIVE WORKS

### 1.1 Requirements for the sourcing and engagement of labour.

1.1.1 Unskilled and semi-skilled labour required for the execution of all labour intensive works shall be engaged strictly in accordance with prevailing legislation and SANS 1914-5, Participation of Targeted Labour.

1.1.2 The rate of pay set for the SPWP is R …….. per task or per day.
(Insert value determined by public body in terms of clause 2.2 of these Guidelines)

1.1.3 Tasks established by the contractor must be such that:
a) the average worker completes 5 tasks per week in 40 hours or less; and
b) the weakest worker completes 5 tasks per week in 55 hours or less.

1.1.4 The contractor must revise the time taken to complete a task whenever it is established that the time taken to complete a weekly task is not within the requirements of 1.1.3.

1.1.5 The Contractor shall, through all available community structures, inform the local community of the labour intensive works and the employment opportunities presented thereby. Preference must be given to people with previous practical experience in construction and / or who come from households:
a) where the head of the household has less than a primary school education;
b) that have less than one full time person earning an income;
c) where subsistence agriculture is the source of income.
d) those who are not in receipt of any social security pension income

1.1.6 The Contractor shall endeavour to ensure that the expenditure on the employment of temporary workers is in the following proportions:
a) 60 % women;
b) 20% youth who are between the ages of 18 and 25; and
c) 2% on persons with disabilities.

## 1.2 Specific provisions pertaining to SANS 1914-5

### 1.2.1 Definitions

**Targeted labour:** Unemployed persons who are employed as local labour on the project.

### 1.2.3 Contract participation goals

1.2.3.1 There is no specified contract participation goal for the contract. The contract participation goal shall be measured in the performance of the contract to enable the employment provided to targeted labour to be quantified.

1.2.3.2 The wages and allowances used to calculate the contract participation goal shall, with respect to both time-rated and task rated workers, comprise all wages paid and any training allowance paid in respect of agreed training programmes.

### 1.2.4 Terms and conditions for the engagement of targeted labour

Further to the provisions of clause 3.3.2 of SANS 1914-5, written contracts shall be entered into with targeted labour.

### 1.2.5 Variations to SANS 1914-5

1.2.5.1 The definition for net amount shall be amended as follows:
Financial value of the contract upon completion, exclusive of any value added tax or sales tax which the law requires the employer to pay the contractor.

1.2.5.2 The schedule referred to in 5.2 shall in addition reflect the status of targeted labour as women, youth and persons with disabilities and the number of days of formal training provided to targeted labour.

## 1.3 Training of targeted labour

1.3.1 The contractor shall provide all the necessary on-the-job training to targeted labour to enable such labour to master the basic work techniques required to undertake the work in accordance with the requirements of the contract in a manner that does not compromise worker health and safety.

1.3.2 The cost of the formal training of targeted labour, will be funded by the provincial office of the Department of Labour. This training should take place as close to the project site as practically possible. The contractor, must access this training by informing the relevant provincial office of the Department of Labour in writing, within 14 days of being awarded the contract, of the likely number of persons that will undergo training and when such training is required. The employer must be furnished with a copy of this request.

1.3.3 A copy of this training request made by the contractor to the DOL provincial office must also be faxed to the EPWP Training Director in the Department of Public Works– Cinderella Makunike, Fax Number 012 328 6820 or email cinderella.makunike@dpw.gov.za Tel: 083 677 4026

1.3.4 The contractor shall be responsible for scheduling the training of workers and shall take all reasonable steps to ensure that each beneficiary is provided with a minimum of six (6) days of formal training if he/she is employed for 3 months or less and a minimum of ten (10) days if he she is employed for 4 months or more.

1.3.5 The contractors shall do nothing to dissuade targeted labour from participating in the above mentioned training programmes.

1.3.6 An allowance equal to 100% of the task rate or daily rate shall be paid by the contractor to workers who attend formal training, in terms of 1.3.4 above.

1.3.7 Proof of compliance with the requirements of 1.3.2 to 1.3.6 must be provided by the Contractor to the Employer prior to submission of the final payment certificate.

## GENERIC LABOUR-INTENSIVE SPECIFICATION

**The Generic Labour-intensive specification below is the same as SANS 1921-5, Construction and management requirement for works contracts- Part 5: Earthworks activities which are to be performed by hand and should be included in the scope of works without amendment or modification as set out below.**

### Scope

This specification establishes general requirements for activities which are to be executed by hand involving the following:

a) trenches having a depth of less than 1.5 metres
b) stormwater drainage
c) low-volume roads and sidewalks

### Precedence

Where this specification is in conflict with any other standard or specification referred to in the Scope of Works to this Contract, the requirements of this specification shall prevail.

### Hand excavateable material

Hand excavateable material is material:

a) granular materials:
   i) whose consistency when profiled may in terms of table 1 be classified as very loose, loose, medium dense, or dense; or
   ii) where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 15 blows of a dynamic cone penetrometer is required to penetrate 100mm;

b) cohesive materials:
   i) whose consistency when profiled may in terms of table 1 be classified as very soft, soft, firm, stiff and stiff / very stiff; or
   ii) where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 8 blows of a dynamic cone penetrometer is required to penetrate 100mm;

Note:

1) A boulder, a cobble and gravel is material with a particle size greater than 200mm, between 60 and 200mm.
2) A dynamic cone penetrometer is an instrument used to measure the insitu shear resistance of a soil comprising a drop weight of approximately 10 kg which falls through a height of 400mm and drives a cone having a maximum diameter of 20mm (cone angle of 60° with resepect to the horizontal) into the material being used.

**Table 1: Consistency of materials when profiled**

| GRANULAR MATERIALS | | COHESIVE MATERIALS | |
|---|---|---|---|
| **CONSISTENCY** | **DESCRIPTION** | **CONSISTENCY** | **DESCRIPTION** |
| Very loose | Crumbles very easily when scraped with a geological pick. | Very soft | Geological pick head can easily be pushed in as far as the shaft of the handle. |
| Loose | Small resistance to penetration by sharp end of a geological pick. | Soft | Easily dented by thumb; sharp end of a geological pick can be pushed in 30-40 mm; can be moulded by fingers with some pressure. |
| Medium dense | Considerable resistance to penetration by sharp end of a geological pick. | Firm | Indented by thumb with effort; sharp end of geological pick can be pushed in upto 10 mm; very difficult to mould with fingers; can just be penetrated with an ordinary hand spade. |
| Dense | Very high resistance to penetration by the sharp end of geological pick; requires many blows for excavation. | Stiff | Can be indented by thumb-nail; slight indentation produced by pushing geological pick point into soil; cannot be moulded by fingers. |
| Very dense | High resistance to repeated blows of a geological pick. | Very stiff | Indented by thumb-nail with difficulty; slight indentation produced by blow of a geological pick point. |

**Trench excavation**

All hand excavateable material in trenches having a depth of less than 1,5 metres shall be excavated by hand.

**Compaction of backfilling to trenches (areas not subject to traffic)**

Backfilling to trenches shall be placed in layers of thickness (before compaction) not exceeding 100mm. Each layer shall be compacted using hand stampers

a) to 90% Proctor density;

b) such that in excess of 5 blows of a dynamic come penetrometer (DCP) is required to penetrate 100 mm of the backfill, provided that backfill does not comprise more than 10% gravel of size less than 10mm and contains no isolated boulders, or

c) such that the density of the compacted trench backfill is not less than that of the surrounding undisturbed soil when tested comparatively with a DCP.

**Excavation**

All hand excavateable material including topsoil classified as hand excavateable shall be excavated by hand. Harder material may be loosened by mechanical means prior to excavation by hand.

The excavation of any material which presents the possibility of danger or injury to workers shall not be excavated by hand.

**Clearing and grubbing**
Grass and small bushes shall be cleared by hand.

**Shaping**
All shaping shall be undertaken by hand.

**Loading**
All loading shall be done by hand, regardless of the method of haulage.

**Haul**
Excavation material shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150 m.

**Offloading**
All material, however transported, is to be off- loaded by hand, unless tipper-trucks are utilised for haulage

**Spreading**
All material shall be spread by hand.

**Compaction**
Small areas may be compacted by hand provided that the specified compaction is achieved.

**Grassing**
All grassing shall be undertaking by sprigging, sodding, or seeding by hand.

**Stone pitching and rubble concrete masonry**
All stone required for stone pitching and rubble concrete masonry, whether grouted or dry, must to be collected, loaded, off loaded and placed by hand.

Sand and stone shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150m.

Grout shall be mixed and placed by hand.

**Manufactured Elements**
Elements manufactured or designed by the Contractor, such as manhole rings and cover slabs, precast concrete planks and pipes, masonry units and edge beams shall not individually, have a mass of more than 320kg. In addition the items shall be large enough so that four workers can conveniently and simultaneously acquire a proper hand hold on them.

### *3.3.4 Bill of quantities*

Labour-intensive works must be highlighted in the bills of quantities for the payment items relating to labour-intensive works.

The following wording, as appropriate, should be included in the pricing Instructions and in the bills of quantities in the pricing data:

1. Those parts of the contract to be constructed using labour-intensive methods have been marked in the bill of quantities with the letters LI in a separate column filled in against every item so designated. The works, or parts of the works so designated are to be constructed using labour-intensive methods only. The use of plant to provide such works, other than plant specifically provided for in the scope of work, is a variation to the contract. The items marked with the letters LI are not necessarily an exhaustive list of all the activities which must be done by hand, and this clause does not over-ride any of the requirements in the generic labour intensive specification in the Scope of Works.

2. Payment for items which are designated to be constructed labour-intensively (either in this schedule or in the Scope of Works) will not be made unless they are constructed using labour-intensive methods. Any unauthorised use of plant to carry out work which was to be done labour-intensively will not be condoned and any works so constructed will not be certified for payment.

The following payment items should be included in the bill of quantities:

| **Description** | **Unit** | **Quantity** | **Rate Amount** |
|---|---|---|---|
| Training allowance paid to targeted labour in terms of formal training | Person days | (insert quantity) | (insert specified day rate) |
| Extra over for the administration of payment of training allowances to targeted labour | Person days | (as above) | |
| Transport and accommodation of workers for training where it is not possible to undertake the training in close proximity to the site. (Provisional sum) | Sum | (insert provisional sum) | |

## 4 Design checklist

**Cognisance of the following should be taken in the design of labour-intensive works:**

1. Earthworks must be designed taking consideration of the method of construction, namely labour intensive.

2. Vertical and horizontal alignment of the works (roads, trenches, pipelines and stormwater channels) should be such to optimise cut and fill, minimise deep or hard excavation or areas requiring specialist engineering input for example dewatering or specialist ground stabilisation.

3. During the design of gravel roads, suitable construction material should be sourced in close proximity to the site of the Works.

4. Drawings must be produced and presented in a clear easily understandable way. Where setting out information is provided in the form of coordinates it should be backed up with methods, not relying on sophisticated surveying instruments, such as offsets measurable will the use of a standard tape. Where possible and appropriate drawings should be produced using a background of ortho photos to provide for easily identification of surrounding features.

5. Except in special circumstances, drawings should be produced in a form that is easily readable in A3 format.

6. Where the haul distance is greater than 150m, and less than 5000m the use of small volume local transport, particularly using animal drawn vehicles should be considered.

7. Excavation in material which may constitute a safety hazard for workers must be excluded.

8. All pre-manufactured materials which are incorporated into the Works must be sized such that the mass of individual elements does not exceed 320kg.

9. Hazardous material such as lime or harmful chemical stabilizing agents must not be included in the Works.

10. Stone masonry and grouted stone pitching should be included wherever suitable material is available to the exclusion of pre-cast or cast in situ concrete stormwater structures.

11. Where compaction of road layer works is required, it must be carried out using conventional compaction equipment (mechanised pedestrian rollers where possible). Compaction of small areas and in trenches may be carried out using hand stampers.

12. Consideration must be given to alternative design of trenches for gravity pipelines to reduce depth of excavation.

13. Where there is an indication of local skills, e.g. bricklaying, structures should be designed to make use of such skills.

14. There are appropriate designs for labour-intensive construction of low-cost surfacing for low-volume roads, such as the Cape Seal and interlocking concrete blocks. Refer to Appendix A for further details.

# APPENDIX A:
## SOURCES OF ADDITIONAL INFORMATION

The following sources provide comprehensive information in respect of the following topics:

| Topic | Reference | Obtainable from |
|---|---|---|
| Besa building system | Agrément South Africa's Guideline 1, The Manufacture of BESA Blocks<br>Agrément Open Certificate OC-1/2003.<br>Agrément Open Certificate OC-2/2003.<br>CIDB. Best Practice Guidelines for Labour-based Methods and Technologies for Employment Intensive Construction Works.<br>Part 3: Section 2- The BESA Building System | Agrément South Africa<br>www.agrement@csir.co.za<br><br>Construction Industry Development Board<br>www.cidb.org.za<br>under the section "job creation" |
| Brick and block making | CIDB. Best Practice Guidelines for Labour-based Methods and Technologies for Employment Intensive Construction Works.<br>Part 3: Section 1- Precast Concrete Products, Brick and Block Making | Construction Industry Development Board<br>www.cidb.org.za<br>under the section "job creation" |
| Bituminous Surfacings | Methods and Procedures Labour Enhanced. Construction for Bituminous surfacings Manual 12, March 1993. SABITA. | Southern African Bitumen and Tar Association. |
| Bituminous Surfacings | Methods and Procedures Labour Enhanced. Construction for Bituminous surfacings Manual 11`, March 1993. SABITA. | Southern African Bitumen and Tar Association. |
| Conditions of Employment | Code of Code of Good Practice for Employment and Conditions of Work for Special Public Works Programmes<br>Ministerial Determination: Special Public Works Programmes | EPWP Unit of the Department of Public Works |
| Concrete Block Paved Roads | Macleod, Concrete Block Paved Roads: The Development Potential .Construction and Development .Series, Number 8. Development Bank .of Southern. Africa. September, 1993 | Development Bank of Southern Africa. |
| Concrete roads | Low-volume concrete roads by Bryan Perrie | Cement and Concrete Institute<br>www.cnci.org.za |
| Earthworks | CIDB. Best Practice Guidelines for Labour-based Methods and Technologies for Employment Intensive Construction Works. (Download from www.cidb.org.za)<br>• Part 2: Labour-based construction methods for earth works<br>• Appendix 1: Quantitative Employment Data on Selected Construction Activities | Construction Industry Development Board<br>www.cidb.org.za<br>under the section "job creation" |
| Labour intensive projects and programmes | McCutcheon, RT (ed) (1993). Interim Guidelines for employment-intensive construction projects. Construction and Development Series Number 2, Midrand: Development Bank of Southern Africa, February 1993<br>McCutcheon, RT and Marshall J (1996). Labour-intensive Construction and Maintenance of Rural Roads : Guidelines for the Training of Road Builders, Construction and Development Series, Number 14 (Midrand: DBSA, November 1996)<br>McCutcheon, RT and Filip, LM (ed). Employment and high -standard infrastructure. Work Research Centre for Employment Creation in Construction (2003) | Development Bank of Southern Africa<br><br>School of Civil Engineering, University of the Witwatersrand. |

| | | |
|---|---|---|
| Labour productivities | CIDB. Best Practice Guidelines for Labour-based Methods and Technologies for Employment Intensive Construction Works.<br>• Appendix 1: Quantitative Employment Data on Selected Construction Activities | Construction Industry Development Board www.cidb.org.za under the section "job creation" |
| Minimum wages | Wage determination for the Civil Engineering Sector | www.safcec.org.za under the section "human resources" |
| Monitoring the employment of workers / compliance with the provisions of SANS 1914-5 | SANS 10396, Implementing Preferential Procurement Policies Using Targeted Procurement Procedures<br>• Annex G: Implementing employment intensive infrastructure projects which target the increase of employment opportunities generated per unit of expenditure<br>• Annex J: Third party management support | Standards South Africa (division of the South African Bureau of Standards) |
| Pre-cast concrete works | CIDB Best Practice Guidelines for Labour-based Methods and Technologies for Employment Intensive Construction Works.<br>• Part 3: Section 1- Pre-cast Concrete Products, Brick and Block Making | Construction Industry Development Board www.cidb.org.za under the section "job creation" |
| Preparing procurement documents | CIDB Best Practice Guidelines for Procurement C1: Preparing Procurement Documents<br><br>SANS 10403, Formatting and Compilation of Construction Procurement Documents | Construction Industry Development Board www.cidb.org.za under the section "job creation"<br>Standards South Africa (division of the South African Bureau of Standards) |
| Roads | CIDB Best Practice Guidelines for Labour-based Methods and Technologies for Employment Intensive Construction Works.<br>• Part 2: Labour-based construction methods for earthworks<br>• Part 4: Section 4 - Foam bitumen gravel<br>• Part 4: Section 5 - Cast in-situ block pavements (hysen cells)<br>• Part 4: Section 6 - Emulsion treated gravel<br>• Part 4: Section 7 - Waterbound macadam<br>• Part 4: Section 8 - Slurry bound and composite macadams<br>• Part 4: Section 9 - Labour-based methods for unsealed roads<br>• Appendix 1: Quantitative Employment Data on Selected Construction Activities | |
| Rubble concrete masony | CIDB Best Practice Guidelines for Labour-based Methods and Technologies for Employment Intensive Construction Works.<br>• Part 4: Section 2 – Rubble masonry dam construction technology<br>• Part 4: Section 3 – Rubble masonry concrete arch bridge construction technology | Construction Industry Development Board www.cidb.org.za under the section "job creation" |
| Stormwater drainage | CIDB Best Practice Guidelines for Labour-based Methods and Technologies for Employment Intensive Construction Works.<br>• Part 4: Section 1 – Labour-based Open Channel Flow Technology | Construction Industry Development Board www.cidb.org.za under the section "job creation" |
| Trenches | CIDB Best Practice Guidelines for Labour-based Methods and Technologies for Employment Intensive Construction Works. (Download from www.cidb.org.za)<br>• Part 2: Labour-based construction methods for earthworks<br>• Appendix 1: Quantitative Employment Data on Selected Construction Activities | Construction Industry Development Board www.cidb.org.za under the section "job creation" |

# APPENDIX B:
## TYPES OF INFRASTRUCTURE WHICH ARE SUITABLE FOR CONSTRUCTION USING LABOUR INTENSIVE METHODS

### B.1 Roads

The following operations may be carried out using labour intensive methods:

1. Site clearance

2. Layer work construction including loading, hauling and spreading material.
   **Note:** All compaction should be done using conventional compaction equipment and where necessary the use of heavy machinery may be employed to loosen material for excavation by hand. Where significant use of blasting is indicated, then the Works are probably not suitable for labour intensive methods.

3. Where higher standards of roads are to be constructed then the following operations may be included:
   - Macadam base course either dry, water bound or emulsion bound; foamed bitumen gravel; emulsion treated gravel; or slurry bound or composite macadams .
   - Application of bitumen bound surface treatment (cold) including spreading and dragging of chips.
   - Slurry treatments to existing or new road surfaces.
   - In situ concrete roads.
   - Segmented block paved roads.
   - Cast in-situ block pavements (hysen-cells);
   - Road markings.

4. Fencing.

5. Erection of road signs.

6. Grass maintenance.

7. Road reserve maintenance.

8. Rubble masonry bridges, culverts and retaining walls

### B.2 Stormwater

The following operations may be constructed using labour intensive construction methods:

1. Gabions and reno mattresses.

2. Small diameter pre-cast concrete elements (pipes and arches).

3. Grassed or lined water channels

### B.3 Sewers

The following operations may be constructed using labour intensive construction methods:

1. Sewer manholes either in brickwork or using specially manufactured pre-cast manhole rings (individual mass less than 320kg).

2. Sewer manhole covers and lids using specially designed pre-cast units.

3. Maturation or flocculation ponds with least dimension not exceeding 100m.

### B.4 Water

The following operations may be constructed using labour intensive construction methods:

1. Laying of water pipelines, fittings and house connections in all materials (including steel) where the mass of individual pipe lengths does not exceed 320kg.

2. Construction of ferro-cement reservoirs.

3. Excavation for membrane lined and floating roof reservoirs.

4. Construction of small masonry reservoirs.

5. Spring and well protection measures

### B.4 Haul of Material

Where the haul of any material exceeds 200m, consideration should be given to the use of local resources for transporting material. This includes the use of animal drawn vehicles and small trailer combinations utilising locally sourced tractors. All loading and off loading can be done by hand.

### B.5 Electricity

The following operations may be constructed using labour intensive methods:

1. Excavation of trenches for reticulation of all voltages.

2. Excavation for and erection of poles for overhead lines.

3. Installation of all electricity cables (joints and terminations by qualified persons).

### B.6 Houses, schools and clinics

Housing is seen as labour-intensive, but the number of local people that could be employed may be enhanced by one or more of the following:

1. Manufacture of masonry elements on site.

2. Excavation of all foundation trenches by hand.

3. Manufacture of roof trusses on site.

4. Adoption of the BESA System

Note: 1) In the BESA system walls are constructed using bitumen emulsion stabilised adobe blocks and mortar. External and internal wall surfaces can be finished in a variety of ways using a mortar mix or a cement/sand plaster.

2) The BESA Building System is the subject of an open certificate issued by Agrèment South Africa. The concept of an open certificate is that the technology is not the intellectual property of any company or individual and the information is available to anyone who wishes to use it. Any competent person, company or institution who wishes to use this system and is capable of carrying out this work in accordance with the terms and conditions of certification and undertakes to do so, may apply to Agrément South Africa to be registered as a holder of this open certificate.

## APPENDIX C:
## REQUIRED SKILLS PROGRAMMMES

### C.1 Client/ Employer

It is recommended that personnel within public bodies complete skills programmes for NQF registered unit standards, as set out in Table C.1.

**Table C.1: Skills programme for client / employer staff**

| Personnel | NQF | Unit Standard Title | Skills Programme Description |
|---|---|---|---|
| Senior management and professionals | 7 | Develop and Promote Labour-Intensive Construction Strategies | Skills Programme against this single unit standard |
| Middle (technical) | 5 | Manage Labour-Intensive management Construction Projects | Skills Programme against this single unit standard |
| Middle (admin) | 5 | Manage Labour-Intensive management Construction Projects | Skills Programme against this single unit standard |

### C.2 Consultants

The person responsible for the design and documentation of the labour intensive works, must have completed, or be registered on a skills programme for, the NQF level 7 unit standard "Develop and Promote Labour Intensive Construction Strategies". (see Table C.2)

The person who is responsible to the employer for the administration of the contract, must have completed, or be registered on a skills programme for, the NQF level 5 unit standard "Manage Labour Intensive Construction Projects". (see Table C.2)

**Table C.2: Skills programme for consultants**

| Personnel | NQF | Unit standard Title | Skills Programme Description |
|---|---|---|---|
| Administrator / Site Supervisor | 5 | Manage Labour Intensive Construction Projects | Supervisor Skills Programme against this single unit standard |
| Designer | 7 | Develop and Promote Labour-Intensive Construction Strategies | Skills Programme against this single unit standard |

## C.3 Contractors

The unit standards for contractors are outlined in Table C.3.

Contractors having a CIDB contractor grading designation of 5CE and higher shall only engage supervisory and management staff in labour intensive works who have either completed, or for the period 1 April 2004 to 30 June 2006, are registered for training towards, the skills programme outlined in Table 1.

Contractors having a CIDB contractor grading designation of 1CE, 2CE, 3CE and 4CE shall have personally completed, or for the period 1 April 2004 to 30 June 2006 be registered on a skills programme for the NQF level 2 unit standard. All other site supervisory staff in the employ of emerging contractors must have completed, or for the period 1 April 2004 to 30 June 2006 be registered on a skills programme for, the NQF level 2 unit standards or NQF level 4 unit standards.

| Personnel | NQF | Unit standard Titles | Skills Programme Description |
|---|---|---|---|
| Team Leader / Supervisor | 2 | Apply Labour-Intensive Construction Systems and Techniques to Work Activities | This unit standard must be completed, **and** |
| | | Use Labour-Intensive Construction Methods to Construct and Maintain Roads and Stormwater Drainage | any one of the I unit standards must be completed |
| | | Use Labour-Intensive Construction Methods to Construct and Maintain Water and Sanitation Services | |
| | | Use Labour-Intensive Construction Methods to Construct, Repair and Maintain Structures | |
| Foreman / Supervisor | 4 | Implement Labour-Intensive Construction Systems and Techniques | This unit standard must be completed, **and** |
| | | Use Labour-Intensive Construction Methods to Construct and Maintain Roads and Stormwater Drainage | any one of the 3 listed unit standards must be completed |
| | | Use Labour-Intensive Construction Methods to Construct and Maintain Water and Sanitation Services | |
| | | Use Labour-Intensive Construction Methods to Construct, Repair and Maintain Structures | |
| Site Agent / Manager | 5 | Manage Labour-Intensive Construction Processes | Skills Programme against this single unit standard |

## APPENDIX D:
### DEFINITIONS OF PROGRAMME INDICATORS

**Person-days of Employment Created**

The number of people who worked on a project x the number of days each person worked.

**Job Opportunities**

1 job opportunity = paid work created for an individual on an EPWP project for any period of time. In the case of social sector projects, learnerships will also constitute job opportunities. The same individual can be employed on different projects and each period of employment will be counted as a job opportunity.

**Project Wage**

Minimum Daily Wage Rate = daily wage (whether task-rated or time-rated) per individual project. This wage rate must be inserted in the Project tender document as per the EPWP Guidelines.

**Training Person-Days**

A formal EPWP training course has been arranged by the Dept. of Labour. The number of training person-days attending this course or modules of this course must be captured.

For Other Training 1 training day = at least 7 hours of formal training. The number of Training Person-days is the number of people who attended training x the number of days of training.

A distinction must be made between accredited and non-accredited training person-days.

**Project Budget**

The project budget = the price tendered by the contractor + the professional fees for the professional service provider appointed to design and supervise the project. The project budget excludes government management & administration costs.

**Actual Expenditure**

Actual expenditure = the expenditure on the project by the contractor + the expenditure by the professional service provider appointed to design and supervise the project.

The actual expenditure excludes expenditure on government management & administration.

**Demographic Characteristics of Workers**

The number of workers that fall within the following categories must be recorded:

- Youth (i.e. 18 – 35 years of age)
- Women
- People with disabilities

The definitions contained in the Preferential Procurement Regulations of 2001 for these categories of beneficiaries will be utilised.

# Part C4

# Site Information

# Part C4

# Site Information

# PG-03.1 (EC) SITE INFORMATION – GCC (2010) 2nd Edition 2010

| | | | | | |
|---|---|---|---|---|---|
| **Project title:** | ***Thohoyandou Correctional Centre: Kitchen Upgrading, Replacement of Kitchen Equipment as Well as Temporary Kitchen: Medium*** | | | | |
| **Tender no:** | PLK 23/05 | **WCS no:** | *050733* | **Reference no**: | *6054/0011* |

## C4 Site Information

***The site is in the existing Thohoyandou Correctional Centre currently housing the Medium B kitchen. The kitchen is currently operational with underground electrical, water, sewer, telecommunication and concrete paving around the building. Contractors shall ensure that interruptions to the above-mentioned underground services are kept at a minimum.***

***There is allowance for the temporary relocation of kitchen whilst renovations and upgrading of the existing kitchen take place. The proposed dining hall to be renovated is adjacent to the proposed kitchen. There is a access route for refuse and a new proposed position has been located. The premises are currently occupied and considered high risk, therefore Contractors are advised to take careful considerations on security to the proposed works.***