

# **Scope of Work**

Grootvlei

Title: Grootvlei Climate Smart
Horticulture Center (Water

Reticulation)

Unique Identifier: GVL/0654

Alternative Reference

Number:

N/A

Area of Applicability: Engineering

Documentation Type: Scope of Work

Revision: 1

Total Pages: 11

Next Review Date: AS REQUIRED

Disclosure CONTROLLED Classification: DISCLOSURE

File name: Grootvlei Climate Smart Horticulture Center (Water Reticulation)

Template ID: 32-4 (Rev 13) Document template (for procedures, manuals, standards, instructions, etc.

Unique Identifier: GVL/0654

Revision: 1

Page: **2 of 11** 

CONTENTS	PAGE
1. INTRODUCTION	3
2. SUPPORTING CLAUSES	3
2.1 SCOPE 2.1.1 Scope 2.1.2 Purpose 2.1.3 Applicability 2.2 NORMATIVE / INFORMATIVE REFERENCES 2.2.1 Normative 2.2.2 Informative 2.3 DEFINITIONS 2.3.1 Disclosure Classification 2.4 ABBREVIATIONS 2.5 ROLES AND RESPONSIBILITIES 2.6 PROCESS FOR MONITORING	
3. SCOPE OF WORKS	
3.1 BACKGROUND 3.2 DETAILED REQUIREMENTS 3.2.1 Scope 3.2.2 Design Standards 3.2.3 Procedure for submission and acceptance of Contractor's design 3.2.4 Other requirements of the contractor's design 3.2.5 Equipment required to be included in the works 3.3 RECEIVABLES 3.4 SKILLS AND EXPERIENCE 3.5 GOVERNANCE 3.6 TIMEFRAME AND SCHEDULE	
4. AUTHORISATION	10
5. REVISIONS	10
6. DEVELOPMENT TEAM	11
7. ACKNOWLEDGEMENTS	11
8 ADDENDIY	11

Unique Identifier: GVL/0654

Revision: 1

Page: 3 of 11

# 1. INTRODUCTION

To mitigate the identified financial and economic impacts of shutting down its Power Stations, Eskom has developed repowering and repurposing strategies, which calls for the establishment of initiatives for diversifying the economy around the stations and providing sustainable alternate economic activities independent of station operations.

One of these opportunities for economic diversification is in the agriculture sector. Eskom has partnered with the Embassy of the Kingdom of the Netherlands to establish agriculture around the Grootvlei area. The plan is to develop greenhouses and open field agriculture around Grootvlei in a phased approached. The first phase is the combination of climate-smart agriculture demonstration facility and commercial agriculture facility within a 20ha Eskom vacant land, which has been leased to an independent legal entity to establish the agriculture facility.

The aim of the climate-smart agriculture is to provide training, applied research and demonstrations for knowledge and for horticulture investors to demonstrate the opportunities in Grootvlei for sustainable horticultural development. The commercial agriculture will be key to the sustainability of the demonstration facility and employment of communities around Grootvlei. The process to establish the demonstration is currently underway.

This works information document is limited to the supply and installation of water infrastructure required for the operation of the site.

#### 2. SUPPORTING CLAUSES

### 2.1 SCOPE

# 2.1.1 Scope

This document covers the requirements pertaining to the provision of water for site operations, human consumption, and fire protection for the proposed Grootvlei Power Station Agriculture Facility. The aim of this document is to assist in the appointment of a suitable service provider to execute the required works including the design, supply, delivery, off-loading, installation, site testing, commissioning and as-built drawings of a new water supply system and a storage building forming part of the works.

# 2.1.2 Purpose

The purpose of this document is to provide detailed requirements for the SoW outlined in section 2.1.1 to be carried out by appointed contractor at Grootvlei Power Station.

# 2.1.3 Applicability

This document applies to Eskom Grootvlei Power Station only.

# 2.2 NORMATIVE / INFORMATIVE REFERENCES

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

# **CONTROLLED DISCLOSURE**

Unique Identifier: GVL/0654

Revision: 1

Page: 4 of 11

### 2.2.1 Normative

- [1] ISO 9001 Quality Management Systems
- [2] National Environmental Management Act (NEMA) 107 of 1998
- [3] 32-727 Eskom Safety, Health, Environment and Quality (SHEQ) Policy
- [4] Occupational Health and Safety Act (No. 85 of 1993)
- [5] Environmental Conservation Act (No 73 of 1989)

# 2.2.2 Informative

- [6] 240-53113685: Design Review Procedure
- [7] 240-53114002 Engineering Change Management Procedure
- [8] 240-53114026 Project Engineering Change Management Procedure
- [9] 240-4332798 Engineering Policy
- [10] 240-53665024 Engineering Quality Manual

# 2.3 DEFINITIONS

Word	Definition
Contractor/Tenderer	Party responsible for the execution of the works as set out in this document
Engineering Design Work Lead	An appropriate ECSA professionally registered person (typically engineer/ technologist) who is designated through the work allocation process who is delegated with the authority to ensure compliance to ECM procedure
Environmental Officer	Party responsible for ensuring compliance to National Environmental Management Act of 1998 (NEMA) during the execution of the woks
Employer	Eskom Holdings Limited represented by Grootvlei Power Station
Project Engineering Manager	Party responsible for the Engineering deliverables during the execution of the works
Project Manager	Party responsible for managing the Contractor on behalf of the Employer for the execution of the works
Works	The works as described in this document

# 2.3.1 Disclosure Classification

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

Unique Identifier: GVL/0654

Revision: 1

Page: **5 of 11** 

### 2.4 ABBREVIATIONS

Abbreviation	Description
AFC	Approved for Construction
CIDB	Construction Industry Development Board
ECSA	Engineering Council of South Africa
EDWL	Engineering Design Work Lead
EO	Environmental Officer
На	Hectares
ISO	International Organization for Standardization
JET	Just Energy Transition
NEMA	National Environmental Management Act
NWA	National Water Act
OBL	Outside Battery Limits
OHS	Occupational Health and Safety
PEM	Project Engineering Manager
PM	Project Manager
PS	Power Station
SANS	South African National Standards
SHEQ	Safety, Health, Environment & Quality
SoW	Scope of Work
WUL	Water Use License

# 2.5 ROLES AND RESPONSIBILITIES

Roles and responsibilities shall be as per The Employer's Design Review Procedure [6]

# **Contractor**

The Contractor will be responsible for the execution of all the works as contained in this scope of works ensuring the following:

- The works satisfies the Employer's requirements;
- Providing adequate resources including provision of all equipment required for the works;
- Managing cost and a scheduled timeframe of works;
- Providing regular feedback on the status of the works;
- All relevant Eskom standards, procedures and guidelines are adhered to;
- Environmental laws, Employers safety requirements, and the Occupational Health and Safety (OHS) Act (85 of 1993) and the regulations promulgated thereunder are fully adhered to.

# **CONTROLLED DISCLOSURE**

Unique Identifier: GVL/0654

Revision: 1

Page: 6 of 11

# **Employer**

The *Employer* is responsible for ensuring the following:

The works satisfy the stakeholder requirements;

# 2.6 PROCESS FOR MONITORING

Regular feedback meetings will be held between the *Contractor* and the *Employer*. The Eskom Design Review procedure [2.2.2] will be used to verify and validate the works.

# 3. SCOPE OF WORKS

# 3.1 BACKGROUND

Figure 1 below shows an overview of the site which requires development. The Employer has not completed any design work for the water component of the project (this scope). A Geotechnical Investigation has been completed which forms the basis of the locations of the structures required.

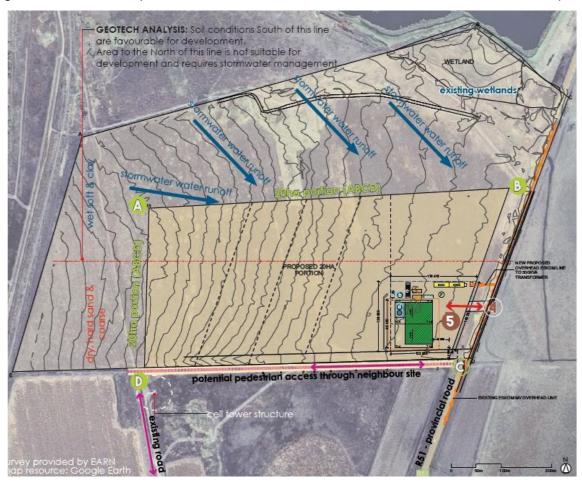


Figure 1: Construction site for development

## **CONTROLLED DISCLOSURE**

Unique Identifier: GVL/0654

Revision: 1

Page: **7 of 11** 

### 3.2 DETAILED REQUIREMENTS

# 3.2.1 Scope

The scope of the Works by the Contractor includes the design, supply, delivery, off-loading, installation, site testing, commissioning and as-built drawings for a new water reticulation system and a storage building on which water tanks will be located. The designs must ensure reliability, efficiency, environmental sustainability, and ease of maintenance, considering site-specific conditions such as topography, soil conditions, and climate. Design requirements are detailed below.

- The construction of a 30m x 6m brick-wall storeroom building, complete with suitably designed roof, foundations, internal walls, drainage, and load-bearing structural components. All building works including the planning, detailed design, and construction of the facility are to be done according to the drawing notes and the applicable building regulations.
- 3 x 20kL fire water storage tanks, including the construction of support structures to keep the tanks at an elevated level to enable gravity fed systems. Safety features to prevent tank failure/collapse to be included.
- 24 x 10kL water tanks to be located on the storeroom building. Ensure sufficient structural support and secure anchorage of the water tanks.
- A complete water network system (including correctly designed pumps where necessary and the
  installation of rigid, minimum 6 bar water supply pipelines throughout the facility complete with
  manually operated shutoff ball valves where needed). All the different facilities requiring (or may
  require in future require) water within the agriculture facility must be accounted for.
  - Pumps to be designed for areas requiring pressurized water supply.
  - ➤ Pipes and fittings to be designed for durability and ease of maintenance, with a minimum pressure rating of 6 bar.
  - ➤ Tie in #A: 200 mm NB, 6 bar, rigid PVC water supply line to the Greenhouse #1 complete with shutoff ball valve (manually operated), positioned 400 mm above the ground level in a horizontal position for tie in by BVZ (line to be positioned within 2.5 meters from the Greenhouse boundary). The tie in shall enable future integration with the proposed future fresh water main supply line.
  - > Water supply lines to be constructed to the two Agri Park Homes and properly tied in to the property.

Unique Identifier: GVL/0654

Revision: 1

Page: **8 of 11** 

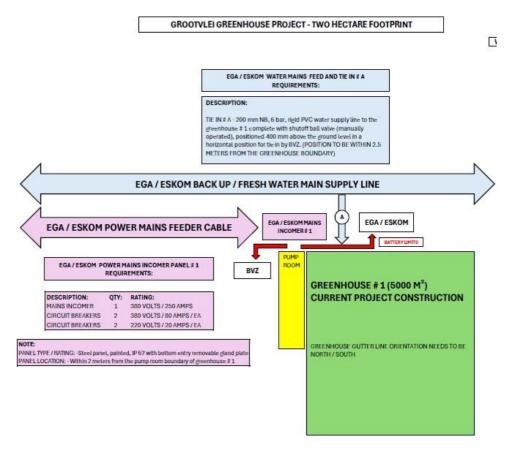


Figure 2: Grootvlei Power Station proposed Agriculture Facility layout showing tie in #A

- All construction preparation works and access to all the locations of the site are to be designed and planned for by the Contractor.
- Conduct a thorough site testing of the installed water system to verify compliance with performance requirements.
- The contractor is to provide detailed as-built drawings, including:
  - > Layouts of storage tanks and pipelines.
  - As-built drawings for the storerooms/storage building.
  - > Specifications for pumps (where applicable).
  - > Operation and maintenance manuals where applicable.

# 3.2.2 Design Standards

The Contractor is to complete all designs according to the below identified standards as minimum. Other standards and norms not listed below may be used by the Contractor where applicable.

- SANS 10160 Part 1-8: Basis of structural design and actions for buildings and industrial structures
- SANS 10162 Part 1-2: Structural use of Steel

## **CONTROLLED DISCLOSURE**

Unique Identifier: GVL/0654

Revision: 1
Page: 9 of 11

SANS 10100: Part 1-2 Structural use of Concrete

- SANS 4427 Part 1 to 4: Plastic Piping Systems for water supply, and for drainage and sewerage systems under pressure
- SANS 1731: Polyethylene storage tanks for water and chemicals
- SANS 1732: Greywater Reuse Systems General Requirements
- SANS 10329: The design and construction of sectional steel tanks for storage of liquids at or above ground level
- SANS 10400: The application of the National Building Regulations

All construction shall be completed in line with the below minimum standards.

- SANS 2001-BS1: Site Clearance
- SANS 2001-EB1: Earthworks (General)
- SANS 2001-CC2: Construction works Part CC2: Concrete works (minor works)
- SANS 2001-CS1: Construction works Part CS1: Structural steelwork
- SANS 2001-DP2: Construction works Part DP2: Medium pressure pipelines
- SANS 2001-DP5: Construction works Part DP5: Stormwater drainage

# 3.2.3 Procedure for submission and acceptance of Contractor's design

The *Contractor* presents all the works he has designed to the *Employer* prior to conducting any construction work onsite for acceptance and approval. Once agreed with the *Employer*, the *Contractor* may commence with the physical works.

# 3.2.4 Other requirements of the contractor's design

- The Contractor is responsible for all system interfaces which forms part of the scope of the works and liaison with other contractors.
- The Contractor provides all plant, equipment, materials, services, and labour and executes all work necessary to provide the works.
- The Contractor provides works that is complete and fully functional in every respect and includes all required accessories and auxiliaries.
- The Contractor assumes full responsibility to ensure that the works complies with all requirements as specified in this document, and any other governing laws or codes.
- The Contractor provides all the works in accordance with internationally accepted engineering practices and standards.

# 3.2.5 Equipment required to be included in the works

The Contractor provides all the equipment required for the successful completion of the works. A list of the equipment and their specification is to be listed in the Method Statement document during tender submission for evaluation by the Employer.

Unique Identifier: GVL/0654

Revision: 1

Page: 10 of 11

# 3.3 RECEIVABLES

Eskom governance documents.

### 3.4 SKILLS AND EXPERIENCE

The *Contractor* shall provide suitably qualified and experienced personnel to undertake the works. Registration requirements of the local authorities and governing bodies shall be adhered to.

The *Contractor* shall submit to the *Employer* experience documentation of the personnel to be utilized on the project including the respective qualifications and registrations. The *Contractor* shall provide an organogram to the *Employer* indicating the personnel and their respective roles in the execution of the works.

#### 3.5 GOVERNANCE

As a minimum, the *Contractor* is expected to comply with the Eskom Engineering Governance documents as listed in section 2.2.2.

# 3.6 TIMEFRAME AND SCHEDULE

The *Contractor* will have a period of one (1) week, from the date of approval of the contract, or notice to proceed with the *works*. The Contractor may propose their own schedule to the *Employer* for consideration and approval.

The *Contractor* shall submit a preliminary programme with its bid submission and shall provide a detailed programme to the *Employer* within one week of signing contract award or notice to proceed with the work.

# 4. AUTHORISATION

This document has been seen and accepted by:

# 5. REVISIONS

Unique Identifier: GVL/0654

Revision: 1

Page: **11 of 11** 

# **6. DEVELOPMENT TEAM**

7. ACKNOWLEDGEMENTS

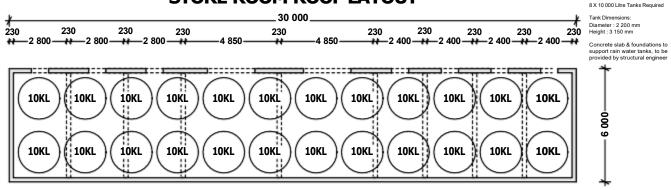
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8. APPENDIX

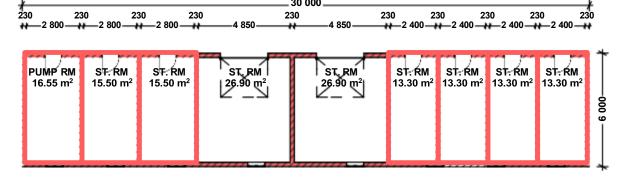
# **EGA ROOM LAYOUTS**

2.1m HIGH PARTITION DRYWALL

# STORE ROOM ROOF LAYOUT



# STORE ROOM LAYOUT



# **BUILDING REGULATION NOTES**

ALL WORK TO COMPLY WITH NBR & SANS 10400. ALL DIMENSIONS & LEVELS MUST BE CHECKED ON SITE.

DRAWINGS NOT TO BE SCALED.

ALL DEMOLITION WORK TO COMPLY WITH PARTS D & E OF SANS 10400 ALL SITE WORK TO COMPLY WITH PARTS F & G OF SANS 10400

DRAWINGS TO BE READ IN CONJUNCTION WITH SURVEYOR'S DRAWINGS AND ENGINEER'S DRAWINGS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CORRECT SETTING OUT OF THE

BUILDING AND ITS INTERNAL AND EXTERNAL WALLING AND IS TO CHECK ALL LEVELS.

HEIGHTS, AND DIMENSIONS GENERALLY AND BUILD IN DPC'S WHETHER SHOWN OR NOT, TO ALL WALLS, BEAMS, PARAPETS, DOORS, WINDOWS AND OTHER EXTERNAL OPENINGS, AS PER SANS 10400 / SABS 0213. ANY DISCREPANCIES TO BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE PROJECT CO-ORDINATOR.

ALL CONTRACTED WORKS TO BE MADE COMPLIANT WITH STANDARDS

BUILDING PRACTICE WITH PARTICULAR REFERENCE TO SPECIAL REQUIREMENTS NECESSITATED BY LOCAL AND/OR SITE CONDITIONS AND TO REFER ANY COMMENTS OR QUERIES TO THE PROJECT COORDINATOR BEFORE ANY WORK IS UNDER TAKEN.

ALL STRUCTURAL WORK TO ENGINEER'S DETAILS

ALL CONSTRUCTION DETAIL, UNLESS OTHER WISE SPECIFIED TO BE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN SPECIFICATION. CONTRACTOR IS RESPONSIBLE FOR CORRECT SETTING OUT OF BUILDINGS. ALL EXTERNAL AND INTERNAL WALLS WITH PARTICULAR REFERENCE TO BOUNDARIES, BUILDING LINES ETC.

ALL RELEVANT COMPLIANCE CERTIFICATES TO BE RETAINED BY THE RELEVANT CONTRACTORS FOR SUBMISSION TO COUNCIL. ALL ELECTRICAL & PLUMBING WORK TO BE CARRIED OUT BY REGISTERED QUALIFIED SUB-CONTRACTORS

#### STRUCTURE NOTES:

ALL STRUCTURAL COMPONENTS - FOUNDATIONS, RETAINING WALLS. WALLS, LINTOLS, BEAMS, ROOF STRUCTURE, SLABS AND STAIRS - TO BE DESIGNED BY ENGINEER

AND/OR TO COMPLY WITH DETAILED REQUIREMENTS OF PARTS B, H, J, K, L. M &

### N OF SANS 10400.

ALL NEW FOUNDATIONS TO COMPLY WITH SANS 10400 PART H. ANT SOIL POISON TO BE APPLIED AND CERTIFIED BY SPECIALIST ALL MASONRY WALLS TO COMPLY WITH PARTS B & K OF SANS 10400 ALL BEAMS AND LINTOLS TO BE DESIGNED / SPECIFIED BY ENGINEER. ROOFING AND CEILING ASSEMBLY TO COMPLY WITH PARTS B & L OF SANS 10400

ALL ROOF TRUSSES AND / OR ROOF SLABS TO BE DESIGNED & CERTIFIED BY A PROFESSIONAL ENGINEER.

ALL SOIL EXCAVATION & FILLING CONDITIONS TO ENGINEER'S REQUIREMENTS.

RC FLOOR SLABS TO ENGINEER'S REQUIREMENTS.

PC LINTELS TO ALL OPENINGS TO ENGINEER'S REQUIREMENTS. OFF SHUTTER CONCRETE TO BE CLEANED & RUBBED DOWN.

ALL STAIRS TO COMPLY WITH SANS 10400 PART M. STORM WATER LAYOUT TO BUILDING AND SITE TO BE DESIGNED BY A ENGINEER, AND TO COMPLY WITH NBR AND SANS 10400 PART R.

NEW STRUCTURAL SLAB TO ENGINEERS SPECIFICATION ANTI SOIL POISON TO BE APPLIED & CERTIFIED BY SPECIALIST ALL FOUNDATIONS & FOUNDATION DETAILS TO BE CONFIRMED BY

DPC TO BE PROVIDED UNDER ALL WALLS & OPENINGS; WITH VERTICAL DPC AT ALL CHANGES IN FLOOR LEVEL

# WALL NOTES:

230mm BRICK WORK - TWO COURSES BRICKFORCE (MINIMUM) TO BE BUILT-IN AT WINDOW & DOOR HEAD LEVELS & AT WINDOW CILL LEVELS WHERE POSSIBLE

PC LINTELS & RC BEAMS ABOVE OPENINGS TO ENG. DETAIL BRICKWORK BELOW GROUND TO BE HARD BURNT FOUNDATION BRICKS OR CONCRETE BRICKS

PLASTER & PAINT TO ALL WALLS REQUIRED UNLESS OTHERWISE SPECIFIED

#### GLAZING:

NEW WINDOWS AND GLAZING ELEMENTS TO COMPLY WITH PART N OF SANS 10400. REFER TO WINDOW AND DOOR SCHEDULE AND SANS 10400:XA REPORT ATTACHED ANY NEW TOUGHENED SAFETY FIXED GLASS SHOWER PANEL BY SPECIALIST TO

COMPLY WITH PART N 4.4.6 OF SANS 10400 SAFETY GLASS TO BE USED WITHIN 500MM OF FINISHED FLOOR LEVEL.

#### FINISHES:

ALL INTERNAL TIMBER TO BE TREATED AGAINST WOOD EATING INSECTS WITH APPROVED PRODUCT STRICTLY TO MANUF.

REFER TO FINISHES SCHEDULE FOR INTERNAL AND EXTERNAL TIMBER FINISHES

ALL STEEL TO BE GALVANIZED, PRIMED AND PAINTED WITH ENAMEL, TO MANUFACTURER'S SPECIFICATIONS.

### FACILITIES FOR PERSONS WITH DISABILITIES:

ALL NEW RAMPS TO COMPLY WITH SANS 0400-S SECTION 4.8. ALL CHANGES IN LEVEL TO COMPLY WITH SANS 10400-S

ALL GROUND AND FLOOR SURFACES TO COMPLY WITH SANS 10400-S SECTION 4.5

#### PUBLIC SAFETY:

DRIVEWAY TO COMPLY WITH DETAILED REQUIREMENTS OF SANS 10400-D SECTION 4.3

ALL NEW BALUSTRADES AND HANDRAILS IN ACCORDANCE WITH PART D & M OF SANS 10400.

#### DRAINAGE:

ALL NEW DRAINAGE BY CERTIFIED SPECIALIST, IN STRICT ACCORDANCE WITH PART P OF SANS 10400. ALL NEW RAINWATER AND STORMWATER DISPOSAL GOODS TO COMPLY WITH PART R

MH POSITIONS TO BE CONFIRMED WITH SITE SURVEY PRIOR TO CONSTRUCTION AND VERIFIED ON SITE.

INSTALLATION AND STORAGE IN ACCORDANCE WITH SANS10400 & SANS10087-1

CANISTERS TO BE STORED IN CAGES AT APPROPRIATE SAFETY DISTANCES TO BOUNDARIES, WINDOWS, PLUMBING OUTLETS, ELECTRICAL IGNITION SOURCES AND VENTILATION FIXTURES.

LIGHTING AND VENTILATION TO BE INSTALLED IN ACCORDANCE WITH PART O OF SANS 10400 HOT WATER SUPPLY TO COMPLY WITH 4.1 OF PART XA OF SANS 104ALL INSTALLATIONS AND INSTRUCTIONS TO REFER TO THE APPLICABLE SANS 10400:XA + SANS 204 CODE WITH EXTERNAL WALLS (MINIMUM R-VALUE 0,35M2.K/W). FENESTRATION PROPORTION TO FLOOR AREA IS NON-COMPLIANT THEREFORE SUPPLEMENTARY GUIDE TO BE PROVIDED SHOWING APPLICABLE USE OF MATERIALS. ROOF ASSEMBLY CONSTRUCTION (MIN ADDED R-VALUE OF INSULATION REQUIRED AS PER SUPPLEMENTARY GUIDE) HOT WATER TANKS AND VESSELS SHALL BE INSULATED WITH A MATERIAL ACHIEVING A MINIMUM VALUE R-VALUE OF 2,0. WATER HEATING SYSTEMS TO COMPLY WITH SANS 1307 AND SANS 10106, MAINTENANCE IN ACCORDANCE WITH SANS 10252-1

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