



GAMAGARA LOCAL MUNICIPALITY
TENDER NO: GM2024/107
UPGRADING OF SPORTS FIELD IN DIBENG
CLOSING DATE: 18 NOVEMBER 2024

CONTRACTOR (PRINT NAME)	
ADDRESS OF TENDERER	
TELEPHONE	CELLNUMBER
E-MAIL	DELIVERY PERIOD
TENDER AMOUNT (R) (INCL. VAT)	
TENDER AMOUNT (WORDS) (INCL. VAT)	
SIGNATURE OF TENDERER	DATE

EMPLOYER:

Gamagara Local Municipality
Cnr Frikkie Meyer and Hendrik van Eck Roads,
Civic Centre
KATHU
8446

EMPLOYER'S AGENT:

MVD Kalahari
Consulting Engineers and Town Planners
P.O. Box 580
KIMBERLEY
8300

Municipal Manager
Consulting Engineer

: **Mr L Seetile (053) 723 - 6000**
: **Mr D Potgieter 082 414 8947**

OCTOBER 2024

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TENDERER:

Initial: Authorized Signatory/ies:

1

2

CLIENT

Initial: Gamagara Local Municipality

Witness:

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TENDERER:

Initial: Authorized Signatory/ies:

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CLIENT

Initial: Gamagara Local Municipality

Witness:

PART T: THE TENDER

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

SECTION 1

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

T1. TENDERING PROCEDURES

T1.1. TENDER NOTICE AND INVITATION TO TENDER



TENDERS ARE INVITED FOR: UPGRADING OF SPORTS FIELD IN DIBENG

Bid documents can be downloaded at www.etenders.gov.za or www.gamagara.gov.za 09:00 on 21 October 2024.

A compulsory site inspection will be held at **11:00 on Monday, 4 November 2024**. The Engineer will be present at the briefing and all questions will then be answered. No further visits to the site will take place. Persons taking interest will gather at the Municipal Town Hall next to Gamagara Local Municipality offices in, KATHU . **Tenderers, who do not attend the compulsory site inspection, will expose their tenders to rejection.**

Tenders in sealed envelopes and clearly endorsed:

GM2024/107 - UPGRADING OF SPORTS FIELD IN DIBENG must be addressed to the Municipal Manager, and must be placed in the Tender Box, **Gamagara Local Municipality, Cnr Frikkie Meyer and Hendrick van Eck Roads, Civic Centre not later than 10:00 on Monday, 18 November 2024**. Tenders will be opened in public on the same day in the old council chamber of the Gamagara Municipality.

Only Tenderers who satisfy the eligibility criteria stated in the Tender Data are eligible to submit tenders. Tenders will be evaluated and adjudicated in line with the Supply Chain Management policy of the municipality using an 80/10/10 preference points system.

80/20 CRITERIA	
DESCRIPTION	POINTS
PRICE	80
SPECIFIC GOALS (BASED ON LOCALITY)	10
SPECIFIC GOALS (BASED ON BBBEE)	10
Total points for Price and SPECIFIC GOALS	100

Bids will be evaluated on Functionality: The bid will be evaluated on functionality with the following criterion:

TENDERER:

Initial: Authorized Signatory/ies:

1

2

CLIENT

Initial: Gamagara Local Municipality

Witness:

FUNCTIONALITY SCORECARD	
Quality criteria	Maximum number of points
Experience of Tenderer on construction of similar projects	40
Key personnel proposed for the project: Qualification and experience with projects of similar nature	30
Construction schedule and availability of resources/plant	20
Bank rating	10
Maximum possible score for quality (M_s)	100

NB: Bidders must score a minimum of 70% to be considered for further evaluation.

Tenders must be registered with the CIDB in a CE Class of Construction Works (**Grade 4 CE or Higher**), as stated in the Tender Data may submit tender offers.

Gamagara Local Municipality reserves the right to accept a part of a Tender and does not bind itself to accept the lowest and/or any Tender. Their tenders must bind Tenderers for a period of **90 (Ninety) days after tender closing date**. No Tenders or copies of Tenders received by facsimile machine, electronic mail or per telegram will be considered. Tenderers attempting to influence the Client regarding the awarding of the Tender, after Tender closure, will automatically expose their Tenders to rejection.

A mandatory soft copy, on a read-only/write protected media must **accompany the hard copy document** of the respective bid submitted. Queries relating to the technical issues of these document may be addressed to, **Ditebogo Sebuasengwe**, email: **sebuasengwed@gamagara.gov.za** and al administrative enquiries to **Mrs. J Nampa**, email: **nampaj@gamagara.gov.za**.

Mr L Seetile (Municipal Manager)
Gamagara Local Municipality
Cnr Frikkie Meyer and Hendrik van Eck Roads, Civic Centre
KATHU
8446

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

MBD 1

INVITATION TO TENDER

YOU ARE HEREBY INVITED TO TENDER FOR REQUIREMENTS OF THE
GAMAGARA LOCAL MUNICIPALITY

TENDER NUMBER: **GM2024/107** CLOSING DATE: **18 NOVEMBER 2024** CLOSING TIME: **10:00**

DESCRIPTION: **UPGRADING OF SPORTS FIELD IN DIBENG**

**The successful tenderer will be required to fill in and sign a written
Contract Form (MBD 7).**

TENDER DOCUMENTS MAY BE POSTED TO:

(Please ensure that the post arrives before the closing date as we will not be held responsible or accountable for not accepting the late submission).

DEPOSITED IN THE TENDER BOX SITUATED AT:

Gamagara Local Municipality, Cnr Frikkie Meyer and Hendrick van Eck Roads, Civic Centre

Bidders should ensure that bids are delivered timeously to the correct address. If the tender is late, it will not be accepted for consideration.

The tender box is open from 08h00 – 16h00 workdays.

ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS – (NOT TO BE RE-TYPED).

A MANDATORY SOFT COPY, ON A READ-ONLY/WRITE PROTECTED MEDIA MUST **ACCOMPANY THE HARD COPY DOCUMENT** OF THE RESPECTIVE BID SUBMITTED.

THIS TENDER IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2022, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT AND SUBJECT TO COMPLIANCE WITH THE BELOW CONDITIONS:

1. Attachment of a detailed tender with description of the service or items.
2. Relevant specifications.
3. Submission of detailed tender.
4. Value of money.
5. Adherence to the requirements of this notice / invitation.

**THE FOLLOWING PARTICULARS MUST BE FURNISHED
(FAILURE TO DO SO MAY RESULT IN YOUR TENDER BEING DISQUALIFIED)**

NAME OF TENDERER _____

POSTAL ADDRESS _____

STREET ADDRESS _____

TELEPHONE NUMBER CODE _____ NUMBER _____

CELLPHONE NUMBER _____

TENDERER:

CLIENT

Initial: Authorized Signatory/ies:

1

2

Initial:

Gamagara Local Municipality

Witness:

E-MAIL ADDRESS _____

VAT REGISTRATION No _____

HAS AN ORIGINAL AND VALID TAX CLEARANCE CERTIFICATE BEEN ATTACHED? (MBD 2) **YES/NO**

ARE YOU REGISTERED ON THE CENTRAL SUPPLY DATABASE? **YES/NO**

IF YES PLEASE PROVIDE A COPY OF YOUR CSD CERTIFICATE

CSD NO: _____

HAS A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE BEEN SUBMITTED? (MBD 6.1) **YES/NO**

IF YES, WHO WAS THE CERTIFICATE ISSUED BY?

- ☐ AN ACCOUNTING OFFICER AS CONTEMPLATED IN THE CLOSE CORPORATION ACT (CCA)
- ☐ A VERIFICATION AGENCY ACCREDITED BY THE SOUTH AFRICAN NATIONAL ACCREDITATION SYSTEM (SANAS)
- ☐ A REGISTERED AUDITOR
- (Tick applicable box)**

(A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE)

ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS/SERVICES/WORKS OFFERED? **YES/NO**

(IF YES ENCLOSE PROOF)

SIGNATURE OF TENDERER _____

DATE _____

CAPACITY UNDER WHICH THIS TENDER IS SIGNED _____

TOTAL TENDER PRICE _____

TOTAL NUMBER OF ITEMS OFFERED _____

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

ANY ENQUIRIES REGARDING THE TENDER PROCEDURE MAY BE DIRECTED TO:

Contact Person: Mr D Potgieter
Tel: (053) 831-1889
Email: dirk@mvdkalahari.co.za

NOTICE TO ALL SUPPLIERS

PLEASE NOTE: THE REVISED PREFERENTIAL PROCUREMENT REGULATIONS CAME INTO EFFECT ON
16 JANUARY 2023.

- You are required to append a **certified copy** of a valid B-BBEE status level verification certificate (scorecard).
- Only B-BBEE status level verification certificates issued by the following agencies will be accepted:
 - BIDDERS OTHER THAN EME's:
 - Verification agencies accredited by SANAS (South African National Accreditation System); or
 - Registered auditors approved by IRBA
 - BIDDERS WHO QUALIFY AS EME's
 - Accounting officers as contemplated in the close Corporations Act 69 of 1984 for a relevant close corporation; or
 - Verification agencies accredited by SANAS; or
 - Registered auditors accredited by IRBA; or
 - Registered auditors
- If you do not append a **certified copy** of a valid B-BBEE status level verification certificate your tender will be evaluated on points for price only.
- A trust, consortium or joint venture, will qualify for points for their B-BBEE status level as a legal entity only, provided that **the entity submits** their B-BBEE status level certificate.
- If you want to liaise with accreditation agencies the contact details are as follows:
 - SANAS –www.sanas.co.za
 - IRBA –www.irba.co.za

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

T1.2. TENDER DATA

CLAUSE NUMBER	DATA
	The conditions of Tender are the Standard Conditions of Tender as contained in <i>Annex F</i> of the <i>CIDB Standard for Uniformity in Construction Procurement</i>. (ANNEXURE F: STANDARD CONDITIONS OF TENDER, page 15). The Standard Conditions of Tender for Procurements 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. Each item of data given below is cross-referenced to the clause in the standard conditions of Tender to which it mainly applies.
F1.1 ACTIONS	The Employer is: Gamagara Local Municipality Cnr Frikkie Meyer and Hendrik van Eck Roads, Civic Centre KATHU 8446
F1.2 TENDER DOCUMENTS	The Tender documents issued by the Employer comprise: VOLUME 1 (FUNCTIONALITY) PART T: THE BID SECTION 1 T1 TENDERING PROCEDURES T1.1 TENDER NOTICE AND INVITATION TO TENDER T1.2 TENDER DATA T1.3 ANNEXURE F: STANDARD CONDITIONS OF TENDER SECTION 2 T2 RETURNABLE DOCUMENTS T2.1 CHECKLIST FOR A RESPONSIVE TENDER T2.2 RETURNABLE SCHEDULES REQUIRED FOR TENDER EVALUATION PURPOSES T2.3 OTHER DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES T2.4 OTHER SCHEDULES AND AFFIDAVITS THAT WILL BE INCORPORATED INTO THE CONTRACT
	VOLUME 2 (FINANCIAL) PART C: THE CONTRACT SECTION 3 C1 AGREEMENT AND CONTRACT DATA C1.1 FORM OF OFFER AND ACCEPTANCE C1.2 CONTRACT DATA C1.3 FORM OF GUARANTEE

TENDERER:

Initial: Authorized Signatory/ies:

1

2

CLIENT

Initial:

Gamagara Local Municipality

Witness:

CLAUSE NUMBER	DATA
	C1.4 AGREEMENT C1.5 AGREEMENT IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993) C1.6 PRACTICAL COMPLETION CERTIFICATE C1.7 FINAL APPROVAL CERTIFICATE C2 HEALTH AND SAFETY ACT, 1993 (ACT NO. 85 OF 1993) C3 PRICING DATA C4 CONDITIONS OF CONTRACT C5 SPECIFICATIONS C5.1 STANDARD SPECIFICATIONS C5.2 PROJECT SPECIFICATIONS C5.3 PART A: PROJECT DESCRIPTION AND GENERAL INFORMATION C5.4 PART B: AMENDMENTS TO THE STANDARD SPECIFICATIONS C5.5 MANAGEMENT C5.6 PROCUREMENT C6 SITE INFORMATION SECTION 4 FIGURES AND DRAWINGS STANDARD FORMS AND FORMATS (only issued as soft copy on CD) ENVIRONMENTAL MANAGEMENT PLAN
F1.4 COMMUNICATION AND EMPLOYER'S AGENT	The Employer's Agent is Mr A Coetzee Name: MVD Kalahari Address: P.O. Box 580 Kimberley 8300 Tel: (053) 831-1889 E-mail: abrie@mvdkalahari.co.za Cell: 082 784 7484
F2.1 ELIGIBILITY	Only those Tenderers who score a minimum of 70% (70 points) for the functionality criteria prescribed in clause F.3.11.9 of the tender data and requested in section T2.2 of this document, are eligible to have their tenders evaluated and; Only those Tenderers who are registered with the CIDB with a grading designation equal or higher than a grading of 4 CE class for construction work will be eligible to submit Tenders. Joint ventures are eligible to submit Tenders provided that: - every member of the joint venture is registered with the CIDB. - the lead partner has a grading designation in the 4 CE class of construction work; and - the combined Contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a grading designation determined in accordance with the sum Tendered for a 4 CE class of construction work, is eligible to submit Tenders.
F2.7	The arrangement for a compulsory site inspection meeting is:

TENDERER:

Initial: Authorized Signatory/ies:

1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality

Witness:

CLAUSE NUMBER	DATA
CLARIFICATION MEETING	Location: Municipal Town Hall next to Gamagara Local Municipality offices in, KATHU Date and Time: 11:00 on Monday, 4 November 2024
F2.12 ALTERNATIVE TENDER OFFERS	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, the details of which may be obtained from the Employer's Agent. 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. 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. The modified Tender 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.
F2.13.2 SUBMITTING A TENDER OFFER	Return all volumes of the tender document to the Employer after completion of the relevant sections of each volume in their entirety by writing in black ink. No electronic submissions will be accepted. All volumes are to be left intact in their original format and no pages shall be removed or re-arranged.
F.2.13.3 SUBMITTING A TENDER OFFER	Parts of each tender offer communicated on paper shall be submitted as an original.
F2.13.7 SUBMITTING A TENDER OFFER	The Employer's Address for Delivery of Tender Offers and Identification Details To Be Shown On Each Tender Offer Package Are: Physical Address (Location of Tender Box): Gamagara Local Municipality, Cnr Frikkie Meyer and Hendrick van Eck Roads, Civic Centre Tender Number: GM2024/107 Project Name: UPGRADING OF SPORTS FIELD IN DIBENG
F2.13.8 SUBMISSION BY FAX OR EMAIL	Tender offers submitted by facsimile or email will be rejected by the employer.
F2.15 CLOSING TIME	The closing time for submission of Tender offers is: 10:00 on Monday, 18 November 2024 Telephonic, telegraphic, facsimile or e-mailed Tender offers will not be accepted.
F2.16 TENDER OFFER VALIDITY	The Tender offer validity period is 90 (Ninety) days after tender closing date.

TENDERER:

Initial: Authorized Signatory/ies:

1

2

CLIENT

Initial:

Gamagara Local Municipality

Witness:

CLAUSE NUMBER	DATA
F2.18 PROVIDE OTHER MATERIAL	The Tenderer shall, when requested by the Employer to do so, submit the names of all management and supervisory staff that will be employed on the project with satisfactory evidence that such staff members satisfy the eligibility requirements.
F2.20 SUBMIT SECURITIES, BONDS AND POLICIES	The Tenderer is required to submit with his tender a letter of intent from an approved insurer undertaking to provide the Performance Bond to the format included in Part T2.2 of this procurement document.
F2.23 CERTIFICATES	The Tenderer is required to submit with his/her Tender Annexure A: CIDB Registration Certificate of Registration issued by the <i>Construction Industry Development Board</i> Annexure B: Tax Clearance Certificate A valid <i>Tax Clearance Certificate</i> issued by the <i>South African Revenue Services</i> or a <i>Tax Compliance Status Pin Number (MBD 2)</i> Annexure C: A VAT Registration Certificate Annexure D: COID Certificate (<i>Compensation for Occupational Injuries and Diseases Act</i>) [Previously known as Workmen's Compensation] Annexure E: Unemployment Insurance Certificate, Act of 1996 Annexure F: B-BBEE Certificate (See T2.4.3 Preferential Procurement Document in Terms of Preferential Procurement REGULATIONS, 2022) Annexure G: Official letter from Tenderer's Bank – NB! This letter should state time of involvement and credit rating. Annexure H: Shareholding Certificate (where applicable) Annexure I: Company Profile, Organogram and CVs Annexure J: Financial Statements (see T2.3.2 Financial Statement) Annexure K: Municipal Rates Account A CURRENT (30 days) Business and all Director's Municipal account must be included in the Tender document even outside the Gamagara Municipal boundaries. In case of leasing, a copy of the valid current signed lease agreement must be submitted, indicating who is responsible for the Rates, Water and Electricity, etc. In the case where the Tenderer is responsible for any municipal services a current municipal account must be submitted with the lease

TENDERER:

Initial: Authorized Signatory/ies:

1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality

Witness:

CLAUSE NUMBER	DATA
	agreement included in the Tender document. No confirmation letter of lease agreement will be accepted. Annexure L: Documents of Incorporation A copy of the certificate of incorporation of the company, close corporation or partnership. In case of a joint venture between two or more firms, the Tenderer shall attach a copy of the document of incorporation of each partner of the joint venture as well as the joint venture agreement. Annexure M: Practical Completion Certificates and Project Reports The Tenderer shall attach the practical completion certificates for similar projects that were completed by the tender entity and the proposed subcontractors as well as complete the necessary project reports specified in T2.3.10 FUNCTIONALITY SCORE CARD (ELIGIBILITY CRITERIA) Annexure N: Letter confirming Hire of Construction Plant A confirmation letter from the plant hire company that the plant will be available for the project Annexure O: Central Supply Database Certificate (CSD) Information as requested in T2.3.10 Functionality Score Card (Eligibility Criteria) to be used during tender evaluation. Information as requested in T2 RETURNABLE DOCUMENTS. These documents are to be bound separately and marked clearly with their annexure numbers as shown above.
F3.4 OPENING OF TENDER SUBMISSIONS	The time and location for opening of the Tender offers is: 10:00 on Monday, 18 November 2024 at Gamagara Local Municipality, Cnr Frikkie Meyer and Hendrick van Eck Roads, Civic Centre
F3.5 TWO-ENVELOPE SYSTEM	A two-envelope procedure will not be followed.
F3.11 EVALUATION OF TENDER OFFER	Method 2 will be used.
F3.11.5 EVALUATION OF TENDER OFFER	Financial offer, quality and preferences. $T_{EV} = W_1 \times N_{FO} + W_2 \times N_P + N_Q$ where: T_{EV} is the total number of tender evaluation points N_{FO} is the number of tender evaluation points awarded for the financial offer made in accordance with F.3.11.7 and W_1 is 80; N_P is the number of tender evaluation points awarded for preferences claimed in accordance with F.3.11.8 and W_2 is 20; N_Q is zero (the quality score is only calculated to reject all tender offers)

TENDERER:

Initial: Authorized Signatory/ies:

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2

CLIENT

Initial: Gamagara Local Municipality

Witness:

CLAUSE NUMBER	DATA												
	that fail to score the minimum number of points for quality according to F3.11.9)												
F3.11.7 EVALUATION OF TENDER OFFER	The financial offer will be scored using Formula 2 (option 1) in Table F.1 where the value of W_1 is: 90 where the financial value inclusive of VAT of all responsive tenders received have a value in excess of R50 000 000.00 or - Up to 100 minus W_1 tender evaluation points will be awarded to Tenderers who complete the preferencing schedule and who are found to be eligible for the preference claimed.												
F3.11.9 EVALUATION OF TENDER OFFER	The quality criteria and maximum score in respect of each of the criteria are as follows: <table border="1"> <thead> <tr> <th>Quality criteria</th><th>Maximum number of points</th></tr> </thead> <tbody> <tr> <td>Experience of Tenderer on similar projects</td><td>40</td></tr> <tr> <td>Key personnel proposed for the project</td><td>30</td></tr> <tr> <td>Construction schedule and availability of re-sources/plant</td><td>20</td></tr> <tr> <td>Bank rating</td><td>10</td></tr> <tr> <td>Maximum possible score for quality (M_s)</td><td>100</td></tr> </tbody> </table> The minimum number of evaluation points for quality is 70.	Quality criteria	Maximum number of points	Experience of Tenderer on similar projects	40	Key personnel proposed for the project	30	Construction schedule and availability of re-sources/plant	20	Bank rating	10	Maximum possible score for quality (M_s)	100
Quality criteria	Maximum number of points												
Experience of Tenderer on similar projects	40												
Key personnel proposed for the project	30												
Construction schedule and availability of re-sources/plant	20												
Bank rating	10												
Maximum possible score for quality (M_s)	100												
F3.13 ACCEPTANCE OF TENDER OFFER	Tender offers will only be accepted if: - The Tenderer has in his or her possession a valid <i>Tax Clearance Certificate</i> issued by the <i>South African Revenue Services</i> or a <i>Tax Compliance Status Pin Number (MBD 2)</i>. - The Tenderer submits a letter of intent from an approved insurer undertaking to provide the <i>Performance Bond</i> to the format included in T2.3 of this procurement document. - The Tenderer is registered with the <i>Construction Industry Development Board</i> in an appropriate contractor grading designation. - The Tenderer is in good standing with municipal rates and taxes and municipal service charges. - The Tenderer or any of its directors is not listed on the Register of Tender Defaulters in terms of the <i>Prevention and Combating of Corrupt Activities Act of 2004</i> as a person prohibited from doing business with the public sector. - The Tenderer has not abused the Employer's Supply Chain Management System or has not failed to perform on any previous contract.												

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CLAUSE NUMBER	DATA
	vii. The Tenderer is registered and in good standing with the compensation fund or with a licensed compensation insurer. viii. The Employer/Agent is reasonably satisfied that the tenderer has in terms of the <i>Construction Regulation, 2014</i>, issued in terms of the <i>Occupational Health and Safety Act, 1993</i>, the necessary competencies and resources to carry out the work safely. The Tenderer meets the B-BBEE requirements stated in the tender advertisement in terms of the Preferential Procurement, 2022.
F3.18 PROVIDE COPIES OF THE CONTRACT	The number of paper copies of the signed contract to be provided by the Employer is one .

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T1.3. ANNEXURE F: STANDARD CONDITIONS OF TENDER

As published in Annexure F of the CIDB Standard for uniformity in Construction Procurement in Board Notice 136 of 2015, in Government Gazette 38960 of July 2015 and the erratum notices issued thereafter.

F1. GENERAL

F1.1. Actions

F1.1.1 The employer and each tenderer submitting a tender offer shall comply with these conditions of tender. In their dealings with each other, they shall discharge their duties and obligations as set out in F.2 and F.3, timeously and with integrity, and behave equitably, honestly and transparently, comply with all legal obligations and not engage in anticompetitive practices.

F1.1.2 The employer and the tenderer and all their agents and employees involved in the tender process shall avoid conflicts of interest and where a conflict of interest is perceived or known, declare any such conflict of interest, indicating the nature of such conflict. Tenderers shall declare any potential conflict of interest in their tender submissions. Employees, agents and advisors of the employer shall declare any conflict of interest to whoever is responsible for overseeing the procurement process at the start of any deliberations relating to the procurement process or as soon as they become aware of such conflict and abstain from any decisions where such conflict exists or recuse themselves from the procurement process, as appropriate.

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

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

F1.1.3 The employer shall not seek, and a tenderer shall not submit a tender without having a firm intention and the capacity to proceed with the contract.

F1.2. Tender Documents

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

F1.3. Interpretation

F1.3.1 The tender data and additional requirements contained in the tender schedules that are included in the returnable documents are deemed to be part of these conditions of tender.

F1.3.2 These conditions of tender, the tender data and tender schedules which are only required for tender evaluation purposes, shall not form part of any contract arising from the invitation to tender.

F1.3.3 For the purposes of these conditions of tender, the following definitions apply:

- a) conflict of interest means any situation in which:
 - i) someone in a position of trust has competing professional or personal interests which make it difficult to fulfill his or her duties impartially;

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- ii) an individual or organisation is in a position to exploit a professional or official capacity in some way for their personal or corporate benefit; or
- iii) incompatibility or contradictory interests exist between an employee and the organisation which employs that employee.
- b) comparative offer means the price after the factors of a non-firm price and all unconditional discounts it can be utilised to have been taken into consideration;
- c) corrupt practice means the offering, giving, receiving or soliciting of anything of value to influence the action of the employer or his staff or agents in the tender process;
- d) fraudulent practice means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the employer, including collusive practices intended to establish prices at artificial levels;
- e) organization means a company, firm, enterprise, association or other legal entity, whether incorporated or not, or a public body;
- f) functionality means the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs.

F1.4. Communication and Employer's Agent

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

F1.5. Cancellation and Re-Invitation of Tenders

F1.5.1 An organ of state may, prior to the award of the tender, cancel a tender if –

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

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

F1.6. Procurement Procedures

F1.6.1 General

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

F1.6.2 Competitive Negotiation Procedure

F.1.6.2.1 Where the tender data require that the competitive negotiation procedure is to be followed, tenderers shall submit tender offers in response to the proposed contract in the first round of submissions. Notwithstanding the requirements of F.3.4, the employer shall announce only the names of the tenderers who make a submission. The requirements of F.3.8 relating to the material deviations or qualifications which affect the competitive position of tenderers shall not apply.

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- F.1.6.2.2** All responsive tenderers, or not less than three responsive tenderers that are highest ranked in terms of the evaluation method and evaluation criteria stated in the tender data, shall be invited in each round to enter into competitive negotiations, based on the principle of equal treatment and keeping confidential the proposed solutions and associated information. Notwithstanding the provisions of F.2.17, the employer may request that tenders be clarified, specified and fine-tuned in order to improve a tenderer's competitive position provided that such clarification, specification, fine-tuning or additional information does not alter any fundamental aspects of the offers or impose substantial new requirements which restrict or distort competition or have a discriminatory effect.
- F.1.6.2.3** At the conclusion of each round of negotiations, tenderers shall be invited by the employer to make a fresh tender offer, based on the same evaluation criteria, with or without adjusted weightings. Tenderers shall be advised when they are to submit their best and final offer.
- F.1.6.2.4** The contract shall be awarded in accordance with the provisions of F.3.11 and F.3.13 after tenderers have been requested to submit their best and final offer.

F2. TENDERER'S OBLIGATIONS

F2.1. Eligibility

- F2.1.1** Submit a tender offer only if the tenderer satisfies the criteria stated in the tender data and the tenderer, or any of his principals, is not under any restriction to do business with employer.
- F2.1.2** Notify the employer of any proposed material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used by the employer as the basis in a prior process to invite the tenderer to submit a tender offer and obtain the employer's written approval to do so prior to the closing time for tenders.

F2.2. Cost of Tendering

- F2.2.1** Accept that, unless otherwise stated in the tender data, the employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer complies with requirements.
- F2.2.2** The cost of the tender documents charged by the employer shall be limited to the actual cost incurred by the employer for printing the documents. Employers must attempt to make available the tender documents on its website so as not to incur any costs pertaining to the printing of the tender documents.

F2.3. Check Documents

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

F2.4. Confidentiality and Copyright of Documents

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

F2.5. Reference Documents

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

F2.6. Acknowledge Addenda

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

F2.7. Clarification meeting

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

F2.8. Seek clarification

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

F2.9. Insurance

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

F2.10. Pricing the tender offer

F2.10.1 Include in the rates, prices, and the tendered total of the prices (if any) all duties, taxes (except Value Added Tax (VAT), and other levies payable by the successful tenderer, such duties, taxes and levies being those applicable 14 days before the closing time stated in the tender data.

F2.10.2 Show VAT payable by the employer separately as an addition to the tendered total of the prices.

F2.10.3 Provide rates and prices that are fixed for the duration of the contract and not subject to adjustment except as provided for in the conditions of contract identified in the contract data.

F2.10.4 State the rates and prices in Rand unless instructed otherwise in the tender data. The conditions of contract identified in the contract data may provide for part payment in other currencies.

F2.11. Alterations to Documents

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

F2.12. Alternative Tender Offers

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

F2.12.1 Accept that an alternative tender offer may be based only on the criteria stated in the tender data or criteria otherwise acceptable to the employer.

F2.12.2 An alternative tender offer may only be considered in the event that the main tender offer is the winning tender.

F2.13. Submitting a Tender Offer

F2.13.1 Submit one tender offer only, either as a single tendering entity or as a member in a joint venture to provide the whole of the works, services or supply identified in the contract data and described in the scope of works, unless stated otherwise in the tender data.

F2.13.2 Return all returnable documents to the employer after completing them in their entirety, either electronically (if they were issued in electronic format) or by writing legibly in non-erasable black ink.

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- F.2.13.3** Submit the parts of the tender offer communicated on paper as an original plus the number of copies stated in the tender data, with an English translation of any documentation in a language other than English, and the parts communicated electronically in the same format as they were issued by the employer.
- F2.13.3** Sign the original and all copies of the tender offer where required in terms of the tender data. The employer will hold all authorized signatories liable on behalf of the tenderer. Signatories for tenderers proposing to contract as joint ventures shall state which of the signatories is the lead partner whom the employer shall hold liable for the purpose of the tender offer.
- F2.13.4** Seal the original and each copy of the tender offer as separate packages marking the packages as "ORIGINAL" and "COPY". Each package shall state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.
- F2.13.5** Where a two-envelope system is required in terms of the tender data, place and seal the returnable documents listed in the tender data in an envelope marked "financial proposal" and place the remaining returnable documents in an envelope marked "technical proposal".
- F2.13.6** Each envelope shall state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.
- F2.13.7** Seal the original tender offer and copy packages together in an outer package that states on the outside only the employer's address and identification details as stated in the tender data.
- F2.13.8** Accept that the employer will not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.
- F2.13.9** Accept that tender offers submitted by facsimile or e-mail will be rejected by the employer, unless stated otherwise in the tender data.
- F2.14. Information and Data to be Completed in all Respects**
- Accept that tender offers, which do not provide all the data or information requested completely and, in the form, required, may be regarded by the employer as non-responsive.
- F2.15. Closing Time**
- F2.15.1** Ensure that the employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data. Accept that proof of posting shall not be accepted as proof of delivery.
- F2.15.2** Accept that, if the employer extends the closing time stated in the tender data for any reason, the requirements of these conditions of tender apply equally to the extended deadline.
- F2.16. Tender Offer Validity**
- F2.16.1** Hold the tender offer(s) valid for acceptance by the employer at any time during the validity period stated in the tender data after the closing time stated in the tender data.
- F2.16.2** If requested by the employer, consider extending the validity period stated in the tender data for an agreed additional period with or without any conditions attached to such extension.
- F2.16.3** Accept that a tender submission that has been submitted to the employer may only be withdrawn or substituted by giving the employer's agent written notice before the closing time for tenders that a tender is to be withdrawn or substituted.
- F2.16.4** Where a tender submission is to be substituted, submit a substitute tender in accordance with the requirements of F.2.13 with the packages clearly marked as "SUBSTITUTE" .

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F2.17. Clarification of Tender Offer after Submission

Provide clarification of a tender offer in response to a request to do so from the employer during the evaluation of tender offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors by the adjustment of certain rates or item prices (or both).

No change in the competitive position of tenderers or substance of the tender offer is sought, offered, or permitted.

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

F2.18. Provide other Material

F2.18.1 Provide, on request by the employer, any other material that has a bearing on the tender offer, the tenderer's commercial position (including notarized joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the employer for the purpose of a full and fair risk assessment. Should the tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the employer's request, the employer may regard the tender offer as non-responsive.

F2.18.2 Dispose of samples of materials provided for evaluation by the employer, where required.

F2.19. Inspections, Tests and Analysis

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

F2.20. Submit Securities, Bonds and Policies

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

F2.21. Check Final Draft

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

F2.22. Return of other Tender Documents

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

F2.23. Certificates

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

F3. THE EMPLOYER'S UNDERTAKINGS

F3.1. Respond to Requests from the Tenderer

F3.1.1 Unless otherwise stated in the tender Data, respond to a request for clarification received up to five working days before the tender closing time stated in the Tender Data and notify all tenderers who drew procurement documents.

F3.1.2 Consider any request to make a material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used to prequalify a tenderer to submit a tender offer in terms of a previous procurement process and deny any such request if as a consequence:

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

F3.2. Issue Addenda

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

F3.3. Return Late Tender Offers

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

F3.4. Opening of Tender Submissions

F3.4.1 Unless the two-envelope system is to be followed, open valid tender submissions in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data. Tender submissions for which acceptable reasons for withdrawal have been submitted will not be opened.

F3.4.2 Announce at the meeting held immediately after the opening of tender submissions, at a venue indicated in the tender data, the name of each tenderer whose tender offer is opened and, where applicable, the total of his prices, number of points claimed for its BBBEE status level and time for completion for the main tender offer only.

F3.4.3 Make available the record outlined in F.3.4.2 to all interested persons upon request.

F3.5. Two-Envelope System

F3.5.1 Where stated in the tender data that a two-envelope system is to be followed, open only the technical proposal of valid tenders in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data and announce the name of each tenderer whose technical proposal is opened.

F3.5.2 Evaluate functionality of the technical proposals offered by tenderers, then advise tenderers who remain in contention for the award of the contract of the time and place when the financial proposals will be opened. Open only the financial proposals of tenderers, who score in the functionality evaluation more than the minimum number of points for functionality stated in the tender data, and announce the score obtained for the technical proposals and the total price and any points claimed on B-BBEE status level. Return unopened financial proposals to tenderers whose technical proposals failed to achieve the minimum number of points for functionality.

F3.6. Non-Disclosure

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

F3.7. Grounds for Rejection and Disqualification

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

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F3.8. Test for Responsiveness

F3.8.1 Determine, after opening and before detailed evaluation, whether each tender offer properly received:

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

F3.8.2 A responsive tender is one that conforms to all the terms, conditions, and specifications of the tender documents without material deviation or qualification. A material deviation or qualification is one which, in the Employer's opinion, would:

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

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

F3.9. Arithmetical Errors, Omissions and Discrepancies

F3.9.1 Check the highest ranked tender or tenderer with the highest number of tender evaluation points after the evaluation of tender offers in accordance with F.3.11 for:

- a) the gross misplacement of the decimal point in any unit rate;
- b) omissions made in completing the pricing schedule or bills of quantities; or
- c) arithmetic errors in:
 - i) line item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or
 - ii) the summation of the prices.

F3.9.2 The employer must correct the arithmetical errors in the following manner:

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

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

F3.10. Clarification of a Tender Offer

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

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F3.11. Evaluation of Tender Offers

F3.11.1 General

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

F3.11.2 Method 1: Price and Preference

In the case of a price and preference:

- 1) Score tender evaluation points for price
- 2) Score points for locality
- 3) Score points for BBBEE contribution
- 4) Add the points scored for price, locality and BBBEE.

F3.11.3 Method 2: Functionality, Price and Preference

In the case of a functionality, price and preference:

- 1) Score functionality, rejecting all tender offers that fail to achieve the minimum number of points for functionality as stated in the Tender Data.
- 2) No tender must be regarded as an acceptable tender if it fails to achieve the minimum qualifying score for functionality as indicated in the tender invitation.
- 3) Tenders that have achieved the minimum qualification score for functionality must be evaluated further in terms of the preference points system prescribed in paragraphs 4 and 4 and 5 below.

The 80/20 preference point system for acquisition of services, works or goods up to Rand value of R 50,000,000

- 4)(a)(i) The following formula must be used to calculate the points for price in respect of tenders (including price quotation) with a rand value equal to, or above R 30 000 and up to Rand value of R 50,000,000 (all applicable taxes included):

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

Where

P_s = Points scored for comparative price of tender or offer under consideration.

P_t = Comparative price of tender or offer under consideration; and

P_{min} = Comparative price of lowest acceptable tender or offer.

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

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

B-BBEE Status Level of Contributor	Number of Points
1	20
2	18
3	16
4	12
5	8
6	6
7	4
8	2
Non-compliant contributor	0

- 4)(c) A maximum of 10 points may be allocated in accordance with subparagraph

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(4)(b).

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

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

The 90/ 10 preference points system for acquisition of services, works or goods with a Rand value above R 50,000,000

The following formula must be used to calculate the points for price in respect of tenders with a Rand value above R 50,000,000 (all applicable taxes included):

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

Where

P_s = Points scored for comparative price of tender or offer under consideration

P_t = Comparative price of tender or offer under consideration; and

P_{min} = Comparative price of lowest acceptable tender or offer.

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

B-BBEE Status Level of Contributor	Number of Points
1	5
2	4.5
3	4
4	3.5
5	3
6	2.5
7	2
8	1.5
Non-compliant contributor	0

5)(c) A maximum of 10 points may be allocated in accordance with subparagraph (5)(b).

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

F3.11.4 Decimal Places

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

F3.11.5 Scoring Price

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

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

Where:

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

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

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

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

FORMULA	COMPARISON ACHIEVING AIMED AT	OPTION 1 ^a	OPTION 2 ^a
1	Highest price or discount	$A = \left(1 + \frac{(P - P_m)}{P_m}\right)$	$A = \frac{P}{P_m}$
2	Lowest price or percentage commission / fee	$A = \left(1 + \frac{(P - P_m)}{P_m}\right)$	$A = \frac{P_m}{P}$
P_m is the comparative offer of the most favourable comparative offer.			
P is the comparative offer of the tender offer under consideration.			

F3.11.6

Scoring Preferences

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

F3.11.7

Scoring Functionality

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

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

$$N_Q = W_2 \times \frac{S_0}{M_S}$$

where:

S_0 is the score for quality allocated to the submission under consideration

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

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

F3.12.**Insurance provided by the Employer**

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

F3.13.**Acceptance of Tender Offer**

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

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

F3.14.**Prepare Contract Documents****F3.14.1**

If necessary, revise documents that shall form part of the contract and that were issued by

TENDERER:**CLIENT**

Initial: Authorized Signatory/ies:

1

Initial:

Gamagara Local Municipality

2

Witness:

the employer as part of the tender documents to take account of:

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

F3.14.2 Complete the schedule of deviations attached to the form of offer and acceptance, if any.

F3.15. Complete adjudicator's contract

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

F3.16. Notice to Unsuccessful Tenderers

F3.16.1 Notify the successful tenderer of the employer's acceptance of his tender offer by completing and returning one copy of the form of offer and acceptance before the expiry of the validity period stated in the tender data, or agreed additional period.

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

F3.17. Provide Copies of the Contracts

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

F3.18. Provide written reasons for actions taken

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

F3.19. Transparency in the procurement process

F3.19.1 The CIDB prescripts require that tenders must be advertised and be registered on the CIDB i.Tender system.

F3.19.2 The employer must adopt a transparency model that incorporates the disclosure and accountability as transparency requirements in the procurement process.

F3.19.3 The transparency model must identify the criteria for selection of projects, project information template and the threshold value of the projects to be disclosed in the public domain at various intervals of delivery of infrastructure projects.

F3.19.4 The client must publish the information on a quarterly basis which contains the following information:

- Procurement planning process
- Procurement method and evaluation process
- Contract type
- Contract status
- Number of firms tendering
- Cost estimate
- Contract title
- Contract firm(s)
- Contract price

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

- Contract scope of work
- Contract start date and duration
- Contract evaluation reports

- F3.19.5** The employer must establish a Consultative Forum which will conduct a random audit in the implementation of the transparency requirements in the procurement process.
- F3.19.6** Consultative Forum must be an independent structure from the Tender committees.
- F3.19.7** The information must be published on the employer’s website.
- F3.19.8** Records of such disclosed information must be retained for audit purposes.

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

SECTION 2

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

T2. RETURNABLE DOCUMENTS

The following documents are to be completed and returned as they constitute the Tender. Whilst many of the returnable documents are required for the purpose of evaluating the Tenders, some will form part of the subsequent contract, as they form the basis of the Tender offer. For this reason, it is very important that all Tenderers return all information.

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

T2.1. CHECKLIST FOR A RESPONSIVE TENDER

1. Make sure your Tender is signed on the front page.
2. Make sure the Form of Offer is completed and signed.
3. Make sure you **initial all** of the pages.
4. Make sure you include a **valid** original Tax Clearance Certificate and your tax compliance status pin number.
5. Make sure you claim VAT only if you are registered for VAT.
6. Make sure you claim the equity ownership points – or else no points will be granted.
7. Make sure you complete the Table of Ownership to substantiate your claim.
8. Make sure you read the Conditions of Contract carefully.
9. Make sure you comply with the specifications in full.
10. Make sure that your Declaration of Interest is signed.
11. Make sure that your Tender Document is **signed**.
12. Make sure you attached all copies of IDs (**certified**).
13. Make sure you have the capacity to complete the project.
14. Make sure you include the agreement with other sub-contractors.
15. Make sure you have provided all information for the T2.3.10 Functionality Score Card (Eligibility Criteria)
16. Make sure you include Audited Annual Financial Statements for the past three years.
17. Make sure you include a Certificate signed by the Tenderer certifying that the Tenderer has no undisputed commitments for Municipal Services.
18. Make sure you include particulars of any contracts awarded to the Tenderer by an organ of the State during the past five years.
19. Make sure you attach a statement indicating whether any portion of the goods or services are expected to be sourced from outside the Republic.
20. Gamagara Local Municipality will verify all information.

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

TO BE COMPLETED IN THIS DOCUMENT:

SECTION	FORM	PAGE	COMPLETED & SIGNED	
			Yes	No
T2.1	CHECKLIST FOR A RESPONSIVE TENDER	30		
T2.2.1	ALTERATIONS BY TENDERER	33		
T2.2.2	SCHEDULES OF CONTRACTS SUCCESSFULLY COMPLETED	34		
T2.2.3	SCHEDULE OF CONSTRUCTION PLANT	35		
T2.2.4	PROPOSED DEED OF SECURITIES 1 & 2	36		
T2.2.5	CERTIFICATE FOR AUTHORITY OF SIGNATORY	46		
T2.2.6	CERTIFICATE OF AUTHORITY FOR JOINT VENTURES	38		
T2.2.7	AUTHORIZATION TO INVESTIGATE FINANCIAL STATEMENTS	40		
T2.2.8	DAY WORK SCHEDULE	41		
T2.2.9	STAFFING PROFILE	43		
T2.2.10	PROPOSED KEY PERSONNEL	44		
T2.2.11	PROPOSED SUB-CONTRACTORS	45		
T2.2.12	DETAILS OF TRAINING OFFERED	46		
T2.3.1	CERTIFICATE OF INSPECTION OF THE SITE	47		
T2.3.2	FINANCIAL STATEMENT	48		
T2.3.3	TAX CLEARANCE CERTIFICATE REQUIREMENT	49		
T2.3.4	LISTING CRITERIA	53		
T2.3.5	MBD 4 : DECLARATION OF INTEREST	56		
T2.3.7	MBD 9: CERTIFICATE OF INDEPENDENT TENDER DETERMINATION	61		
T2.3.8	MBD 8: DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES	65		
T2.3.9	CONTRACT FORM: RENDERING OF SERVICES	68		
T2.3.10	FUNCTIONALITY SCORE CARD (ELIGIBILITY CRITERIA)	71		
T2.4.1	FORM CONCERNING FULFILMENT OF THE CONSTRUCTION REGULATIONS, 2014	81		
T2.4.2	RECORD OF ADDENDA TO TENDER DOCUMENTS	83		
T2.4.3	MBD 6.1: PREFERENTIAL PROCUREMENT DOCUMENT IN TERMS OF PREFERENTIAL PROCUREMENT REGULATIONS, 2022	84		

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

TO BE ATTACHED IN A SEPARATELY BOUND DOCUMENT ORDERED BY ANNEXURE NUMBER:

SECTION	Attached	
	Yes	No
Annexure A: CIDB Registration		
Annexure B: Tax Clearance Certificate or Tax Compliance Status Pin		
Annexure C: A VAT Registration Certificate		
Annexure D: COID Certificate		
Annexure E: Unemployment Insurance Certificate, Act of 1996		
Annexure F: B-BBEE Certificate		
Annexure G: Official letter from Tenderer's Bank		
Annexure H: Shareholding Certificate (where applicable)		
Annexure I: Company Profile, Organogram and CVs		
Annexure J: Financial Statements		
Annexure K: Municipal Rates Account		
Annexure L: Documents of Incorporation		
Annexure M: Practical Completion Certificates and Project Reports		
Annexure N: Letter confirming Hire of Construction Plant		
Annexure O: Central Supply Database Certificate (CSD)		

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

T2.2. RETURNABLE SCHEDULES REQUIRED FOR TENDER EVALUATION PURPOSES

T2.2.1. ALTERATIONS BY TENDERER

Should the Tenderer desire to make any departures from or modifications to the Special conditions of Contract, Specification, Bill of Quantities or Drawings, or to qualify his Tender in any way, he shall set out his proposals clearly hereunder or alternatively state them in a covering letter attached to his Tender and referred to hereunder, failing which the Tender will be deemed to be unqualified.

Should the Tenderer not desire to make any departures or modifications, he must state "NONE" in the schedule here under and sign it.

PAGE	CLAUSE OR ITEM

DATE: _____

SIGNATURE OF TENDERER _____

WITNESS _____

TENDERER: Initial: Authorized Signatory/ies: 1 _____ 2 _____

CLIENT Initial: Gamagara Local Municipality _____ Witness: _____

T2.2.2. SCHEDULES OF CONTRACTS SUCCESSFULLY COMPLETED

I/We, of _____
certify hereby that the following is a list representing contracts successfully completed by me/us in the recent past and that it is of a similar nature as the Works described in this document.

NATURE OF WORKS	VALUE OF WORKS	DURATION AND DATE OF COMPLETION	EMPLOYER AND CONTACT PERSON WITH TEL NO

DATE: _____
SIGNATURE OF TENDERER

WITNESS

TENDERER: Initial: Authorized Signatory/ies: 1 _____ 2 _____
CLIENT Initial: Gamagara Local Municipality _____
Witness: _____

T2.2.3. SCHEDULE OF CONSTRUCTION PLANT

If my/our Tender is successful, I/we of _____
undertake/s to place the Following equipment on the site for the execution of the Works:

OWN CONSTRUCTION PLANT	
NAME AND DESCRIPTION	NUMBER
HIRED CONSTRUCTION PLANT	
NAME AND DESCRIPTION	NUMBER

I/we undertake not to remove any plant and/or equipment from the construction site without the written consent of the Engineer, which consent shall not be unreasonably withheld.

DATE: _____
SIGNATURE OF TENDERER _____

WITNESS _____

TENDERER: Initial: Authorized Signatory/ies: 1 _____ 2 _____
CLIENT Initial: Gamagara Local Municipality _____
Witness: _____

T2.2.4. PROPOSED DEED OF SECURITIES 1 & 2

We, the undersigned, hereby agree that, if the Client accepts this Tender, we will, when so required, provide and sign the necessary Deed of Securities to the amount of 10 (Ten) percent of the Tendered amount for the proper conducting of the Contract by the undersigned:

1. _____
2. _____

in accordance with the conditions and prescriptions of the Contract that will be entered into for the proper and prompt conducting of the Works as stated in the Tender documents attached hereto and we undertake to renounce the benefit or the exclusion of ordinis seu excussionis et divisionis de duobus vel pluribus reis debendi and all other lawful exclusions that may be brought against the validity of this security.

UNDERSIGNED AS PROOF ON THIS _____ DAY OF _____ 20 ____

UNDERSIGNED BY THE MENTIONED SURER:

1. NAME: _____

ADDRESS: _____

2. NAME: _____

ADDRESS: _____

IN MY CAPACITY AS: IN MY CAPACITY AS:

AS WITNESS FOR THE SIGNATURE OF SECURITY NO 1

1. NAME: _____
- ADDRESS: _____
- _____
- _____
- _____

AS WITNESS FOR THE SIGNATURE OF SECURITY NO 2

2. NAME: _____
- ADDRESS: _____
- _____
- _____
- _____

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

T2.2.5. CERTIFICATE FOR AUTHORITY OF SIGNATORY

I/We the undersigned am/are authorized to sign the Tender form on behalf of:

in accordance to the "Statute of Partnership/Resolution of the Board of Directors/Proxy"*, of which a certified copy is included herewith, or by virtue of:

* Delete whichever is inapplicable.

DATE: _____

SIGNATURE OF TENDERER

AS WITNESSES:

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

T2.2.6. CERTIFICATE OF AUTHORITY FOR JOINT VENTURES

We, the undersigned, are submitting this tender offer in Joint Venture and hereby authorise
Mr/Ms _____, authorised signatory

of the company _____, acting in
the capacity of lead partner, to sign all documents in connection with the tender offer and any contract
resulting from it on our behalf.

Name of Firm: _____

Address: _____

Lead Partner : _____

CIDB Registration No.: _____

Duly Authorised Signatory: _____

Name: _____

Designation: _____

Signature: _____

Name of Firm: _____

Address: _____

Lead Partner : _____

CIDB Registration No.: _____

Duly Authorised Signatory: _____

Name: _____

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

Designation: _____

Signature: _____

Name of Firm: _____

Address: _____

Lead Partner : _____

CIDB Registration No.: _____

Duly Authorised Signatory: _____

Name: _____

Designation: _____

Signature: _____

Name of Firm: _____

Address: _____

Lead Partner : _____

CIDB Registration No.: _____

Duly Authorised Signatory: _____

Name: _____

Designation: _____

Signature: _____

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

T2.2.7. AUTHORIZATION TO INVESTIGATE FINANCIAL STATEMENTS

I/We, the undersigned, hereby grant permission to the Engineer, or his authorized agent, who executes this contract on behalf of MVD Kalahari, namely:

Mr. A Goliath to investigate our financial statements for the possible awarding of above-mentioned contract. The permission is granted with the emphatic understanding that **all** information obtained under this grant of permission will be handled in the **strictest confidence**.

My/our bank account number is as follows:

Bank : _____

Branch : _____

Account No : _____

My/Our audited balance sheet can be obtained from:

Firm : _____

Address : _____

Contact person : _____

Date : _____

SIGNATURE OF TENDERER

WITNESS

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

T2.2.8. DAY WORK SCHEDULE

This day work schedule shall be completed by the Contractor as fully detailed as possible since it is to be used to put a valuation upon additional or substituted work which by their nature cannot now conveniently be valued at the rates Tendered by the Contractor and where the Contractor has been instructed to carry out such work on a day work basis.

The Contractor is required to fill in the schedule listed below with prices for labour, plant and materials for the work which shall be executed in terms of *Clause 6.5* of the *GCC 2015*, forming portion of the Contract Documents.

ITEM	DESCRIPTION	UNIT	RATE
1.	LABOUR: In the rates Tendered, the Contractor shall allow for the use of all small tools, e.g. picks, shovels, hammers, etc.		
a.	Unskilled labourers	Hour	
b.	Skilled tradesmen	Hour	
c.	Gangers	Hour	
d.	Plant Operators	Hour	
2.	MATERIALS: For the supply and use including delivery charges on the site where the material is built into the permanent works.		Cost plus %
3.	PLANT: Under this heading, the Contractor is required to list the operating and standing charges for all the plant he proposes to use in terms of this Contract on day work and shall insert the rates for the use of such plant in terms of this Contract on a plant hire basis, priced per hour inclusive of all fuel, equipment, etc., but excluding the plant operator's cost which will be taken as listed above.		
4.	GENERAL: Under this item, the Contractor may list such other items of plant, labour, materials, etc. which have not been provided for in the items hereinbefore and which the Contractor considers he may require to properly execute work on a day work basis.		
5.	SUPERVISION AND OVERHEADS: Under this item, the Contractor must allow for all charges, inclusive to allow for proper supervision and all overheads, in connection with day work and this allowance shall be calculated on the percentage basis which must be indicated by the Contractor in the Schedule. The Contractor is to note that for the purpose of calculating the percentage, the value of materials as listed under Item 2 (above) shall		

TENDERER:

CLIENT

Initial: Authorized Signatory/ies:

1

Initial:

Gamagara Local Municipality

2

Witness:

ITEM	DESCRIPTION	UNIT	RATE
	not be included in the total hereunder for establishing such percent- age as aforesaid.		
	Supervision and overheads		
			%

DATE: _____
SIGNATURE OF TENDERER _____

AS WITNESSES: _____

1. _____

2. _____

TENDERER: Initial: Authorized Signatory/ies: 1 _____ 2 _____
CLIENT Initial: Gamagara Local Municipality _____
Witness: _____

Provide information on the staff that you have available to execute this contract. (Attach a separate list if the space provided is insufficient)

[illegible]

<u>TENDERER:</u>		<u>CLIENT</u>	
Initial: Authorized Signatory/ies:	1 _____	Initial:	Gamagara Local Municipality _____
	2 _____	Witness:	_____

T2.2.10. PROPOSED KEY PERSONNEL

The Tenderer shall list below the key personnel (including first nominee and the second-choice alternate), whom he proposes to employ on the project should his Tender be accepted, both at his headquarters and on the site, to direct and for execution of the work, together with their qualifications, experience, positions held and their nationalities.

DESIGNATION	NAME OF NOMINEE ALTERNATE	NATIONALITY	SUMMARY OF		HDI Status YES/NO
			QUALIFICATIONS	EXPERIENCE AND PRESENT OCCUPATION	
Construction Monitoring Site Agent					
Engineer on Site					
Construction Supervisor (Give Designation)					
Other key staff (give designation)					

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

T2.2.11. PROPOSED SUB-CONTRACTORS

The Tenderer shall state hereunder the name of any sub-contractors that are proposed to complete certain sections of the Works. PLEASE NOTE: The Tenderer has to appoint a sub-contractor that is registered with the CIDB in a 1CE (or higher) class of construction work. The company profile(s) of the proposed sub-contractors have to be attached to Annexure I: Company Profile, Organogram and CVs (page 11)

NAME	SECTION OF WORK	VALUE OF ITEMS COVERED BY SUB-CONTRACTOR	% VALUE OF TOTAL WORK

DATE: _____

SIGNATURE OF TENDERER _____

AS WITNESSES:

1. _____
2. _____

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

T2.2.12. DETAILS OF TRAINING OFFERED

The Tenderer shall indicate the type and level of training that will be offered to the local labourers. The schedule should include on-site training or skills transfer by the tender entity or by his suppliers as well as any accredited training proposed for the project.

DESCRIPTION OF ON-SITE TRAINING AND SKILLS TRANSFER (NON-ACCREDITED TRAINING)	NUMBER TO BE TRAINED
DESCRIPTION OF ACCREDITED TRAINING (ATTACHED QUOTATION AND TRAINING CODE)	NUMBER TO BE TRAINED

DATE: _____ SIGNATURE OF TENDERER _____

AS WITNESSES: _____

1. _____

2. _____

TENDERER:

Initial: Authorized Signatory/ies: 1 _____

2 _____

CLIENT

Initial: Gamagara Local Municipality _____

Witness: _____

T2.3. OTHER DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

T2.3.1. CERTIFICATE OF INSPECTION OF THE SITE

This is to certify that I, _____ representative of Contractor in the company of **Mr A Coetzee**, visited the site at **11:00 on Monday, 4 November 2024**. The Contract Documents and Drawings were discussed, and the Site conditions were emphasised.

I have made myself familiar with all local conditions likely to influence the work and the cost thereof and state that no misrepresentations have been made to me regarding the ground and other local conditions.

I further **CERTIFY** that I am satisfied with the description of the work and explanations given by the said Engineer and that I perfectly understand the work to be done, as specified and implied, in the execution of this contract.

DATE: _____

SIGNATURE OF TENDERER

SIGNATURE OF ENGINEER

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

T2.3.2. FINANCIAL STATEMENT

Kindly provide the following information:

ANNEXURE	INFORMATION	RESPONSE	
		ATTACHED	NOT ATTACHED
J 1(a)	Audited annual financial statements for the past three (3) years; (if applicable, kindly attach statements as <u>Annexure J 1(a)</u> or		
J 1(b)	Since your establishment – if established during the past three years; (if applicable, kindly attach audited statements as <u>Annexure J 1(b)</u>		
J 2	A certificate signed by the tenderer certifying that the Tenderer has no undisputed commitments towards other service providers in respect of which payment is overdue for more than 30 days e.g. SARS, Department of Labour etc.; (kindly attach certificate as <u>Annexure J 2</u>)		
J 3	Particular of any contracts awarded to the Tenderer by an Organ of State during the past five years, including particulars of any materials non-compliance or dispute concerning the execution of such contract; (Kindly provide particulars and attach as <u>Annexure J 3</u>)		
J 4	A statement indicating whether any portion of the goods or services are expected to be sourced from the outside the Republic and, if so, what portion of the payment is expected to be transferred out of the Republic and informing the Department of Trade and Industry. (if applicable, kindly attach statement as <u>Annexure J 4</u>)		

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

T2.3.3. TAX CLEARANCE CERTIFICATE REQUIREMENT

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

MBD 2

TAX CLEARANCE CERTIFICATE REQUIREMENTS

It is a condition of Tender that the taxes of the successful Tenderer must be in order, or that satisfactory arrangements have been made with South African Revenue Service (SARS) to meet the Tenderer's tax obligations.

1. Previously a taxpayer (Supplier) was required to submit a valid, original paper Tax Clearance Certificate (TCC), the taxpayer **MUST** now submit a TAX COMPLIANCE STATUS PIN NO even if a paper TCC was submitted. Tenders will not be considered if the correct PIN NO and Tax Reference Number is included in this document.
2. Applications for the Tax Clearance Certificates **MUST** be made via eFiling. In order to use this provision, taxpayers will need to register with SARS as eFilers through the website www.sars.gov.za or contact the SARS Contact Centre on 0800007277
3. The Tenderer (Name) _____ hereby grants Gamagara Local Municipality permission to use the following
TAX COMPLIANCE STATUS PIN NO _____
with reference to the following Tax Reference Number _____
4. The Tenderer (Name) _____ hereby further grants SARS permission to disclose the Tenderers **TAX COMPLIANCE STATUS** to Gamagara Local Municipality on an on-going basis during the Contract Term.
5. A Tenderer who appoints a sub-contractor/Joint Venture/Consortia to execute a portion of a contract (Contractor in excess of National Treasury threshold) must ensure that each appointment is **TAX COMPLIANT** and remains **TAX COMPLIANT** for the duration of the contract. Successful Tenderers must provide Gamagara Local Municipality authority from their appointments confirming that SARS may, on an on-going basis during the contract term, disclose the appointed sub-contractor/Joint Venture/Consortia **TAX COMPLIANCE STATUS**.
6. A Tenderer who acts on behalf of an undisclosed principal must disclose such a fact upon submission of a Tender as well as identity of that principal. The **TAX COMPLIANCE STATUS** of that principle must be verified in the same manner as that of the Tenderer. The same principle applies mutatis mutandis to any sub-contractor / Joint Venture / Consortia appointed by a successful Tenderer to execute a portion of a contract.
7. The **TAX COMPLIANCE STATUS** of all parties must be disclosed and verified if the Tenderer consist of a partnership and
8. A Tenderer who is not resident in the Republic of South Africa, must apply for **TAX CLEARANCE at SARS**.

SIGNATURE OF TENDERER _____ DATE: _____

CAPACITY UNDER WHICH THIS TENDER IS SIGNED: _____

WITNESS 1 _____ DATE: _____

WITNESS 2 _____ DATE: _____

TENDERER:

Initial: Authorized Signatory/ies:

1 _____

2 _____

CLIENT

Initial:

Gamagara Local Municipality _____

Witness: _____

Application for a Tax Clearance Certificate

Purpose

Select the applicable option Tenders ☐ Good standing ☐

If "Good standing", please state the purpose of this application

Particulars of applicant

Name (Initials & Surname or registered name)																	
Trading name (if applicable)																	
ID/Passport no									Company/Close Corp. registered no								
Income Tax ref no									PAYE ref no	7							
VAT registration no	4								SDL ref no	L							
Customs code									UIF ref no	U							
Telephone no	CODE				NUMBER				Fax no	CODE				NUMBER			
E-mail address																	
Physical address																	
Postal address																	
Number of copies of certificates required																	

Particulars of representative

Surname																	
First names																	
ID/Passport no									Income Tax ref no								
Telephone no	CODE				NUMBER				Fax no	CODE				NUMBER			
E-mail address																	
Physical address																	

Particulars of tender (If applicable)Tender number Tender amount R , Expected duration year(s)
of the tender

Particulars of the 3 largest tenders previously dealt with

Date started	Date finalised	Company	Contact person	Telephone number	Amount

AuditAre you currently aware of any Audit investigation against you/the company?.....

If "YES" provide details

Declaration

I declare that the information furnished in this application as well as the supporting documents is true and correct in every respect.

Appointment of representative/agentI the undersigned confirm that I require a Tax Clearance Certificate in respect of or .I hereby authorise and instruct to apply to and receive from SARS the applicable Tax Clearance Certificate on my/our behalf.

Signature of representative/agent

Date

Name of representative/
agent

Signature of applicant

Date

Name of applicant **Notes:**

- It is a serious offence to make a false declaration.
- Section 75 of the Income Tax Act, 1962, states: Any person who
 - fails or neglects to furnish, file or submit any return or document as and when required by or under this Act; or
 - without just cause shown by him, refuses or neglects to-
 - furnish, produce or make available any information, documents or things;
 - reply to or answer truly and fully, any questions put to him ...

As and when required in terms of this Act ... shall be guilty of an offence ..."
- SARS will, under no circumstances, issue a Tax Clearance Certificate unless this form is completed in full.**

T2.3.4. LISTING CRITERIA

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

**GAMAGARA LOCAL MUNICIPALITY
LISTING CRITERIA**

THE FOLLOWING INFORMATION MUST BE PROVIDED IF TENDERER IS NOT REGISTERED ON DATA BASE. IF THE TENDERER IS REGISTERED A PROOF (COPY) OF THE DATA BASE REGISTRATION MUST BE SUBMITTED WITH THE TENDER DOCUMENT AND THE DATA BASE REGISTRATION NUMBER MUST BE PROVIDED

DATA BASE REGISTRATION NUMBER: _____

1. **Company Name:** _____

2. **Contact Details:** Tel No: _____ Fax No: _____

Cell phone: _____ Email Address: _____

Contact Person: _____

3. **Postal Address:** _____

4. **VAT Registered:** Yes ☐ No ☐ If registered, VAT Registration No: _____

5. **Settlement Discount Allowed:** _____% for payment within _____ days

6. **Bank Name:** _____ **Branch code:** _____

7. **Account No:** _____ **Type of Account:** _____

Location in Northern Cape Area: Yes ☐ No ☐

8. **% owned by black male:** _____% **% owned by black female:** _____%

% owned by black youth: _____% **% owned by white female:** _____%

% owned by disabled persons _____%

9. **B-BBEE SCORECARD LEVEL:** _____

10. **Indicate Main Sector/ Please select one only:**

☐ Agriculture

☐ Mining and Quarrying

☐ Manufacturing

☐ Electricity, Gas, Water

☐ Construction

☐ Retail & Motor Trade & Repairs

☐ Wholesale Trade, Commercial Agents and Allied Services

☐ Catering & Accommodation & other Trade

☐ Transport, Storage & Communications

☐ Finance and Business Services

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

3089-02

3089-02

MBD 4

DECLARATION OF INTEREST

1. No tender will be accepted from persons in the service of the state¹.
2. Any person, having a kinship with persons in the service of the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid. In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons connected with or related to persons in service of the state, it is required that the tenderer or their authorised representative declare their position in relation to the evaluating/adjudicating authority.

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 tenderer or his or her representative: _____

3.2 Identity Number: _____

3.3 Position occupied in the Company (director, trustee, shareholder²): _____

3.4 Company Registration Number: _____

3.5 Tax Reference Number: _____

3.6 VAT Registration Number: _____

3.7 The names of all directors / trustees / shareholder's² members, their individual identity numbers and state employee numbers must be indicated in paragraph 4 below.

3.8 Are you presently in the service of the state? **YES / NO**

3.8.1 If yes, furnish particulars.

3.9 Have you been in the service of the state for the past twelve months? **YES / NO**

3.9.1 If yes, furnish particulars.

¹MSCM Regulations: "in the service of the state" means to be –

(a) a member of –

- (i) any municipal council;
- (ii) any provincial legislature; or
- (iii) the national Assembly or the national Council of provinces;

(b) a member of the board of directors of any municipal entity;

(c) an employee of 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);

(d) a member of the accounting authority of any national or provincial public entity; or

(e) an employee of Parliament or a provincial legislature.

² Shareholder" means a person who owns shares in the company and is actively involved in the management of the company or business and exercises control over the company.

TENDERER:

Initial: Authorized Signatory/ies:

1

2

CLIENT

Initial:

Gamagara Local Municipality

Witness:

3.10 Do you have any relationship (family, friend, other) with persons in the service of the state and who may be involved with the evaluation and or adjudication of this bid?

YES / NO

3.10.1 If yes, furnish particulars.

3.11 Are you, aware of any relationship (family, friend, other) between any other tenderer and any persons in the service of the state who may be involved with the evaluation and or adjudication of this bid?

YES/NO

3.11.1 If yes, furnish particulars.

3.12 Are any of the company's directors, trustees, managers, principal shareholders, or stakeholders in service of the state?

YES / NO

3.12.1 If yes, furnish particulars.

3.13 Are any spouse, child or parent of the company's directors trustees, managers, principle shareholders or stakeholders in service of the state?

YES / NO

3.13.1 If yes, furnish particulars.

3.14 Do you or any of the directors, trustees, managers, principal Shareholders, or stakeholders of this company have any interest in any other related companies or business whether or not they are bidding for this contract.

YES / NO

3.14.1 If yes, furnish particulars:

3.15 Full details of directors / trustees / members / shareholders.

Full Name	Identity Number	State Employee Number

TENDERER:

CLIENT

Initial: Authorized Signatory/ies:

1

2

Initial:

Gamagara Local Municipality

Witness:

Full Name	Identity Number	State Employee Number

SIGNATURE

DATE

CAPACITY

NAME OF BIDDER

TENDERER:

Initial: Authorized Signatory/ies: 1
2

CLIENT

Initial: Gamagara Local Municipality
Witness:

**T2.3.6. PROOF OF REGISTRATION WITH THE CONSTRUCTION INDUSTRY
DEVELOPMENT BOARD (CIDB)**

The Tenderer is to submit in the separately bound annexures as *Annexure A*: CIDB Registration written proof of their registration with the CIDB in a contractor grading designation equal or higher than a contractor grading of 4 CE class for civil construction work.

In the instance of a Joint Venture, all Joint Venture partners must provide proof of registration with the CIDB.

Note:

Failure to submit such documentation as prescribed shall result in this Tender not being further considered for the award of the contract.

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

T2.3.7. MBD 9: CERTIFICATE OF INDEPENDENT TENDER DETERMINATION

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

MBD 9

CERTIFICATE OF INDEPENDENT TENDER DETERMINATION

1. This Tendering Document (MBD) must form part of all Tenders¹ 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 *per 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 Tenderer if that Tenderer, 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 MBD 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 (MBD 9) must be completed and submitted with the bid:

¹ Includes price quotations, advertised competitive bids, limited bids and proposals.

² Tender 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. Tender rigging is, therefore, an agreement between competitors not to compete.

TENDERER:

Initial: Authorized Signatory/ies:

1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality

Witness:

CERTIFICATE OF INDEPENDENT TENDER DETERMINATION

I, the undersigned, in submitting the accompanying bid:

(Tender Number and Description)

in response to the invitation for the tender made by:

(Gamagara Local Municipality)

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 tender will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the tenderer to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying tender has been authorized by the tenderer 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 tender in response to this tender invitation;
 - (b) could potentially submit a tender in response to this tender invitation, based on their qualifications, abilities or experience; and
 - (c) provides the same goods and services as the tenderer and/or is in the same line of business as the bidder
6. The tenderer has arrived at the accompanying tender independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium³ 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 tender which does not meet the specifications and conditions of the bid; or
 - (f) bidding with the intention not to win the bid.

TENDERER:

CLIENT

Initial: Authorized Signatory/ies:

1

2

Initial:

Gamagara Local Municipality

Witness:

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 tender invitation relates.
9. The terms of the accompanying tender 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 tender opening or of the awarding of the contract.
10. 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.

Signature

Date

Position

Name of Bidder

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.**

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

**T2.3.8. MBD 8: DECLARATION OF TENDERER’S PAST SUPPLY CHAIN MANAGE-
MENT PRACTICES**

<u>TENDERER:</u>		<u>CLIENT</u>	
Initial: Authorized Signatory/ies:	1 _____	Initial:	Gamagara Local Municipality _____
	2 _____	Witness:	_____

MBD 8

DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

- 1 This Standard Bidding Document must form part of all Tenders invited.
- 2 It serves as a declaration to be used by this entity in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.
- 3 The Tender of any Tenderer may be rejected if that Tenderer, or any of its directors have:
 - a. abused the entity's supply chain management system or committed any improper conduct in relation to such system;
 - b. been convicted for fraud or corruption during the past five years;
 - c. willfully neglected, reneged on or failed to comply with any government, municipal or other public sector contract during the past five years; or
- 4 **In order to give effect to the above, the following questionnaire must be completed and submitted with the Tender.**

ITEM	QUESTION	YES	NO
4.1	Is the Tenderer or any of its directors listed on the National Treasury's database as a company or person 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 <i>audi alteram partem</i> rule was applied). The Database of Restricted Suppliers now resides on the National Treasury's website www.treasury.gov.za and can be accessed by clicking on its link at the bottom of the home page	☐	☐
4.1.1	If so, furnish particulars:		
4.2	Is the Tenderer 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 register for Tender Defaulters can be accessed on the National Treasury's website www.treasury.gov.za, by clicking on its link at the bottom of the home page.	☐	☐
4.2.1	If so, furnish particulars:		
4.3	Was the Tenderer or any of its directors convicted by a court of law (including a court of law outside the Republic of South Africa) for fraud or corruption during the past five years?	☐	☐
4.3.1	If so, furnish particulars:		

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

ITEM	QUESTION	YES	NO
4.4	Was any contract between the Tenderer and any organ of state terminated during the past five years on account of failure to perform on or comply with the contract?		
4.4.1	If so, furnish particulars:	☐	☐

CERTIFICATION

I, THE UNDERSIGNED (FULL NAME) _____

CERTIFY THAT THE INFORMATION FURNISHED ON THIS
DECLARATION FORM TRUE AND CORRECT.

I ACCEPT THAT, IN ADDITION TO THE CANCELLATION OF A CONTRACT, ACTION MAY BE TAKEN
AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

Signature

Date

Position

Name of Tenderer

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

T2.3.9. CONTRACT FORM: RENDERING OF SERVICES

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

MBD 7.2

CONTRACT FORM - RENDERING OF SERVICES

THIS FORM MUST BE FILLED IN DUPLICATE BY BOTH THE SERVICE PROVIDER (PART 1) AND THE PURCHASER (PART 2). BOTH FORMS MUST BE SIGNED IN THE ORIGINAL SO THAT THE SERVICE PROVIDER AND THE PURCHASER WOULD BE IN POSSESSION OF ORIGINALLY SIGNED CONTRACTS FOR THEIR RESPECTIVE RECORDS.

PART 1 (TO BE FILLED IN BY THE SERVICE PROVIDER)

1. I hereby undertake to render services described in the attached bidding documents to (name of the institution)_____ in accordance with the requirements and task directives / proposals specifications stipulated in Tender Number_____at the price/s quoted. My offer/s remain binding upon me and open for acceptance by the Purchaser during the validity period indicated and calculated from the closing date of the bid.
2. The following documents shall be deemed to form and be read and construed as part of this agreement:
 - (i) Bidding documents, viz
 - Invitation to bid;
 - Tax clearance certificate;
 - Pricing schedule(s);
 - Filled in task directive/proposal;
 - Preference claims for Broad Based Black Economic Empowerment Status Level of Contribution in terms of the Preferential Procurement Regulations 2022
 - Declaration of interest;
 - Declaration of Bidder's past SCM practices;
 - Certificate of Independent Tender Determination;
 - Special Conditions of Contract;
 - (ii) General Conditions of Contract; and
 - (iii) Other (specify)
3. I confirm that I have satisfied myself as to the correctness and validity of my bid; that the price(s) and rate(s) quoted cover all the services specified in the bidding documents; that the price(s) and rate(s) cover all my obligations and I accept that any mistakes regarding price(s) and rate(s) and calculations will be at my own risk.
4. I accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me under this agreement as the principal liable for the due fulfilment of this contract.
5. I declare that I have no participation in any collusive practices with any tenderer or any other person regarding this or any other bid.
6. I confirm that I am duly authorised to sign this contract.

NAME (PRINT) _____

CAPACITY _____

SIGNATURE _____

NAME OF FIRM _____

DATE _____

WITNESSES

1 _____

2 _____

DATE:

TENDERER:

Initial: Authorized Signatory/ies: 1 _____

2 _____

CLIENT

Initial: Gamagara Local Municipality _____

Witness: _____

CONTRACT FORM - RENDERING OF SERVICES

PART 2 (TO BE FILLED IN BY THE PURCHASER)

1. I _____ in my capacity as _____

accept your tender under reference number **GM2024/107** dated _____
the rendering of services indicated hereunder and/or further specified in the annexure(s).

2. An official order indicating service delivery instructions is forthcoming.

3. I undertake to make payment for the services rendered in accordance with the terms and conditions
of the contract, within 30 (thirty) days after receipt of an invoice.

DESCRIPTION OF SERVICE	PRICE (ALL APPLICABLE TAXES INCLUDED)	COMPLETION DATE	B-BBEE STATUS LEVEL OF CONTRIBUTION	MINIMUM THRESHOLD FOR LOCAL PRODUCTION AND CONTENT (if applicable)

4. I confirm that I am duly authorised to sign this contract.

SIGNED AT _____ ON _____

NAME (PRINT) _____

SIGNATURE _____

OFFICIAL STAMP

WITNESSES

1 _____

2 _____

DATE:

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

T2.3.10. FUNCTIONALITY SCORE CARD (ELIGIBILITY CRITERIA)

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

1. PROJECT INFORMATION

PLEASE COMPLETE THE FOLLOWING PROJECT INFORMATION THAT IS REQUIRED FOR THE FUNCTIONALITY EVALUATION SCORECARD

The Tenderer has to list projects of similar construction activities that were **successfully completed** by their construction company and/or the proposed subcontractors (if applicable) within the past **ten years**. The value of the project as well as the value of the specific construction activity under consideration have to be indicated. Please note that additional **projects of similar construction** work can be attached for consideration during the evaluation process.

NOTE: The project must be listed with specific reference to the quality of work within the particular category and the value of construction work in the specific category.

PLEASE NOTE THAT THE TENDERER HAS TO ATTACH THE PRACTICAL COMPLETION CERTIFICATES AND PROJECT REPORTS BY REFERENCES FOR THE PROJECTS THAT ARE LISTED FOR THE EVALUATION OF FUNCTIONALITY

TENDERER:		CLIENT	
Initial: Authorized Signatory/ies:	1 _____	Initial:	Gamagara Local Municipality _____
	2 _____	Witness:	_____

EXPERIENCE (SIMILAR SCOPE OF WORK)		POINTS CLAIMED		SCORE
				(MAX 40)
Experience of the Tenderer in Upgrading of Sports Facilities:				
No.	Description of Projects Listed with Completion Certificates signed by the Client	Projects qualifying per category	Points / Category	Total Points Claimed
a	If the Tenderer submitted no information or inadequate information		0	
b	Tenderer has successfully completed 1 sportfield project of similar nature with project value equal or greater than R 2 000 000.00 supported by an acceptable reference report.		15	
c	Tenderer has successfully completed at least 2 sportfield projects of similar nature with project value greater than R 2 000 000.00 of which at least one with project value greater than R 3 500 000.00 supported by acceptable reference reports.		25	
d	Tenderer has Successfully completed 3 sportfield projects of similar nature with project value greater than R 2 000 000.00 of which at least one with project value greater than R 6 000 000 supported by acceptable reference reports.		40	
SUB-TOTAL (out of 40)				

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

a. Project 1:

Project name: _____

Project value: _____ Completion date: _____

Value of project: _____

Employer: _____

Contractual completion date: _____ (including extension of time)

Actual completion date: _____ (certificate of practical completion)

Reasons for late completion (if applicable): _____

Contact person*: _____

Contact details:

Tel: _____

Email: _____

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

b. Project 2:

Project name: _____

Project value: _____ Completion date: _____

Value of project: _____

Employer: _____

Contractual completion date: _____ (including extension of time)

Actual completion date: _____ (certificate of practical completion)

Reasons for late completion (if applicable): _____

Contact person*: _____

Contact details:

Tel: _____

Email: _____

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

c. **Project 3:**

Project name: _____

Project value: _____ Completion date: _____

Value of project: _____

Employer: _____

Contractual completion date: _____ (including extension of time)

Actual completion date: _____ (certificate of practical completion)

Reasons for late completion (if applicable): _____

Contact person*: _____

Contact details:

Tel: _____

Email: _____

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

2. KEY PERSONNEL PROPOSED FOR THE PROJECT

The Tenderer must clearly indicate the key personnel of the project team for this specific project in an organogram. The CV's of all key-personnel has to be attached as *Annexure I: Company Profile, Organogram and CVs*. A zero score will be given if a CV of any member of the project team is not received.

Please note that the personnel listed have to be actively involved in the execution of the project. The scoring of the Tenderer's key personnel that will be involved in the construction phase and management of the project will be as follows:

Score: (select only one category):

Each CV should be structured under the following headings:

1. Personal particulars (name, date and place of birth, place (s) of tertiary education and dates associated therewith)
2. Qualifications (degrees, diplomas, grades of membership of professional societies and professional registrations)
3. Outline of recent and current assignments / experience that have a bearing on the required service and extend of involvement to this project.
4. Contactable references, full name, surname, and title.

NB: Please note, upon successful appointment the Contractor shall ensure that the Project Manager, Construction Manager and Construction Health & Safety Officer employed on the project is the same or similar in terms of points scored than the individual which CV was submitted at tender stage.

Project Manager	Construction Manager	Construction Health & Safety Officer (CHSO)	Score
Accredited Tertiary qualification with at least 2 years project specific experience or completed at least one (1) similar project, in this capacity. Weighting 3 points	Accredited Tertiary qualifications with at least 2 years of project specific experience or completed at least one (1) similar project, in this capacity Weighting 3 points	Accredited Qualification or extensive experience (7 years or more) in the field of Construction Health & Safety Section 19(4) and must be registered as CHSO SACPCMP Weighting 6 points	12
Accredited Tertiary qualification with 3 to 7 years project specific experience or completed at least two (2) similar projects, in this capacity. Weighting 7 points	Accredited Tertiary qualifications with 3 to 7 years project specific experience or completed at least two (2) similar projects, in this capacity Weighting 7 points	Accredited Qualification or extensive experience (7 years or more) in the field of Construction Health & Safety Section 19(4) and must be registered as CHSO SACPCMP Weighting 6 points	20
Accredited Tertiary qualification with more than 7 years project specific experience or completed at	Accredited Tertiary qualifications with 3 to 7 years project specific experience or completed at least three (3)	Accredited Qualification or extensive experience (7 years or more) in the field of	30

TENDERER:

CLIENT

Initial: Authorized Signatory/ies:

1

Initial:

Gamagara Local Municipality

2

Witness:

least three (3) similar projects, in this capacity.	similar projects, in this capacity	Construction Health & Safety Section 19(4) and must be registered as CHSO SACPCMP	
Weighting 12 points	Weighting 12 points	Weighting 6 points	
Minimum Requirements: <u>Project / Contract Manager:</u> - Tertiary education (NQF 6 or higher) in Civil Engineering, Construction management, Quantity surveying or accredited Build Environment Project Management - At least 2 years of project related project management experience and/or - Completed at least one (1) similar project, in this capacity as the Project / Contract Manager <u>Construction Manager / Site Agent</u> - Tertiary education (NQF 6 or higher) in Civil Engineering, Construction management, Quantity surveying or other Build Environment Construction Management accredited qualification - At least 2 years of project related Construction Management experience and/or - Completed at least one (1) similar project, in this capacity as the Construction Manager/Site Agent <u>Construction Health & Safety Officer (CHSO)</u> - Occupational/Construction Health and Safety qualification or - Construction Management qualification with additional construction Health and Safety training or - Qualification with small components of OHS with additional Health & Safety training or - Extensive work experience (7 years or more) in the field of Construction Health & Safety in terms of Section 19(4) of the Project and Construction Management Professions Act. - At least 2 years of Construction Health and Safety experience and/or - Completed at least one (1) similar project, in this capacity as the CHSO - Registered as a CHSO SACPCM			

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

3. CONSTRUCTION EQUIPMENT COMMITTED TOWARDS THE PROJECT

The major construction equipment the Tenderer has committed towards the project has to be listed T2.2.3 Schedule of Construction Plant and that note must be made of which plant is owned and which will be hired. A confirmation letter from the plant hire company that the plant will be available for the project has to be attached as *Annexure N: Letter confirming Hire of Construction Plant* The construction equipment must be available for the duration of the project and may only be removed from site if permission is granted by the project engineer.

The scoring for the major construction equipment that the Tenderer has available for the project will be as follows:

Score: (select only one category):

0 - the specific plant is not owned by the Tenderer and is not listed in the confirmation letter of the plant hire company.

1/2 - the specific plant will be hired for the project and is listed in the confirmation letter of the plant hire company.

Full points - the specific plant is owned by the Tenderer and is available for the project

CONSTRUCTION EQUIPMENT AVAILABLE	POINTS CLAIMED	SCORE (MAX 20)
The Tenderer will at least have the following construction equipment committed for the duration of the relevant construction activity or instruction of the employer/engineer.		
a. Grader	0 ☐ Hired 4 ☐ Owned 8 ☐	
b. TLB	0 ☐ Hired 3 ☐ Owned 6 ☐	
c. Tipper Truck or Roller	0 ☐ Hired 3 ☐ Owned 6 ☐	
SUB-TOTAL ()		_____

TENDERER:

Initial: Authorized Signatory/ies:

1

2

CLIENT

Initial:

Gamagara Local Municipality

Witness:

4. BANK RATING

BANK RATING	POINTS CLAIMED	SCORE (MAX 10)
Bank rating for business account: Score: (select only one category) The Tenderer shall attach a Bank Classification (rating) from the bank as per criteria below. The bank rating should be for this tender specific, on an original bank letter with bank stamp based on the tender amount or any amount within the 4CE CIDB classification (up to R6 Million).		
a. "E" or lower bank rating	0 ☐	
b. "D" bank rating	4 ☐	
c. "C" bank rating	6 ☐	
d. "B" bank rating	8 ☐	
e. "A" bank rating	10 ☐	
SUB-TOTAL ()		_____

5. SUMMARY OF POINTS CLAIMED

SUMMARY OF POINT CLAIMED			
Number	Description	Max Points available to claim	Points Claimed by Tenderer
1	Experience of Bidder	40	
2	Key Personnel Qualification and Experience	30	
3	Availability of Resources/Plant	20	
4	Bank Rating	10	
	Total points	100	
	Qualifying points	70	

TENDERER:Initial: Authorized Signatory/ies: 1 _____
2 _____**CLIENT**Initial: Gamagara Local Municipality _____
Witness: _____

T2.4. OTHER SCHEDULES AND AFFIDAVITS THAT WILL BE INCORPORATED INTO THE CONTRACT

T2.4.1. FORM CONCERNING FULFILMENT OF THE CONSTRUCTION REGULATIONS, 2014

1. In terms of Regulation 5(1) of the Construction Regulations, 2003 (hereafter referred to as the Regulation), promulgated on 7 February 2014 in terms of Section 43 of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) the Employer shall not appoint a contractor to perform construction work unless the Contractor can satisfy the Employer that his/her firm has the necessary competencies and resources to carry out the work safely and has allowed adequately in his/her Tender for the due fulfilment of all the applicable requirements of The Act and the Regulations.
2. I confirm that I am fully conversant with the Regulations and that my company has (of will acquire/procure) the necessary competencies and resources to timeously, safely and successfully comply with all of the requirements of the Regulations.

YES		NO	

(Please Tick✓):

3. Proposed approach to achieve compliance with the Regulations (Please Tick✓):

Own resources, competent in terms of the Regulations

(refer to 3 below)

Own resources, still to be hired and/or trained (until competency is achieved)

Specialist subcontract resources (competent) – specify:

4. Provide details of proposed key persons, competent in terms of the Regulations, who will form part of the Contract team as specified in the Regulations (**CVs to be attached**):

TENDERER:

Initial: Authorized Signatory/ies:

1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality

Witness:

5. Provide details of proposed training (if any) that will be undergone:

6. Potential key risks identified and measures for addressing risks:

7. I have fully included in my Tendered rates and prices (in the appropriate payment items provided in the Bill of Quantities) for all resources, actions, training and any other costs required for the due fulfilment of the Regulations for the duration of the construction and defects repair period.

YES		NO	

(Please Tick✓):

SIGNATURE OF PERSON(S) AUTHORISED TO SIGN THIS BID:

1.

ID NO:

2.

ID NO:

TENDERER:

Initial: Authorized Signatory/ies:

1

2

CLIENT

Initial: Gamagara Local Municipality

Witness:

T2.4.2. RECORD OF ADDENDA TO TENDER DOCUMENTS

We confirm that the following Communications received from the Employer’s Agent before the submission of this Tender offer, amending the Tender documents, have been taken into account in this Tender offer:

	DATE	TITLE OR DETAILS
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Attach additional pages if more space is required.

SIGNED ON BEHALF OF TENDERER:

SIGNED

DATE

NAME

POSITION

TENDERER:

Initial: Authorized Signatory/ies: 1
2

CLIENT

Initial: Gamagara Local Municipality
Witness:

T2.4.3. MBD 6.1: PREFERENTIAL PROCUREMENT DOCUMENT IN TERMS OF PREFERENTIAL PROCUREMENT REGULATIONS, 2022 (PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT, ACT NO 5 OF 2000)

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

MBD 6.1

**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 **To be completed by the organ of state**

(delete whichever is not applicable for this tender).

- a) The applicable preference point system for this tender is the **90/10** preference point system.
- b) The applicable preference point system for this tender is the **80/20** preference point system.
- c) 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 (even in the case of a tender for income-generating contracts) shall be awarded for:

- (a) Price; and
- (b) Specific Goals.

1.4 **To be completed by the organ of state:**

The maximum points for this tender are allocated as follows:

	POINTS
PRICE	80
SPECIFIC GOALS	20 (10 – B-BBEE Status level 10 – Locality)
TOTAL POINTS FOR PRICE AND SPECIFIC GOALS MUST NOT EXCEED	100

1.5 Failure on the part of a bidder to submit proof of B-BBEE Status level of contributor together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

a. B-BBEE Level Contributor

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

Failure on the part of a tenderer to submit a B-BBEE Verification Certificate from a Verification Agency accredited by the South African National Accreditation System (SANAS), or a sworn affidavit confirming annual turnover and level of black ownership in case of an EME and QSE together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

b. Locality

Failure on the part of tenderer to submit the following:

- where the tenderer is the owner of the property / business:
 - municipal account registered in the name of the tenderer not older than 3 months;
- where the tenderer is not the owner of the property / business:
 - a valid lease agreement; or
 - affidavit from the property owner that the address used to claim points in the MBD 6.1 is being rented out to the tenderer at no cost not older than 3 months.
- where the tenderer submitted incorrect or outdated information (account, lease agreement or affidavit) or none of the above, it will be interpreted to mean that preference points for Locality are not claimed.

- 1.6 The purchaser reserves the right to require of a bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the purchaser.

2. DEFINITIONS

- (a) **"all applicable taxes"** includes value-added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies;
- (b) **"B-BBEE"** means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;
- (c) **"B-BBEE status level of contributor"** means the B-BBEE status of an entity in terms of a code of good practice on black economic empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;
- (d) **"bid"** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of goods or services, through price quotations, advertised competitive bidding processes or proposals;
- (e) **"prices"** includes all applicable taxes less all unconditional discounts;
- (f) **"rand value"** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;
- (g) **"tender for income-generating contracts"** means a written offer in the form determined by an municipality 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 municipality and a third party that produces revenue for the municipality, 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
- (h) **"the Act"** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

TENDERER:

Initial: Authorized Signatory/ies:

1

2

CLIENT

Initial: Gamagara Local Municipality

Witness:

3. POINTS AWARDED FOR PRICE

A maximum of 80 or 90 points is allocated for price on the following basis:

$$Ps = 80 \left(1 + \frac{Pt - P_{max}}{P_{max}} \right) \quad \text{or} \quad Ps = 90 \left(1 + \frac{Pt - P_{max}}{P_{max}} \right)$$

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmin = Price of lowest acceptable tender

4. POINTS AWARDED FOR SPECIFIC GOALS

- 4.1 In terms of Regulation 6 (2) and 7 (2) of the Preferential Procurement Regulations, preference points must be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

B-BBEE Status Level of Contributor	Number of points (90/10 system)	Number of points (80/20 system)
1	5.0	10
2	4.0	8
3	3.5	7
4	3.0	6
5	2.0	4
6	1.5	3
7	1.0	2
8	0.5	1
Non-compliant contributor	0	0

- 4.2 In cases where municipality intend to use the Preferential Procurement policy of Council section 8.7, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, a municipality 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 municipality must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

Local Office within area of jurisdiction	Number of points(90/10 system)	Number of points (80/20 system)
Within the boundaries of Gamagara Local Municipality	5	10
Outside the boundaries of Gamagara Local Municipality, but within the boundaries of Northern Cape Province	2.5	5
Outside the Northern Cape Province	0	0

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)
LOCALITY		10		
B-BBEE STATUS LEVEL OF CONTRIBUTOR		10		

5. BID DECLARATION

5.1 Bidders who claim points in respect of B-BBEE Status Level of Contribution must complete the following:

6. B-BBEE STATUS LEVEL OF CONTRIBUTOR CLAIMED IN TERMS OF PARAGRAPHS 1.4 AND 4.1

6.1 B-BBEE Status Level of Contributor: . = ...(maximum of 5 or 10 points)
(Points claimed in respect of paragraph 7.1 must be in accordance with the table reflected in paragraph 4.1 and must be substantiated by relevant proof of B-BBEE status level of contributor.

7. SUB-CONTRACTING

7.1 Will any portion of the contract be sub-contracted?

YES		NO	

(Tick the applicable box)

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

7.2 If yes, indicate:

i) What percentage of the contract will be subcontracted..... %

ii) The name of the sub-contractor.....

iii) The B-BBEE status level of the sub-contractor.....

iv) Whether the sub-contractor is an EME or QSE

YES		NO	

(Tick the applicable box)

v) Specify, by ticking the appropriate box, if subcontracting with an enterprise in terms of Preferential Procurement Regulations, 2022:

Designated Group: An EME or QSE which is at least 51% owned by:	EME ✓	QSE ✓
Black people		
Black people who are youth		
Black people who are women		
Black people with disabilities		
Black people living in rural or underdeveloped areas or townships		
Cooperative owned by black people		
Black people who are military veterans		
OR		
Any EME		
Any QSE		

8. DECLARATION WITH REGARD TO COMPANY/FIRM

3.1. Name of company/firm

.....

.....

3.2. Company registration number:

3.3. TYPE OF COMPANY/ FIRM

- ☐ Partnership/Joint Venture / Consortium
- ☐ One-person business/sole propriety
- ☐ Close corporation
- ☐ Public Company
- ☐ Personal Liability Company
- ☐ (Pty) Limited

TENDERER:

Initial: Authorized Signatory/ies: 1

2

CLIENT

Initial: Gamagara Local Municipality

Witness:

- ☐ Non-Profit Company
☐ State Owned Company

[TICK APPLICABLE BOX]

3.4. 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.

NB: THE TENDERER SHALL ATTACH B-BBEE CERTIFICATE Failure to affix such documentation as prescribed to this page shall result in this bid not being further considered for the award of the Contract.

In case of a joint venture, or consortium a consolidated B-BBEE certificate will be required.

.....	
SIGNATURE(S) OF TENDERER(S)	
SURNAME AND NAME:	
DATE:	
ADDRESS:	
	
	

TENDERER:

Initial: Authorized Signatory/ies:

1

2

CLIENT

Initial:

Gamagara Local Municipality

Witness:

T2.4.4. COMPLIANCE WITH OHSA (ACT 85 OF 1993)

Tenderers are required to satisfy the Employer and the Engineer as to their ability and available resources to comply with the above by answering the following questions and providing the relevant information required below.

1. Is the Tenderer familiar with the OHSA (ACT 85 of 1993) and its Regulations? **YES / NO**
2. Who will prepare the Tenderer's Health and Safety Plan? _____
(Provide a copy of the person/s curriculum vitae/s or company profile attached under *Annexure I: Company Profile, Organogram and CVs*)
3. Does the Tenderer have a health and safety policy? (if yes, provide a copy). **YES / NO**
How is this policy communicated to all employees?
4. Does the Tenderer keep records of safety aspects of each construction site? **YES / NO**
If yes, what records are kept?
5. Does the Tenderer conduct monthly safety meetings? If yes, who is the chairperson of the meeting, and who attend these meetings? **YES / NO**
6. Does the Tenderer have a safety officer in his employment, responsible for the overall safety of his company? **YES / NO**
If yes, please explain his duties and provide a copy of his CV attached under *Annexure I: Company Profile, Organogram and CVs*.
7. Does the Contractor have trained first aid employees? If yes, indicate, who. **YES / NO**
8. Does the Tenderer have a safety induction-training programme in place? (If yes, provide a copy under *Annexure I: Company Profile, Organogram and CVs*). **YES / NO**

Authorized Signatory: _____

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

PART C: THE CONTRACT

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

SECTION 3

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

C1. AGREEMENT AND CONTRACT DATA

C1.1. FORM OF OFFER AND ACCEPTANCE

SHORT DESCRIPTION OF WORKS: **UPGRADING OF SPORTS FIELD IN DIBENG**

The Employer, identified in the acceptance signature block, has solicited offers to enter into a contract for the procurement of:

The Tenderer, identified in the offer signature block, has examined the documents listed in the Tender Data and addenda thereto as listed in the Tender 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 OFFERED TOTAL OF THE PRICES INCLUSIVE OF VALUE ADDED TAX IS

_____ Rand (In words)

R _____ in figures (or other suitable wording).

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 date, whereupon the Tenderer becomes the party named as the Contractor in the conditions of contract identified in the Contract Data.

Signature(s)

Name(s) _____

Capacity _____

for the Tenderer _____

(Name and address of organization)

(Name and signature of witness)

Date _____

TENDERER:	CLIENT
Initial: Authorized Signatory/ies: 1 _____	Initial: Gamagara Local Municipality _____
2 _____	Witness: _____

C1.1.1. 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:

- C1 AGREEMENT AND CONTRACT DATA
- C2 HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993)
- C4 CONDITIONS OF CONTRACT
- C5 SPECIFICATIONS

and drawings and documents or part thereof, which may be incorporated by reference into the above.

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, which must be signed by the authorised representative(s) of both parties.

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 bonds, guarantees, proof of insurance any other documentation to be provided in terms of the conditions of contract identified in the Contract Data at, or just after the date this agreement comes into effect. 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 Tender received one fully completed original copy of this document, including the schedule of deviations (if any). Unless the Tenderer (now Contractor) within 5 (five) days of the date of such receipt notifies the Employer in writing of any reason why he cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the parties.

Signature(s) _____

Name(s) _____

Capacity _____

for the Employer

(Name and address of organization)

(Name and signature of witness)

Date _____

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

C1.1.2. SCHEDULE OF DEVIATIONS

Notes:

- 1. The extent of deviations from the Tender documents issued by the Employer before the Tender closing date is limited to those permitted in terms of the conditions of Tender.
- 2. A Tenderer’s covering letter shall not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid, become the subject of agreements reached during the process of offer and acceptance, the outcome of such agreement shall be recorded here.
- 3. Any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the Tender documents and which it is agreed by the Parties becomes an obligation of the contract shall also be recorded here.
- 4. Any change or addition to the Tender documents arising from the above agreements and recorded here shall also be incorporated into the final draft of the contract.

Subject

Details

Subject

Details

Subject

Details

Subject

Details

TENDERER:

Initial: Authorized Signatory/ies:

1

2

CLIENT

Initial: Gamagara Local Municipality

Witness:

By the duly authorised representatives signing this schedule of deviations, 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 change 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 the agreement shall have any meaning or effect in the contract between the parties arising from this agreement.

For the Tenderer:

Signature(s) _____
Name(s) _____
Capacity _____

(Name and address of organization)

Name and signature of witness

Date _____

For the Employer:

Signature(s) _____
Name(s) _____
Capacity _____

(Name and address of organization)

Name and signature of witness

Date _____

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

C1.2. CONTRACT DATA

	CLAUSE	(GCC 2015, 3rd Edition)
Special Conditions*		See PART C: THE CONTRACT, C4, C4.1
Name of the Contractor	1.1.1.9	
Name of Employer	1.1.1.15	Gamagara Local Municipality
Name of Employers Agent	1.1.1.16	MVD Kalahari Consulting Engineering & Town Planning
The Pricing Strategy is	1.1.1.26	Re-measurement Contract
Address of the Client	1.2.1.2	Cnr Frikkie Meyer and Hendrik van Eck Roads, Civic Centre KATHU 8446 Tel. No. (053) 723 - 6000
Address of the Engineer	1.2.1.2	P.O. Box 580 Kimberley 8300 Tel. No. (053) 831-1889
Address of the Contractor	1.2.1.2	
		Contact
		Tel. No.
Subcontracting		
Commencement of the Contract	5.2.1	14 (Fourteen) days from the appointment date
The documentation required before commencement of Works execution is:	5.3.1	Health and Safety Plan (Refer to Clause 4.3)
	5.6.1	Initial Programme of Works (Refer to Clause 5.6) <i>Within 14 Days of Commencement Date</i>
		Insurance (Refer to Clause 8.6) <i>Within 14 Days of Commencement Date</i>
		Letter from Contractor whether he accepts the appointment.
		Signing of the Contract Documents

TENDERER:

Initial: Authorized Signatory/ies: 1
2

CLIENT

Initial: Gamagara Local Municipality
Witness:

	CLAUSE	(GCC 2015, 3rd Edition)
The time to submit the documentation required before commencement of Works execution is:	5.3.2	7 days for Acceptance Letter 14 days for security and insurance documents 21 days for Signing of the Tender document
Time for completion**		
Special non-working days	5.8.1	Sundays and all public holiday as well as year-end breaks
The Penalty for failing to complete the Works is	5.13.1	The amount due to the Client by the Contractor for damages incurred because of delays as defined in Clause 5.13 of the GCC 2015, amounts to the contract value x (5.75 c per R 100.00 per calendar day).
The latent defects period is:	5.16.3	10 years for Civil Works 5 years for Building Works 3 years for Electrical and Mechanical Works
Amount of Security	6.2.1	10 (Ten) % of the Contract Value
Time within which Security to be Provided	6.2.2	14 (Fourteen) days from the contract appointment date
Duration of Security*	6.2.3	Until issue of Practical Completion Certificate/Final Certificate
Minimum amount of monthly certificates	6.10.1	10 (Ten) % of contract value
The Percentage advanced on materials not yet build into the Permanent Works is	6.10.1.5	80 (Eighty) %
Percentage advanced on material brought onto site (MOS)	6.10.2	80 (Eighty) %
Limit of retention money	6.10.3	10 (Ten) % of contract value
Defects Liability Period	6.10.5	12 (Twelve) Months
Rendering of Contractor's final Payment Certificate	6.10.9	Within 14 (fourteen) days after the date of final approval
Minimum amount of Third Party Insurance	8.6	Contract value
Special Risk Insurance (Political riot insurance) *	8.6.1	Required/ ~~Not required~~
If required, to be arranged by*	8.6.1	Contractor/ ~~Client~~
Amount of Special Risk Insurance	8.6.1	Contract Value
Minimum amount of Liability Insurance	8.6.1	R 1,000,000.00 (One Million Rand)

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

CLAUSE (GCC 2015, 3rd Edition)		
The amount to cover professional fees for repairing damages and loss to be included in the insurance sum	8.6.1.1.3	1 (One) % of the Contract Value
The limit of indemnity Liability for Insurance	8.6.1.3	R 5,000,000.00 per claim, claims unlimited during construction and defects liability period
The number of Adjudication Board Members to be appointed is	10.5.3	3 (three)
Settlement of disputes to be referred to*	10.7.1	Arbitration Law 1965 (Law No 42/1965) as amended
Period of validity of Tender		90 (Ninety) days after tender closing date.

* Delete whichever is inapplicable
** Information to be provided by the Tenderer

Signature _____

on behalf of _____

Address _____

Date: _____

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

C1.3. FORM OF GUARANTEE

EMPLOYER : **GAMAGARA LOCAL MUNICIPALITY**

CONTRACTOR : _____

DESCRIPTION OF CONTRACT: **UPGRADING OF SPORTS FIELD IN DIBENG**

I/We, the undersigned, _____ (Bank or Insurance Co.) do hereby bind ourselves as surety and co-principal debtors in solidum for the due performance of the Contract by the above named Contractor and for all losses, damages and expenses that may be suffered or incurred by the Employer as a result of non-performance of the Contract by the Contractor, renouncing all benefits from the legal exceptions ordinis seu excussionis et divisionis de duobus vel pluribus reis debendi "No value received" and all other exceptions which might or could be pleaded against the validity of this guarantee, with the meaning and effect of which exceptions we declare ourselves to be fully acquainted; provided that the liability of the undersigned under this guarantee is limited to (specify amount of bond) (R_____) and will lapse thirty days after issuing of the Completion Certificate in terms of the Contract, unless the Surety is advised in writing by the Employer before issue of the said Certificate of his intention to institute claims and the particulars thereof, in which event this guarantee shall remain in force until all such claims are paid or settled.

FOR AND ON BEHALF OF

(Surety)

AT _____ ON THIS _____ DAY OF _____ 20_____.

CAPACITY _____

Full Address _____

AS WITNESSES: 1. _____

2. _____

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

C1.4. AGREEMENT

THIS AGREEMENT made between **Gamagara Local Municipality, Cnr Frikkie Meyer and Hendrik van Eck Roads, Civic Centre, KATHU, 8446** (hereinafter called "the Employer") of the one part and

of

(hereinafter called "The Contractor") of the other part.

WHEREAS the Employer is desirous that certain Works should be constructed,

viz **UPGRADING OF SPORTS FIELD IN DIBENG**

and has accepted a Tender for the supply, installation, testing, commissioning and maintenance of such Works for the duration of the Contract.

NOW THIS AGREEMENT WITNESSES as follows:

1. In the Agreement words and expressions shall have the same meanings as are respectively assigned to them in the General Conditions of Contract hereinafter referred to.
2. The following documents shall be deemed to form and be read and constructed as part of this Agreement, viz:
 - 2.1. The said Tender
 - 2.2. The General and Special Conditions of Contract
 - 2.3. The Specification and Health & Safety Specification
 - 2.4. The priced Bill of Quantities
 - 2.5. The Schedule of Rates and Prices
 - 2.6. The Drawings and Scope of Works
 - 2.7. The Letter of Acceptance
 - 2.8. Other (Stipulate)
3. In consideration of the payments to be made by the **Employer** to the **Contractor** as hereinafter mentioned the Contractor covenants with the Employer to supply, install, test and commission and maintain the Works in conformity in all respects with the provisions of the Contract.
4. The **Employer** hereby covenants to pay the **Contractor** in consideration of the supply, installation, testing, commissioning and maintenance of the Works the Contract Price at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have set their hands and seals (if any) in the presence of the subscribing witnesses:

TENDERER:	CLIENT
Initial: Authorized Signatory/ies: 1 _____	Initial: Gamagara Local Municipality _____
2 _____	Witness: _____

AT _____ for and on behalf of the EMPLOYER

on this _____ day of _____ 20____.

WITNESSES

SIGNATURE OF EMPLOYER

1. _____

CAPACITY

2. _____

AT _____ for and on behalf of the CONTRACTOR

on this _____ day of _____ 20____.

WITNESSES

SIGNATURE OF CONTRACTOR

1. _____

CAPACITY

2. _____

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

C1.5. AGREEMENT IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993)

THIS AGREEMENT made at _____

on this the _____ day of _____ in the year _____ between
Gamagara Local Municipality, Cnr Frikkie Meyer and Hendrik van Eck Roads, Civic Centre, KATHU, 8446 (hereinafter called "the Employer")

the one part, herein represented by

in his capacity as _____

and

(hereinafter called "the Mandatory") of the other part, herein represented by

in his capacity as _____

WHEREAS the Employer is desirous that certain works be constructed, viz **UPGRADING OF SPORTS FIELD IN DIBENG**

And has accepted a Tender by the Mandatory for the **construction, completion, and maintenance** of such Works and whereas the Employer and the Mandatory have agreed to certain arrangements and procedures to be followed in order to ensure compliance by the Mandatory with the provisions of the *Occupational Health and Safety Act, 1993 (Act 85 of 1993)*.

NOW THEREFORE THIS AGREEMENT WITNESSES AS FOLLOWS:

1. The Mandatory shall execute the work in accordance with the Contract Documentation pertaining to this Contract.
2. This agreement shall hold good from its Commencement Date, which shall be the date of written notice from the Employer or Engineer requiring him to commence the execution of the Works, to either:
 - a. the date of the Final Approval Certificate issued in terms of *Clause 5.16.1* of the *General Conditions of Contract 2015* (hereafter referred to as "the GCC 2015"),
 - b. the date of termination of the Contract in terms of *Clause 9.1, 9.2 or 9.3* of the GCC 2015.
3. The Mandatory declares himself to be conversant with the following:
 - a. All the requirements and standards of the *Occupational Health and Safety Act (Act 85 of 1993)*, hereinafter referred to as "*The Act*", together with its amendments and with special reference to the following Sections of *The Act*:
 - i. *Section 8* : General duties of employers to their employees
 - ii. *Section 9* : General duties of employers and self-employed persons other than employees
 - iii. *Section 37*: Acts or omissions by employees or mandatories,
 - iv. *Sub-Section 37(2)* relating to the purpose and meaning of this Agreement

TENDERER:

Initial: Authorized Signatory/ies:

1

2

CLIENT

Initial: Gamagara Local Municipality

Witness:

- b. The procedures and safety rules of the Employer as pertaining to the Mandatory and to all his Contractor.
4. In addition to the requirements of *Clause 8.4* of the *GCC 2015* and all relevant requirements of the abovementioned *Volume 3*, the Mandatory agrees to execute all the Works forming part of this Contract and to operate and utilise all machinery, plant and equipment in accordance with *The Act*.
5. The Mandatory is responsible for the compliance with *The Act* by all his Contractor, whether or not selected and/or approved by the Employer.
6. ***The Mandatory warrants that all his and his Contractor' workmen are covered in terms of the Compensation for Occupational Injuries and Disease Act, 1993 which cover shall remain in force whilst any such workmen are present on site. A letter of good standing from the Compensation Commissioner to this effect must be produced to the Employer upon signature of agreement.***
7. The Mandatory undertakes to ensure that he and/or Contractor and/or their respective employers will at all times comply with the following conditions:

The Mandatory shall assume the responsibility in terms of *Section 16.1* of the *Occupational and Safety Act*. The Mandatory shall not delegate any duty in terms of *Section 16.2* of this *Act* without the prior written approval of the Employer. If the Mandatory obtains such approval and delegates any duty in terms of *Section 16.2* a copy of such written delegation shall immediately be forwarded to the Engineer.

All incidents referred to in the *Occupational Health and Safety Act* shall be reported by the Mandatory to the Department of Labour as well as to the Employer. The Employer will further be provided with copies of all written documentation relating to any incident.

The Employer hereby obtains an interest in the issue of any formal inquiry conducted in terms of *Section 32* of the *Occupational Health and Safety Act* into any involving the Mandatory and/or his employees and/or his Contractor.

8. ***The contact details of the Occupational Health and Safety Agent for Gamagara Local Municipality are to be issued at a later stage.*** In witness thereof, the parties hereto have set their signatures hereon in the presence of the subscribing witnesses:

WITNESSES

MANDATORY

1. _____

DATE

2. _____

WITNESSES

EMPLOYER

1. _____

DATE

2. _____

TENDERER:

Initial: Authorized Signatory/ies:

1

2

CLIENT

Initial: Gamagara Local Municipality

Witness:

C1.6. PRACTICAL COMPLETION CERTIFICATE

TO: _____
(Name of Contractor)

SHORT DESCRIPTION OF CONTRACT WORK: **UPGRADING OF SPORTS FIELD IN DIBENG**

In accordance with *Clause 5.14.1* of the *General Conditions of Contract for Construction Work (GCC 2015)*, we hereby certify that the Contract Works described above, has been inspected by us and that it has been completed in accordance with the contract for all practical purposes and that, where applicable, has passed all final tests, excluding the outstanding items as listed below and any defects that have not been found.

This certificate is being issued subject to the conditions that the Contractor undertakes to do acceptable remedial work in connection with the outstanding Items before _____.

The Defect Liability Period, in accordance with *Clause 5.14.5.2*, shall commence on

_____ and if the repair work has not been done before the set date, it will be lengthened accordingly.

Outstanding Items

The Contractor undertook to do and complete the following work before the date as given above for the completion of the remedial work as said:

DATE: _____ SIGNATURE OF CLIENT

DATE: _____ SIGNATURE OF ENGINEER

DATE: _____ SIGNATURE OF CONTRACTOR

TENDERER:	CLIENT
Initial: Authorized Signatory/ies: 1 _____	Initial: Gamagara Local Municipality _____
2 _____	Witness: _____

C1.7. FINAL APPROVAL CERTIFICATE

TO: _____
(Name of Contractor)

SHORT DESCRIPTION OF CONTRACT WORK: **UPGRADING OF SPORTS FIELD IN DIBENG**
In accordance with *Clause 5.16.1* of the *General Conditions of Contract for Construction Work (GCC 2015)*, we hereby certify that all the Contract Works have been completed according to stipulations of the Contract and to our satisfaction and, where specified, been maintained and the Contractor certifies that he has no further claims against the Employer.

DATE: _____
SIGNATURE OF CLIENT

DATE: _____
SIGNATURE OF ENGINEER

DATE: _____
SIGNATURE OF CONTRACTOR

TENDERER:		CLIENT	
Initial: Authorized Signatory/ies:	1 _____	Initial:	Gamagara Local Municipality _____
	2 _____	Witness:	_____

C2. HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993)

HEALTH AND SAFETY SPECIFICATION

This Specification shall be used in conjunction with all other applicable safety specifications, legislation and *Regulations* in force at the time of the contract. Where unique site specifications are in force, those site specifications shall take precedence over this Specification.

NOTE: The Contractor will not be allowed to start with any construction or related work before submission and approval of a Health and Safety Plan.

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

C2.1. CONTENTS

C2.1.1. SCOPE OF SPECIFICATION

This specification covers the principles, duties, responsibilities, liabilities, and requirements applicable in respect of health and safety in the workplace on construction work.

This document constitutes the Health and Safety Specification as defined in the Construction Regulations, 2014 of the Occupational Health and Safety Act (Act 85 of 1993).

C2.1.2. PURPOSE OF SPECIFICATION

The purpose of this Health and Safety Specification is to:

- provide the framework within which the Principal Contractor is required to demonstrate compliance with certain requirements of occupational health and safety established by the Occupational Health and Safety Act of 1993 and its Regulations during construction;

Note - This specification establishes requirements to enable the client and the Principal Contractor to satisfy aspects of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and the Construction Regulations, 2014. The Principal Contractor is required to develop, implement and maintain specific health and safety plan and health and safety file. Accordingly, this specification on its own cannot ensure compliance with the requirements of the aforementioned Act.

It must also be noted that the Client / Agent on its behalf may stop any contractor from executing construction work, which is not in accordance with the client's health and safety specifications or rules for the project or which poses a threat to the health and safety of any person.

C2.1.3. DESCRIPTION OF WORK / PROJECT

Dibeng Sports field works to be undertaken is as follows:

- Design, manufacture, supply, deliver, and install a grassed rugby and soccer Field in accordance with the relevant rules of the sport, with effective dimensions of 106mx70m to accommodate a playing surface of 100mx64m and an 8-lane athletics track.
- Repairing the existing bulk electrical connection, installing all electrical connections to the Outbuildings and Grandstand, and reconnecting four illumination 30m lights to the electrical network.
- Upgrades to the existing Change Rooms, Ablutions grandstand, Kitchen and Kiosk Area.
- Refurbishment of the existing structural steel spectator Grandstand
- Replacement of damaged sections of concrete fencing and installation of a 6m Clear-Vu sliding gate together with pedestrian gates at the ticket office.
- Supply of potable domestic and irrigation water to the facility, including installing an equipped borehole.

C2.1.4. DESCRIPTION OF CONSTRUCTION SITE

The Principal Contractor must take cognisance that the construction will be conducted on an active community, traffic and access roads sites, so detailed planning and risk assessments must be conducted to accommodate and protect the public at all times.

TENDERER:

CLIENT

Initial: Authorized Signatory/ies:

1 _____
2 _____

Initial: Gamagara Local Municipality

Witness:

The principal contractor must ensure that the construction site is suitably and sufficiently fenced off between the active site and the construction works/activities site.

C2.1.5. SUPPORTING SPECIFICATION

This document is to be read and understood in conjunction with the following, inter alia:

- a) Occupational Health and Safety Act, 1993, and its regulations which shall include, but shall not be limited to the following:
 - Construction Regulations, 2014,
 - General Safety Regulations,
 - General Administrative Regulations, 1996,
 - Driven Machinery Regulations, 1988,
 - Electrical Installation Regulations, 1992,
 - Electrical Machinery Regulations, 1988,
 - Environmental Regulations for Workplaces, 1987, and
 - Facilities Regulations, 1990.
- b) SANS codes and standards referred to by the Occupational Health and Safety Act
- c) Compensation for Occupational Injuries and Disease Act, 1997.

C2.1.6. APPLICATION

This specification contains clauses that are applicable to the occupational health and safety requirements of the Occupational Health and Safety Act, 1993 and its Regulations, in particular the Construction Regulations, 2014 promulgated on 07 February 2014 in terms of Section 43 of the Act.

C2.1.7. IMPLEMENTATION

This Health and Safety Specification forms an integral part of the Contract, and Principal Contractor shall make it an integral part of their Contracts with Sub Contractors and Suppliers. Principal Contractor employed by the Client to ensure that the provisions of the Health and Safety Specification are applied both on the site and in respect of all off site activities relating to the project, in particular the transport activities and project dedicated off site fabrication works.

The Principal Contractor shall enforce the provision of the Health and Safety Specification amongst all sub-contractors and supplies for the project.

C2.2. INTERPRETATION

- The Act and its associated regulations shall have precedence in the interpretation of any ambiguity or inconsistency between it and this specification.
- Compliance with the requirements of this specification does not necessarily result in compliance with the provisions of the Act.
-

C2.3. REQUIREMENTS IN TERMS OF OHS ACT AND REGULATIONS

C2.3.1. CONSTRUCTION WORK PERMIT

TENDERER:

Initial: Authorized Signatory/ies:

1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality

Witness: _____

Application of permit not required by the Client for this project due to the value of the work.

C2.3.2. NOTIFICATION OF INTENTION TO COMMENCE CONSTRUCTION WORK

The contractor shall notify the Provincial Director of the Department of Employment & Labour in writing using a form similar to that contained in Annexure 2 of the Construction Regulations issued in terms of the Act before construction work commences and retain proof of such notification in the health and safety file where the work includes:

C2.3.3. GOOD STANDING WITH THE COMPENSATION FUND OR LICENSED COMPENSATION INSURER

Good standing with the compensation fund or a licensed compensation insurer The contractor shall before commencing with any works on the site provide the employer's health and safety representative with proof of good standing with the compensation fund or with a licensed compensation insurer.

C2.3.4. HEALTH AND SAFETY PLAN

The contractor shall prepare and **submit site specific health and safety plan** for acceptance to the employer's health and safety agent and an emergency procedure which include but are not limited to spills, accidents to employees, exposure to hazardous substances.

C2.3.5. HEALTH AND SAFETY FILE

The contractor shall establish and maintain on site a health and safety file which contains all relevant copies. The health and safety file shall be made available for inspection by any inspector, the contract manager, the employer's health and safety agent or employee of the contractor upon the request of such persons. The health and safety file shall be updated to ensure that its contents always reflect the latest available information. The contractor shall hand over a copy of the health and safety file to the employer's health and safety agent upon completion of the contract.

C2.3.6. MANAGEMENT AND SUPERVISION OF CONSTRUCTION WORK

The Principal Contractor must, in writing, appoint:

C2.3.7. CONSTRUCTION MANAGER – CR 8(1)

The Principal Contractor shall appoint a full-time competent person as the construction manager to manage all the construction work on site, including the duty of ensuring occupational health and safety compliance.

C2.3.8. ASSISTANT CONSTRUCTION MANAGER – CR 8(2)

The Principal Contractor shall upon considering the size of the project, in writing appoint one or more assistant construction managers for different sections thereof.

C2.3.9. CONSTRUCTION HEALTH AND SAFETY OFFICER – CR 8(5)

A part time safety officer registered with SACPCMP shall be appointed for implementation of the health and safety plan.

C2.3.10. CONSTRUCTION SUPERVISORS – CR 8(7)

The construction manager shall in writing appoint construction supervisors responsible for construction activities and ensuring occupational health and safety compliance on the construction site.

TENDERER:

Initial: Authorized Signatory/ies:

1

2

CLIENT

Initial: Gamagara Local Municipality

Witness:

C2.3.11. RISK ASSESSOR – CR 9(1)

A competent risk assessor shall be appointed in writing to perform risk assessments before any work is commenced.

C2.3.12. INCIDENT INVESTIGATOR – GAR 9(2)

A competent incident investigator shall be appointed in writing to appoint all incidents which must be recorded in terms of the General Administrative Regulations 9.

C2.3.13. FIRST AIDER – GSR 3(4)

Where there are more than 10 employees employed the employer shall appoint a first aider in possession of a valid first aid certificate for every group up to 50 employees.

C2.3.14. SHE REP – OHSA 17(1)

Every employer who has 20 employees or more in his employment shall appoint a SHE representative for every 50 employees.

The competency of each of these appointed competent persons must be provided and should include knowledge, training, experience & qualifications specific to the appointment.
No work involving any of the listed appointments may be performed without the knowledge and approval of an appointed competent person

C2.3.15. COMPETENCY FOR CONTRACTOR'S RESPONSIBLE PERSONS

The Principal Contractor's responsible persons shall be competent in health and safety and be familiar with the Occupational Health and Safety Act 1993, and applicable regulations. Valid proof of pertinent health and safety courses attended by such persons will be required to be presented.

Compensation of Occupational Injuries and Diseases Act 130 of 1993 (COIDA).

The Principal Contractor shall submit to the Client a valid letter of good standing with the Compensation Insurer prior to appointment.

C2.3.16. OCCUPATIONAL HEALTH AND SAFETY POLICY

The Principal Contractor shall submit their Health and Safety Policy, signed by the Chief Executive Officer. The Policy must outline objectives and how they will be achieved and implemented within the operations.

C2.3.17. HEALTH AND SAFETY ORGANOGRAM

The Principal Contractor shall submit an organogram, outlining the Health and Safety Site Team that will be assigned to the project.

In cases where appointments have not been made, the organogram shall reflect the position. The organogram shall be updated when there is a change in the site team.

C2.3.18. HAZARDS IDENTIFICATION AND RISK ASSESSMENT

C2.3.18.1 BASELINE RISK ASSESSMENT

TENDERER:

Initial: Authorized Signatory/ies:

1

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CLIENT

Initial: Gamagara Local Municipality

Witness:

A Baseline risk assessment is drafted as prescribed by Construction Regulation 5(1) and will be issued to the principal contractor. The Baseline risk assessment shall be reviewed as required and re-issued to the principal contractor.

The Principal Contractor shall ensure that should he employ sub-contractors, the sub-contractor must be issued with the Baseline assessment as prescribed in Construction Regulation 7(1).

C2.3.18.2 ISSUE BASES (TASK SPECIFIC) RISK ASSESSMENT

The Principal Contractor shall conduct Hazard Identification and Risk Assessments anticipated and/or encountering during the project. The Risk Assessment must include the Safe Working Procedure, and Method Statement.

The Principal Contractor shall ensure that during any construction work or work associated with the afore-said construction work; ensure that a Task Specific Risk Assessment is undertaken by a competent appointed person. These risk assessments shall be communicated to all employees involved in the task before commencement of the task.

Safe operating procedures (SOP's) / safe working procedures (SWP'S) shall be generated based on the task specific risk assessments and communicated to all employees. Planned task observations (PTO's) shall be generated based on the SOP's.

C2.3.19. SAFE WORK PROCEDURE

Safe Work Procedures are to form part of the Risk Assessment and must be compiled for all the Identified activities.

The safe work procedures must address the following elements:

- The work method to be followed to conduct work safely
- Mitigation of identified risks
- Reducing and controlling risks and hazards that have been identified
- Responsibilities of competent persons
- Required personal protective equipment
- Correct equipment/tools/machinery to be used

C2.3.20. HEALTH AND SAFETY REPRESENTATIVE(S)

The Principal Contractor shall ensure that Health and Safety Representative is elected and trained to carry out his/her functions, as per legislation.

The Health and Safety Representation shall carry out regular inspections, keep records and report to the supervisor to take appropriate action. He/she shall attend Health and Safety Committee Meetings. The Health and Safety Representative shall be part of the team that will investigate incidents, accidents and non-conformances.

C2.3.21. MEDICAL CERTIFICATE OF FITNESS

The Principal Contractor must ensure that their employees on site have a valid medical certificate of fitness, issued by an occupational health practitioner.

Medical examinations must be done on all employees based on the exposure identified on the Annexure 3 as specified in the Construction Regulations. The *Annexure 3*, must be completed based on the scope of works and submitted to the occupational medicine practitioner / occupational health nursing practitioner.

The *Annexure 3* must be attached to all medical certificates of fitness. No employees will be allowed to perform any work on site if found unfit. Due to the fact that the medical is only valid for one year the principal contractor and contractors must keep the duration of the project in consideration when developing the OHS budget. Medicals will be conducted:

TENDERER:

Initial: Authorized Signatory/ies:

1

2

CLIENT

Initial: Gamagara Local Municipality

Witness:

- Before the start of a project
- During a project (Annually)
- Exit medical – once the project is completed / contract is terminated / employee resigned.

The following employees must be declared medically fit without any conditions:

- Employees working at heights
- Driven machinery operator
- Workers working in confined spaces
- Scaffold erectors and inspectors

If an employee was declared fit with prescribe restrictions and recommendations it is the responsibility of the employer to constantly monitor the employee. Based on Section 14 of the OHS Act an employee that was declared fit with restrictions and recommendations is responsible to look after his own health and safety. This refers to taking medication when needed, using correct PPE prescribed and avoiding restricted areas that might have an influence on the health of an employee.

C2.3.22. TRAINING, AWARENESS AND COMPETENCE

C2.3.22.1. INDUCTION

All persons on site to attend general induction training presented by the contractor. Attendance registers to be signed by all attendees and kept on safety file.

C2.3.22.2. AWARENESS

The Principal Contactor must also conduct periodic toolbox talks on site, preferably weekly or before any hazardous work takes place. The talks shall cover the relevant activity and an attendance register must be signed by all attendees and kept on safety file.

C2.3.22.3. COMPETENCY

After the Contractor has identified the training to be conducted as part of the competency requirement and based on Risk Assessment, he shall send the relevant person on appropriate courses and keep certificate of training for reference. Familiarity with the Health and Safety Act and Regulations is an integral part of the definition of competence.

C2.3.23. GENERAL RECORD KEEPING

The Principal Contractor shall keep and maintain Health and Safety records to demonstrate compliance with the Health and Safety Specifications and the Occupational Health and Safety Act.

The Contractor shall ensure that all records of incidents, inspections, audits, registers, training etc. are kept on site.

C2.3.24. GENERAL INSPECTION, MONITORING AND REPORTING

The Principal Contractor shall carry out monthly inspections and auditing of the construction site. Monthly reports applicable to the project must be drafted and send to the CHS Agent by the 20th of each month. The monthly report must include:

- Total Employees on site
- Number of Injuries
- Incidents reported
- Corrective actions taken for deviations identified during the CHS Agent's audit.

TENDERER:

CLIENT

Initial: Authorized Signatory/ies:

1 _____
2 _____

Initial: Gamagara Local Municipality

Witness: _____

C2.3.25. AUDITS

Monthly audits shall be conducted by CHS Agent to verify compliance to legal and other requirements. Based on the audit and deviations identified, action plans shall be drawn up by Principal Contractor's responsible person and due date.

The principal contractor shall conduct monthly self-audits to identify gaps, shortcomings and to ensure continual improvement.

The principal contractor shall conduct monthly audit on all contractors. Action plans will be drawn up, discussed with subcontractors.

Audit reports compiled during external audits, self-audits and audits on contractors shall be minted and discussed during the OHS committee meeting.

C2.3.26. FIRST AID BOX AND FIRST AID EQUIPMENT

The Principal Contractor shall provide first aid box and appoint, in writing, First Aider for this project with a valid certificate.

First Aid box must be adequately stocked at all time, accessible and be controlled by a qualified First Aider.

C2.3.27. ACCIDENT / INCIDENT MANAGEMENT

C2.3.27.1. RECORDING OF INCIDENTS

All incidents that occur, whether a near miss, first aid case, medical case or section 24 incident, shall be recorded and investigated by a competent person as prescribed by the General Administrative Regulations 9. (GAR 9)

Section 24 incidents must be investigated within 7 days by a competent person and be finalized as soon as possible. The findings of the investigation must be entered in to *Annexure 1* of the GAR 9. All records of the investigation must be examined during the OHS committee meeting and actions implemented and followed up to prevent reoccurrences.

During the investigation process it is important that following processes are properly executed but not limited to:

- Access the situation
- Collect as much data as possible

C2.3.27.2. REPORTING OF INCIDENTS

Incidents shall be reported as follows:

Type of incident	Reporting
Near Miss	- Principal contractor to follow internal reporting procedure as indicated in the OHS plan
Near Miss that could have resulted in a section 24 incident	- Principal contractor to follow internal reporting procedure as indicated in the OHS plan - Report to the CHS Agent
First Aid case	- Principal contractor to follow internal reporting procedure as indicated in the OHS plan

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

Type of incident	Reporting
Medical treatment case	- Principal contractor to follow internal reporting procedure as indicated in the OHS plan - FEM / Compensation commissioner
Lost Time Injury	- Principal contractor to follow internal reporting procedure as indicated in the OHS plan - Report to the OHS Agent - FEM / Compensation commissioner
Section 24 incidents	- Principal contractor to follow internal reporting procedure as indicated in the OHS plan - Report to the OHS Agent - FEM / Compensation commissioner - DOL – within 7 days for section 24 incidents / within 14 days for occupational diseases. Notification must be done via email on similar means of communication.

C2.3.27.3. RECORDS KEEPING

The following records but not limited to should be kept up to date and available for inspections and audits;

- Up to date incident register
- Up to date dressing record
- WCL 1 & 2 forms
- Incident investigation forms with supporting documents
- *Annexure 1* (GAR): Should be kept for at least 3 years

C2.3.28. OCCUPATIONAL HEALTH AND SAFETY SIGNAGE

The Principal Contractor shall ascertain and provide adequate on-site health and safety signage.

This signage shall include, but not be limited to, Hard Hat Area; Safety Shoes to be worn on site; Dust Masks to be worn in areas where there might be exposure to excessive dust; Ear.

Plugs/Muffs to be worn where there might be noise exposure over 85 db.; Glovers; Safety Goggles; Safety Harness, Excavation, etc.

The Contractor shall be responsible to maintain the quality and replacement of signage.

C2.3.29. CONSTRUCTION VEHICLE AND MOBILE PLANT

The Principal Contractor must ensure that:

- Operators are appointed in writing.
- Operators shall be trained and authorised to operate mobile plant / vehicles.
- Operators shall be declared medically fit without restrictions to operate any mobile plant.
- Mobile plant supervisor shall be appointed to supervise all mobile plant.
- Induction shall be done with all operators / drivers
- All plant shall be inspected, authorised and approved before working on sites.
- All test certificates shall be valid. Maintenance records as well as pre – use inspection checklists shall be available on site for inspections.
- All plant / vehicles shall be fitted with an orange light and a reverse alarm.

TENDERER:

CLIENT

Initial: Authorized Signatory/ies:

1

Initial:

Gamagara Local Municipality

2

Witness:

- All plant shall be inspected daily before use.
- Operators /drivers shall not talk on cell phones while operating plant.

C2.3.30. HAZARDOUS CHEMICAL SUBSTANCES (HCS)

The Principal Contractor must ensure that-

- Competent person to be appointed in writing to coordinate and control all HCS.
- All HCS to be stored in a proper HCS store. Store must be well ventilated.
- Signage to be displayed and fire extinguishers to be available at the storage area.
- Material safety data sheet shall be available for chemicals
- Employees using chemicals shall be trained in the material safety data sheets
- Employees to wear PPE as required by the MSDS.

C2.3.31. HOUSEKEEPING AND GENERAL SAFEGUARDING

The contractor must ensure that suitable housekeeping is continuously implemented on each construction site, including the proper storage of materials and equipment; the removal of scrap, waste and debris at appropriate intervals; ensuring that materials which are no longer required for use, do not accumulate on and are removed from the site at appropriate intervals;

C2.3.32. STACKING OF MATERIALS

The contractor must ensure that -

- a competent person is appointed in writing with the duty of supervising all stacking and storage on a construction site;
- adequate storage areas are provided;
- there are demarcated storage areas; and
- storage areas are kept neat and under control.

C2.3.33. CONSTRUCTION EMPLOYEE' FACILITIES

A Principal Contractor must provide;

- at least one sanitary facility for each sex and for every 30 workers;
- changing facilities for each sex;
- sheltered eating area.

C2.3.34. WASTE MANAGEMENT

The contractor must ensure that:

- Provide sufficient bins. Lids to be provided and used where necessary.
- Schedule for the removal of waste is established and followed.
- Drip trays are used for generators / mobile plant.

C2.3.35. PERSONAL PROTECTIVE EQUIPMENT (PPE)

The Principal Contractor must conduct a PPE survey and based on the risks identified and MSDS requirements provide employees with the correct PPE. The following PPE should be used but not limited to: Overall with reflectors, Safety shoes, Hard hat, Ear protection, Safety goggles, Dust Masks, Gloves

TENDERER:

CLIENT

Initial: Authorized Signatory/ies:

1

Initial:

Gamagara Local Municipality

2

Witness:

A PPE issue register should be completed for all employees. Employees must sign PPE issue registers as proof that PPE was received.

Employees to receive training on the correct use of PPE. Attendance registers to be completed as proof that training was received.

PPE shall be checked monthly and recorded in the appropriate register. Procedure to be compiled and implemented to manage redundant PPE.

C2.3.36. PUBLIC HEALTH AND SAFETY

The Principal Contractor shall ensure that non-employees affected by the construction work area made aware of the dangers likely to arise from the construction work and of the precautionary measures to be observed in order to avoid or minimise those dangers. This applies to:

- Non-employees entering the site
- Surrounding communities
- Bypassers

C2.3.37. OCCUPATIONAL HEALTH

Exposure of workers to occupational health hazards and risk are very common in any work environment, especially in construction. Occupational health hazards and risks exposure is a major problem and all Contractors are to ensure that proper health and hygiene measures are put in place to prevent exposure to these hazards and risks.

The occupational hazards and risks may enter the body in three ways:

- Inhalation through breathing e.g. cement dust;
- Ingestion through swallowing maybe through food intake;
- Absorption through the skin (pores) e.g. painting or use of thinners.

The Principal Contractor is required to ensure that all his personnel are medically fit prior to being allowed onto the work site.

C2.3.38. BARRICADING

The Principal Contractor must ensure that:

- Orange safety netting shall be used to barricade stacking and storage areas.
- Orange netting shall also be used to barricade excavations.
- danger tape shall be used to barricade areas where lifting practices takes place and where overhead work is done.

C2.4. COVID-19 OCCUPATIONAL HEALTH AND SAFETY MEASURES

C2.4.1. ADMINISTRATIVE MEASURES

C2.4.1.1 HEALTH RISK ASSESSMENT

Before the commencement of, and during construction work, health risk assessments must be reviewed and revised to consider the hazards posed by exposure to COVID-19 in the workplace.

Contractor must ensure that all employees and visitors are informed regarding any hazards as stipulated in the risk assessment before any work commences, and thereafter at such times as may be determined in the risk assessment.

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Employees must be advised not to come to work if they are sick or have symptoms associated with the COVID-19.

2.4.1.2 REACTION OF CONSTRUCTION SITE

Before the site is opened for construction the following will be procured:

- Thermometer, non-contact forehead temperature reading.
- Hand sanitiser, liquid 70% alcohol base.
- Soap for hand washing.
- PPE, face masks (e.g. dust masks/cloth masks), hand gloves, overalls, safety booths, reflectors.

C2.4.2. SOCIAL DISTANCING MEASURES

Physical distancing is important because COVID-19 is most likely to spread through close contact with a person who has a confirmed infection. Physical distancing means keeping people apart.

The following physical distancing must be implemented:

- Keeping a distance of at least 1.5 to 2 metres between people.
- Queuing strategies - e.g. marking out spacing on the floor with tape or pens.
- Limiting the amount of people who can enter a confined space/office.
- Implement contactless deliveries.
- Have a responsible person for ensuring everyone is keeping the required distance from each other.
- Move workstations, desks and tables further apart.

C2.4.3. HEALTH AND SAFETY MEASURES

The following measures must be put in place to ensure the health and safety of employees and visitors on site.

- **Screening:**
 - Screening process must be done by trained person who will act as compliance officer for COVID-19.
 - Screen any worker to ascertain any symptoms associated with COVID-19, namely fever, cough, sore throat, redness of eyes or shortness of breath.
 - Screen all workers, visitors and service providers entering and leaving the site, with non-contact thermometer.
- **Hand sanitizer:**
 - Hand sanitizing must be done.
 - Spray bottle of hand sanitiser will be placed at all points of entry/exit.
 - Hand sanitisers to be sprayed on every person entering and leaving the site.
- **Hand washing:**
 - Hand soap to be placed at strategic position next to the water.
 - Workers to wash their hands regularly with soap and water.
- **Personal Protective Equipment**
 - The types of PPE required for COVID-19 outbreak, presently, is face mask.
 - Provide each employee with 2 cloth face masks.

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- Employees to wear mask while at work and while commuting to and from work.
- Employees to wash their cloth face mask daily.
- Regularly inspect, maintain and replaced them when necessary.
- **Site Access:**
- Access control rules must be displayed at the entrance.

C2.4.4. SITE MEETINGS

Organizers of meetings need to think about the potential risk from COVID-19 because:

- There is a risk that people attending the meeting might be unwittingly bringing the COVID-19 virus to the meeting.
- Others might be unknowingly exposed to COVID-19.

Therefore, before the meeting:

- Consider whether the meeting is necessary or whether it could be postponed or replaced with a tele or video conference.
- Can it be scaled down so that fewer people attend?

C2.4.5. WHAT TO DO IN SUSPECTED CASES

If there is a suspicion that you or your colleagues may have become infected by COVID-19, you should take the following steps:

- Bring the employee to a separate and closed room.
- Inform the supervisor / foreman / manager.
- Inform the Department of Health and the Department of Employment and Labour.
- Support the authorities / HR department in determining who the person has been in contact with, and in implementing any other measures.

C2.4.6. VULNERABLE WORKERS / VISITORS

Workers that is more susceptible to complications and death due to Corona Virus is as follow:

- Co-morbidities such as Cardiovascular disease, Diabetes, Respiratory Illnesses, Immune Deficiencies, etc. Age >60.

The following control measures must be followed:

- Visitors that fall under criteria above, must not be allowed into Building or onto any site.
- Personnel that falls under above criteria, must work from home if possible, work alone if needed to be on site or at office, attend meeting via Video or Telephone Conference, keep social distancing at all times, drive alone in a vehicle and wear face mask at all times

C2.4.7. HYGIENE FACILITIES AND COMMUNAL AREAS E.G. CANTEEN / EATING AREA / LOCKER ROOMS

The following must be available at these facilities: Paper Towels, Bins to dispose paper towels, Hand Sanitiser, Water and Soap People must ensure that they wash their hands when entering and leaving the facility.

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C2.4.8. TRANSPORT OF EMPLOYEES

Where possible only one person may travel inside a vehicle. Where more than one person is traveling inside a vehicle, all people must wear face masks. Where possible people must walk from point A to Point B and minimise transport with other to the minimum. Vehicle that is used to transport personnel must be sanitised after each trip.

C2.4.9. CONSTRUCTION HEALTH AND SAFETY BUDGET

The principal contractor shall provide a sufficient OHS budget that shall include a complete breakdown of all OHS costs.

It is crucial that the principal contractor take the requirements set out in these specifications and all legal and other requirements in consideration when developing the OHS budget. The principal contractor should especially look at but not limited to:

- The standard of OHS required.
- Competent OHS officer registered with SACPCMP shall be appointed to manage the project.
- Medicals
- Required training
- Provision of construction employees' facilities
- Personal Protective Equipment
- Stacking and storing requirements

C2.5. BASELINE HAZARD IDENTIFICATION & RISK ASSESSMENT

See attached 0, page 137.

C2.5.1. CONSTRUCTION HEALTH AND SAFETY BUDGET

The principal contractor shall provide a sufficient OHS budget that shall include a complete breakdown of all OHS costs.

It is crucial that the principal contractor take the requirements set out in these specifications and all legal and other requirements in consideration when developing the OHS budget. The principal contractor should especially look at but not limited to:

- The standard of OHS required.
- Competent OHS officer registered with SACPCMP shall be appointed to manage the project.
- Medicals
- Required training
- Provision of construction employees' facilities
- Personal Protective Equipment
- Stacking and storing requirements
- Construction employee's facilities
- Mobile plant requirements
- Emergency requirements
- Signage and barricading requirements.

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C2.5.2. AGREEMENT WITH MANDATORY

OCCUPATIONAL HEALTH AND SAFETY ACT, (Act No 85 of 1993)

AGREEMENT WITH MANDATORY

In terms of Section 37(1) and (2)

WRITTEN AGREEMENT ENTERED INTO AND BETWEEN

(Hereinafter referred to as the Client/Client/Company)

AND

(Hereinafter referred to as The Contractor)

Compensation Fund Number : _____

Project / Contract Name: **UPGRADING OF SPORTS FIELD IN DIBENG**

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Witness: _____

Definition of Mandatory

Includes an agent, a Contractor or sub-Contractor for work, but without derogating from his status in his own right as an Client or user.

Occupational Health and Safety Act (No. 85 of 1993)

1. You are requested to, as far as reasonably can, comply with the requirements of the OHS ACT 93 and Construction Regulations 2014.
2. Your attention is drawn to "General Duties of Clients to their Employees" as required by Sect 8 of the Act
3. You are required to:
 - 3.1 Sign a written "Agreement with Mandatory" as required by Sect 37(1)(2) of the Act with us before you commence any work on my / our premises / site.
 - 3.2 Provide the client / Principal Contractor with a documented health and safety plan.
 - 3.3 Provide the client / Principal Contractor with written appointment of the person who is going to supervise the construction work as per Construction Regulation 6(1).

Note: Electrician to provide copy of certificate of registration as per Elect. Install Reg. 9(3).

 - 3.4 Provide the client / Principal Contractor with written designation of your nominated Health and Safety Representative as per Sect 17(1).
 - 3.5 If you employ more than five (5) persons, you are required to provide your own First Aid Box. (General Safety Regulation 3 (2).)
 - 3.6 If you employ more than ten (10) persons, you are required to provide your own qualified First Aider as per General Safety Regulation 3(4).
 - 3.7 When working with hazardous chemical substances, comply with Hazardous Chemical Substances Regulation 3. Note: Asbestos and Lead regulations are separate.
 - 3.8 When using a Materials Hoist, comply with Construction Regulation 19.
 - 3.9 When using Lifting Machines and Lifting Tackle, comply with Cranes Regulation 22.
 - 3.10 When using Explosive actuated fastening devices, comply with Construction Regulation 21.
 - 3.11 When using Scaffolding, Formwork and support work, comply with Construction Regulation 12 and 16.
 - 3.12 When Excavating and Demolishing work, comply with Construction Regulation 13 and 14.
 - 3.13 When Welding, Flame Cutting, Soldering, comply with General Safety Regulation 9.
 - 3.14 When working in confined spaces, comply with General Safety Regulation 5.
4. You are responsible for providing your own legal safety documents and registers to comply with the Act's requirements. A copy of the OHS Act of 1993 should be available in the main Contractors office.
5. Personal protective equipment which will allow them to carry out their work in a safe manner, e.g. hard hats, safety belts, gloves, safe footwear, eye protection, ear protection, waterproof clothing etc.
6. Reporting of Incidents and Occupational Diseases shall be done as per General Admin. Regulation 6. (Also see Sect 26 of the Act.)

TENDERER:

Initial: Authorized Signatory/ies:

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Witness:

Compensation for Occupational Injuries and Diseases Act (No 130 of 1993)

You are required to provide the client proof of registration with the Compensation Commissioner/Federated Client's Mutual within seven (7) days after signing this agreement. Failure to do so would result in the client notifying the agent of the Commissioner to investigate and make an assessment of your wage return and the applicable levy you have to pay, which will be liable for a deduction from your monthly progress payments and paid over to the Commissioner. (Copies of proof of payment will be provided to the Contractor) See Section 89(1) of the COID Act.

AGREEMENT WITH MANDATORY In terms of Section 37 (1) and (2)

Section 37 (1)	Whenever an employee does or omits to do any act which it would be an offence in terms of this Act for the Client of such employee or a user to do or omit to do, then unless it is proved that – (a) in doing or omitting to do that act the employee was acting without the connivance or permission of the Client or any such user; (b) it was not under any condition or in any circumstance within the scope of the authority of the employee to do or omit to do an act, whether lawful or unlawful, of the character of the act or omission charged; and (c) all reasonable steps were taken by the Client or any such user to prevent any act or omission of the kind in question, the Client or any such user himself shall be presumed to have done or omitted to do that act, and shall be liable to be convicted and sentenced in respect thereof; and the fact that he issued instructions forbidding any act or omission of the kind in question shall not, in itself, be accepted as sufficient proof that he took all reasonable steps to prevent the act or omission. The provisions of subsection (1) shall “mutatis mutandis” apply in the case of a mandatory of any Client or user, except if the parties have agreed in writing to the arrangements and procedures between them to ensure compliance by the mandatory with the provisions of the Act.
Section 37 (2)	

I,.....(Responsible person) for, ...(Company)

appoint, ...(Contractor) at the following premises / site:

.....

Period:.....

TENDERER:

Initial: Authorized Signatory/ies:

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Witness:

AUTHORISED SIGNATORY FOR THE CLIENT / CLIENT / COMPANY

Signature	Designation	Date

ACCEPTANCE SIGNATORY FOR THE CONTRACTOR

I hereby acknowledge receipt of and accept and understand the requirements of this agreement and shall ensure compliance with the OHS Act 85, of 1993.

Signature	Designation	Date

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
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Witness: _____

C2.5.3. BASELINE HAZARD IDENTIFICATION & RISK ASSESSMENT

(For Risk & Probability Explanations See Annexure 4)

TASK #	TASK / ACTIVITY DESCRIPTION	HAZARDS / ASPECT / FAILURE	POTENTIAL RISK / IMPACT	PRE- TREATMENT RISK RATING See attached page			RECOMMENDED CONTROLS / ACTIONS	APPLICABLE LEGISLATION	RESPONSIBLE PERSON	STATUS / DATE COMPLETED	RESIDUAL RISK RATING See attached page		
				SEVERITY	PROBABILITY	RISK RATING					SEVERITY	PROBABILITY	RISK RATING
1.	Designs	Inadequate/unsafe design	Fatalities Injury Property damage Reputational harm	3	E	Medium	Design of contract to be awarded to the appointed Designer by Client. Designer to be either an qualified Architect or a registered and appointed Engineer. Health & Safety Specifications and Baseline Risk Assessment to be provided to the designer. Designer to take Health & Safety into consideration when designing.	Construction Regulation 5 & 6 / OHSACT Section 8 & 37	Client	Open	2	E	Low
1.1		Contractor incompetent in interpreting design.	Fatalities Injury Property damage Reputational harm	3	E	Medium	Contractor to be evaluated prior to awarding the tender. Contractor to be appointed in terms of CR 5(1)(K) OF CR 2014 and terms of Section 37(2) of the OHS Act 85 Of 1993.	Regulation 5 & 6 / OHSACT Section 8 & 37	Client	Open	2	E	Low
2.	Procurement	Inadequate provision made for Health and Safety	Fatalities Injury Property damage Reputational harm	3	B	High	Provision have to be made for Health & Safety in tender document. When a prospective contractor tenders for the project, his tender submission is to be evaluated to ensure that he has made provision adequate Health and Safety resources.	Regulation 5 / OHSACT Section 16	Client / CHSA / PC	Open	3	D	Medium

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				SEVERITY	PROBABILITY	RISK RATING					SEVERITY	PROBABILITY	RISK RATING
2.1		Incompetent employees appointed in statutory positions	Fatalities Injury Property damage Reputational harm	3	B	High	All prospective employees that will be appointed in statutory positions must be evaluated by the contractor as part of their selection process. The CV's and qualifications of these employees are to be submitted as part of the OHS File to the Clients Representative to evaluate and approve.	Regulation 5 / OHSACT Section 16	Client / CHSA / PC	Open	3	D	Medium
2.2		Inadequate / Unsafe plant, materials and equipment procured.	Fatalities Injury Property damage Reputational harm	3	B	High	All plant, materials and equipment schedules to be included into the OHS File when submitting for review and approval. Maintenance records / service history of plant to be evaluated.	Regulation 5 / OHSACT Section 16	Client / CHSA / PC	Open	3	D	Medium
3.	Demolition of Structures	Air borne contaminants	Occupational Illness Injury	3	A	Extreme	If asbestos containing materials are present, they have to be removed by registered Asbestos Contractor and air monitoring to be carried out by Approved Asbestos Inspection Authority.	Asbestos Regulation	Client / PC	Open	3	C	High
3.1	Site Access	Unauthorised access granted to Contractor	Civil Unrest Property damage Reputational harm	3	A	Extreme	Client to grant access in writing to the contractor. Public Participation and consultation meetings to be held with the community informing them about the intended works. NB! No Site establishment will be allowed until the Safety File has been approved. Contractors to ensure that access to construction areas are restricted along The Contractor must also ensure that access to the construction areas are restricted during the night. Public liability insurance to be placed in the contractor safety files.	OHS Act Section 8	Client / CHSA / PC	Open	3	C	High
4	Transportation of material, equipment, and containers to and from site	Untrained driver	Fatalities Injury Property damage Civil Claim	3	C	High	Driver to be licensed, authorised and appointed. Induction to be done.	Construction Regulation 23 / OHS Act Section 8 / National Road Traffic Act	PC		3	D	Medium

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				SEVERITY	PROBABILITY	RISK RATING					SEVERITY	PROBABILITY	RISK RATING
4.1		Unroadworthy vehicle	Fatalities Injury Property damage Reputational harm Civil Claim	3	C	High	Vehicle to be inspected every time before coming onto site. Pre use inspection to be done. Vehicle to be fitted with a orange rotating light and reverse alarm.	Construction Regulation 23 / OHS Act Section 8 / National Road Traffic Act	PC	Open	3	D	Medium
4.2		Material/ equipment / containers not properly secured	Fatalities Injury Property damage Reputational harm Civil Claim	3	C	High	Material/equipment to be properly secured. Load to be inspected before arriving on site	Construction Regulation 23 / OHS Act Section 8 / National Road Traffic Act	PC	Open	3	D	Medium
4.3		Collision with other vehicles / property	Fatalities Injury Property damage Reputational harm Civil Claim	3	C	High	Driver to adhere to speed limits and road signs. If driving on site vehicle to be escorted to the designated area. Head Lights to be on, as well as strobe light. Flagman to be identified and visible when in congested area. Areas where trucks will stop for delivery should be properly barricaded. Signs should be displayed along the roads to ensure that they are visible to the public and flowing traffic..	Construction Regulation 23 / OHS Act Section 8 / National Road Traffic Act	PC	Open	3	D	Medium
5.	Site Establishment	Exposure to hazardous materials Exposure to moving machinery and vehicles	Fatalities Injury Property damage Reputational harm	3	C	High	Management to ensure site layout be approved by relevant engineer to consider site traffic, plant movement and other interfacing contractor site layouts	General Safety Regulations / General Administrative Rags / OHS Act Section 8 / Construction Regulations 5 & 7	PC	Open	3	D	Medium
5.1		Unauthorised access onto property	Fatalities Injury Property damage Reputational harm Civil Unrest	3	C	High	Client to grant access in writing to the contractor. Public Participation and consultation meetings to be held with the community informing them about the intended works. NB! No Site establishment will be allowed until the Safety File has been approved.		PC	Open	3	D	Medium

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				SEVERITY	PROBABILITY	RISK RATING					SEVERITY	PROBABILITY	RISK RATING
5.2		Damaging existing services e.g. sewerage	Property damage Reputational harm Occupational Illness / Disease	3	C	High	Where possible existing service provider to be used to ensure knowledge of existing services. If not, a alternative service provider to be used and to be monitored. Municipalities are to be consulted regarding the location of existing services.		PC	Open	3	D	Medium
6.	Environment Control	Chemical Spillage	Ground and water pollution	3	C	High	Ensure all spills are reported immediately Ensure drip trays are used when the risk to spillage is high Ensure area housing hazardous waste is banded to prevent run-off and absorption into the ground water systems	General Safety Regulations /General Administrative Rags /OHS Act Section 8 / Construction Regulations 5 & 7, NEMA Act	PC	Open	3	D	Medium
6.1		Poor refuse removal / No removal	Property damage Reputational harm Occupational Illness / Disease	3	C	High	Refuse removal service provider to be appointed upon establishment. Waste removal / disposal slips to be kept within the OHS File. A detailed Waste Management Plan is to be established and employees are to be trained.		PC	Open	3	D	Medium
6.2		Poor Planning	Injuries Property damage Reputational harm	3	C	High	Activity to be planned properly and instructions to be given to a delegated person nominated by the Contractor and the Client's Representative.		PC	Open	3	D	Medium
7.	Loading / offloading of material / equipment by hand	Nip / pinch point	Injuries Property damage	3	C	High	Employees to take instructions from one person. Employees to ensure safe placement of hands. Employees to wear leather gloves.	OHS Act Section 8	PC	Open	3	D	Medium

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Witness: _____

TASK #	TASK / ACTIVITY DESCRIPTION	HAZARDS / ASPECT / FAILURE	POTENTIAL RISK / IMPACT	PRE- TREATMENT RISK RATING See attached page			RECOMMENDED CONTROLS / ACTIONS	APPLICABLE LEGISLATION	RESPONSIBLE PERSON	STATUS / DATE COM- PLETED	RESIDUAL RISK RATING See attached page		
				SEVERITY	PROBABILITY	RISK RATING					SEVERITY	PROBABILITY	RISK RATING
7.1		Employee handling material / equipment that is too heavy	Injuries Property damage	3	C	High	No employee to handle bulky or heavy objects alone. In this case other employee/plant to assist. Bend knees, feet apart, back straight. Get mechanical help e.g. Lifting machine.		PC	Open	3	D	Medium
7.2		Slipping / tripping	Injury	3	C	High	Pre work inspection of area and walkways to be done to ensure no tripping hazards in walkways.		PC	Open	3	D	Medium
7.3		Poor communication	Injuries Property damage	3	C	High	One person gives orders. If the person has to leave the area he is to delegate the responsibility to another employee.		PC	Open	3	D	Medium
8.	Stacking & Storage of materials and equipment	Nip / pinch point	Injuries Property damage	3	C	High	Employees to wear leather gloves. Employees to ensure safe placement of hands.	OHS Act Section 8 Construction Regulations 8	PC	Open	3	D	Medium
8.1		Unsafe stacking practices	Injuries Property damage	3	C	High	Employees to be trained in the stacking Procedure. The base of a stack to be 3 times the height. Walkways of at least 1,5 m to be left between stacks		PC	Open	3	D	Medium
8.2		Snake/insect bites	Fatality	3	C	High	Employees to check area before handling material. Do visual inspection of stacks, stamp feet, turn material over with plant or feet. Hooks to be used to minimize exposure to insects/ snakes. All grass/ weeds to be kept short.		PC	Open	3	D	Medium

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				SEVERITY	PROBABILITY	RISK RATING					SEVERITY	PROBABILITY	RISK RATING
8.3		No walkways between stacked materials	Injuries Property damage	3	C	High	Walkways of at least 1,5m between stacks to be left to ensure effective movement. Walkways and driveways to be properly barricaded to restrict interaction between public and stacked areas.		PC	Open	3	D	Medium
9	Excavations and trenches	Unsafe Plant	Fatality Injuries Property damage	3	C	High	A Plant used to be inspected by the GMR 2 and to be approved and tagged as per Procedure. Plant to be inspected daily before use by the operator. Operator to report any deviation to the supervisor immediately.	Construction Regulation 10 / OHS Act Section 8 / Construction Regulation 13 / General Safety Regulation 2A	PC	Open	3	D	Medium
9.1		Untrained Operator	Fatality Injuries Property damage	3	C	High	Operator to be trained, appointed and authorised to operate the machine.		PC	Open	3	D	Medium
9.2		Plant too close to the edge of an existing excavation or trench	Fatality Injuries Property damage	3	C	High	When plant is driving past an excavation or trench they must be further than 5 meters where possible, if not the operator/ driver is to slow down and pass with the help of a spotter that must assist him and monitor the ground conditions while he passes.		PC	Open	3	D	Medium
9.3		Underground service	Injuries Property damage	3	C	High	Refer to Construction Regulation 13		PC	Open	3	D	Me-
10.	Concrete Works	Poor communication	Fatality Injuries Property damage Cementosis	3	C	High	Supervisor to communicate task at hand clearly to all before task commences. If supervisor has to leave area, he is to delegate his authority to another employee until he returns to the area. Employee handling holding discharge point of concrete truck to ensure effective communication with operator of pump	Environmental Workplace Rags / OHS Act Sec 8 / DMR 18 / Construction Regulations	PC	Open	3	D	Medium

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				SEVERITY	PROBABILITY	RISK RATING					SEVERITY	PROBABILITY	RISK RATING
10.1		Unsafe discharging of concrete	Fatality Injuries Property damage Cementosis	3	C	High	Employees not to stand within "line of fire "when discharging concrete.		PC	Open	3	D	Medium
10.2		Concrete spills	Ground and ground water pollution	3	D	Medium	Employees to ensure that concrete is discharged and chute cleaned properly before the truck leaves the area. Concrete trucks to be washed at wash bays as agreed with the Engineer.		PC	Open	2	E	Low
10.3		Concrete burns	Injuries	3	D	Medium	Employees to wash their gloves and overalls regularly and to let it dry. If concrete lands on any part of the body, it is to be washed of immediately.		PC	Open	2	E	Low
11.	Brick Work	Operating Moffatt unsafely when delivering bricks.	Fatality Injuries Property damage	3	D	Medium	Operators Competency to be verified / Risk Assessment to be communicated with employee. Operator to be medically fit.	Environmental Workplace Rags / OHS Act Sec 8 / DMR 18 / Construction Regulations	PC	Open	2	E	Low
11.1		Heavy objects	Injuries	3	D	Medium	Do ergonomic survey on employees. Do internal training on correct lifting methods . Ensure that employees take enough breaks and that employees constantly rotate. Conduct medical surveillance on employees.		PC	Open	2	E	Low

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				SEVERITY	PROBABILITY	RISK RATING					SEVERITY	PROBABILITY	RISK RATING
11.2		Overloaded wheel barrow	Injuries Property damage	3	D	Medium	Supervisor to ensure that wheelbarrows are not overloaded. Walkways used are clear from superfluous materials. Ramps over excavations are stable. Ensure that there is a close distance between the concrete mixer and the actual brick work. Toolbox talk to be done on safe use of a wheelbarrow. Wheelbarrow to be placed on a register. Inspections to be done on wheelbarrows.		PC	Open	2	E	Low
11.3		No walkways between stacked materials	Injuries Property damage	3	C	High	Walkways of at least 1,5m between stacks to be left to ensure effective movement. Walkways and driveways to be properly barricaded to restrict interaction between public and stacked areas.		PC	Open	3	D	Medium
12.	Excavations and trenches	Unsafe Plant	Fatality Injuries Property damage	3	C	High	A Plant used to be inspected by the GMR 2 and to be approved and tagged as per Procedure. Plant to be inspected daily before use by the operator. Operator to report any deviation to the supervisor immediately.	Construction Regulation 10 / OHS Act Section 8 / Construction Regulation 13 / General Safety Regulation 2A	PC	Open	3	D	Medium
12.1		Untrained Operator	Fatality Injuries Property damage	3	C	High	Operator to be trained, appointed and authorised to operate the machine.		PC	Open	3	D	Medium
12.2		Plant too close to the edge of an existing excavation or trench	Fatality Injuries Property damage	3	C	High	When plant is driving past an excavation or trench they must be further than 5 meters where possible, if not the operator/ driver is to slow down and pass with the help of a spotter that must assist him and monitor the ground conditions while he passes.		PC	Open	3	D	Medium
12.3		Underground service	Injuries Property damage	3	C	High	Refer to Construction Regulation 13		PC	Open	3	D	Medium

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

TASK #	TASK / ACTIVITY DESCRIPTION	HAZARDS / ASPECT / FAILURE	POTENTIAL RISK / IMPACT	PRE- TREATMENT RISK RATING See attached page			RECOMMENDED CONTROLS / ACTIONS	APPLICABLE LEGISLATION	RESPONSIBLE PERSON	STATUS / DATE COM- PLETED	RESIDUAL RISK RATING See attached page		
				SEVERITY	PROBABILITY	RISK RATING					SEVERITY	PROBABILITY	RISK RATING
13.	Portable Electrical tools	Employees (users) untrained	Injuries Electrical Shock Burns / Wounds Property damage	3	D	Medium	All users to be appointed, authorised and competent. All users to undergo formal accredited training.	Construction Regulation 24 / Electrical Installation Regulations	PC	Open	2	E	Low
13.1		Unsafe equipment	Injuries Electrical Shock Burns / Wounds Property damage	3	D	Medium	All equipment to be inspected prior to use by the user. All defective equipment to be reported and store man not allowed to issue. Defective equipment to be quarantined until such time that it has been fixed by a qualified person.		PC	Open	2	E	Low
13.2		Working in wet conditions	Injuries Electrical Shock Burns / Wounds Property damage	3	D	Medium	No working with Electrical tools in wet conditions.		PC	Open	2	E	Low
14.	Brick Work	Operating Moffatt unsafely when delivering bricks.	Fatality Injuries Property damage	3	D	Medium	Operators Competency to be verified / Risk Assessment to be communicated with employee. Operator to be medically fit.	Environmental Workplace Rags / OHS Act Sec 8 / DMR 18 / Construction Regulations	PC	Open	2	E	Low
14.1		Heavy objects	Injuries	3	D	Medium	Do ergonomic survey on employees. Do internal training on correct lifting methods . Ensure that employees take enough breaks and that employees constantly rotate. Conduct medical surveillance on employees.		PC	Open	2	E	Low
14.2		Overloaded wheel barrow	Injuries Property damage	3	D	Medium	Supervisor to ensure that wheelbarrows are not overloaded. Walkways used are clear from superfluous materials. Ramps over excavations are stable. Ensure that there is a close distance between the concrete mixer an the actual brick work. Toolbox talk to be done on safe use of a wheelbarrow. Wheelbarrow to be placed on a register. Inspections to be done on wheelbarrows.		PC	Open	2	E	Low

TENDERER:

CLIENT

Initial: Authorized Signatory/ies: 1 _____ Initial: Gamagara Local Municipality _____
2 _____ Witness: _____

TASK #	TASK / ACTIVITY DESCRIPTION	HAZARDS / ASPECT / FAILURE	POTENTIAL RISK / IMPACT	PRE- TREATMENT RISK RATING See attached page			RECOMMENDED CONTROLS / ACTIONS	APPLICABLE LEGISLATION	RESPONSIBLE PERSON	STATUS / DATE COM- PLETED	RESIDUAL RISK RATING See attached page		
				SEVERITY	PROBABILITY	RISK RATING					SEVERITY	PROBABILITY	RISK RATING
15.	Electrical Installations	Appointment of an incompetent electrical contractor	Installation will fail to meet expected standards Delay in project completion	3	D	Medium	Ensure that the required CIDB grading of the electrical contractor is included in the tender documentation and that thorough checks are done before appointment.	Construction Regulation 24 / Electrical Installation Regulations	PC	Open	2	E	Low
15.1		Use of substandard materials.	Installation will fail and performance will be compromised	3	D	Medium	Ensure adequate material quality checks and approvals during construction.		PC	Open	2	E	Low
15.2		Unsafe installation	Injuries Electrical Shock Burns / Wounds Property damage	3	D	Medium	All temporary and permanent installation are to be inspected at minimum quarterly intervals by a registered Electrician with a Wireman's license. Registers to be kept.		PC	Open	2	E	Low
15.3		Untrained employee installing	Injuries Electrical Shock Burns / Wounds Property damage	3	D	Medium	Electrician with a Wireman's license must install, commission and inspect all electrical installations. Employee to be authorised, competent and appointed.		PC	Open	2	E	Low
16.	Portable Electrical tools	Employees (users) untrained	Injuries Electrical Shock Burns / Wounds Property damage	3	D	Medium	All users to be appointed, authorised and competent. All users to undergo formal accredited training.	Construction Regulation 24 / Electrical Installation Regulations	PC	Open	2	E	Low
16.1		Unsafe equipment	Injuries Electrical Shock Burns / Wounds Property damage	3	D	Medium	All equipment to be inspected prior to use by the user. All defective equipment to be reported and store man not allowed to issue. Defective equipment to be quarantined until such time that it has been fixed by a qualified person.		PC	Open	2	E	Low
16.2		Working in wet conditions	Injuries Electrical Shock Burns / Wounds Property damage	3	D	Medium	No working with Electrical tools in wet conditions.		PC	Open	2	E	Low

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

TASK #	TASK / ACTIVITY DESCRIPTION	HAZARDS / ASPECT / FAILURE	POTENTIAL RISK / IMPACT	PRE- TREATMENT RISK RATING See attached page			RECOMMENDED CONTROLS / ACTIONS	APPLICABLE LEGISLATION	RESPONSIBLE PERSON	STATUS / DATE COM- PLETED	RESIDUAL RISK RATING See attached page		
				SEVERITY	PROBABILITY	RISK RATING					SEVERITY	PROBABILITY	RISK RATING
16.3		Unsafe / poor lock out practices	Injuries Electrical Shock Burns / Wounds Property damage	3	D	Medium	All Electrical power tools to be fitted with a "Dead Man Switch". When user is not using the tool the tool is to be unplugged.		PC	Open	2	E	

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

ANNEXURE A - RISK RATING.

The risk rating of a risk is established by assessing the severity of the risk and its probability of occurring.

Severity

Level	Descriptor	Example detail description
1	Insignificant	Near Miss; No measurable impact / legal requirements – none
2	Minor	First Aid Treatment; Short term impact; easy to rehabilitate /legal requirements – warning
3	Moderate	Medical Treatment; Medium term impact; difficult to rehabilitate /legal requirements – forced compliance
4	Major	Serious Injury; Long term impact; extreme difficult to rehabilitate / legal requirements – fine
5	Catastrophic	Fatality; Permanent damage; not rehabilitated / legal requirements – prosecution

Probability

Level	Descriptor	Description
A	Almost certain	Is expected to occur in most circumstances
B	Likely	Will probably occur in most circumstances
C	Possible	Might occur at some time
D	Unlikely	Could occur at some time
E	Rare	May occur only in exceptional circumstances

Risk Rating

Probability	SEVERITY				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
A (almost certain)	H	H	E	E	E
B (likely)	M	H	H	E	E
C (possible)	L	M	H	E	E
D (unlikely)	L	L	M	H	E
E (rare)	L	L	M	H	H

Legend

E = Extreme risk; immediate senior management action required
H = High risk; management attention needed
M = Medium risk; management responsibility must be specified
L = Low risk; manage by routine procedures

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

ANNEXURE 1

[In terms of Regulation 3(2) of Construction Regulations, 2014]

APPLICATION FOR A PERMIT TO DO CONSTRUCTION WORK

This application must be submitted with the following documents:

1. Health and Safety Specification.
2. Health and Safety Plan.
3. Baseline Risk Assessment

-
1. Name, postal address and telephone numbers of the client:

2. Details of the Agent:

a. Title, Surname, and Initials:

b. Identity number / Passport number:

c. Registration number with SACPCMP:

d. Office Tel. number and/or Mobile number:

e. Postal address:

3. Name, postal address and telephone numbers of the appointed principal contractor:

4. Name, postal address and telephone numbers of designer of the project:

5. Name, postal address and telephone numbers of the following persons:

a) Construction Manager:

TENDERER:

CLIENT

Initial: Authorized Signatory/ies:

1

2

Initial:

Gamagara Local Municipality

Witness:

3089-02

11. Planned number of contractors on site accountable to the principal contractor:

12. Name(s) of contractors appointed:

Signature of Principal Contractor

Signature of Client/Client`s Agent

FOR OFFICE ONLY

Authorization	Labour Centre	Official Approval Stamp

13. Date of application: _____

14. Submitted documents prescribed in Construction Regulation 5(4) (Please tick √):

CR 5(1)(a)		CR 5(1)(b)		CR 5(1),(C-S)	

15. Result of the application (Please Tick√):

Approved		Declined	

16. Reason for declining application:

Signature of the supervisor

Signature of revoking Officer/Inspector

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

**LIST OF ITEMS (WHERE APPLICABLE AND NOT LIMITED) TO BE SUBMITTED WITH THE
CONSTRUCTION WORK PERMIT APPLICATION**

Document to be submitted		Legal Reference
1.	Annexure 1 - Application for a permit to do construction work	CR 3(1)
2.	Baseline risk assessment)	CR 3(5)(a) read with 5(1)(a
3.	Site specific health and safety specification (SSHSS)	CR 3(5)(a) read with 5(1)(b)
4.	Proof of appointment of competent CHS Agent plus proof of registration with SAC-PCMP	CR 3(5)(b)(i) read with CR 5(5)
5.	Proof in writing has been submitted that regulation 5(1)(c), (d), (e), (f), (g) and (h) has been complied with.	CR 3(5)(b)(iii)
6.	Designer's appointment outlining duties in terms of CR 6(1) as have been agreed upon	CR 3(5)(b)(iii) read with CR 5(1)(e) and 6(1)
7.	Temporary works designer's appointment duties in terms of CR 6(2) as have been agreed upon plus	CR 3(5)(b)(iii) read with CR 5(1)(e) and 6(2)
8.	Evidence that the SSHSS was included in the contract documents	CR 3(5)(b)(iii) read with CR 5(1)(f)
9.	Evidence that the contractor has made adequate provision for the cost of H&S.	CR 3(5)(b)(iii) read with CR 5(1)(g)
10.	Evidence that the principal contractor has necessary resources and competencies to carry out construction work safely	CR 5(1)(h)
11.	Valid Letter(s) of Good Standing for the appointed Principal Contractor(s)	CR 3(5)(b)(ii) read with CR 5(1)(j)
12.	Written appointment(s) of Principal Contractor(s)	CR 5(1)(k)
13.	Principal Contractor's health and safety plan approved by the client.	CR 5(1)(l)

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

ANNEXURE 2

**OCCUPATIONAL HEALTH AND SAFETY ACT, 1993
(Regulation 4 of the Construction Regulations, 2014)**

NOTIFICATION OF CONSTRUCTION WORK

1. (a) Name and postal address of principal contractor:

- (b) Name and telephone nr. of Principal Contractor's contact person:

2. (a) Principal Contractor's Compensation Registration Number:

3. (a) Name and postal address of Client:

- (b) Name and telephone nr. of Client's contact person or agent:

4. (a) Name and postal address of Designer(s) for the Project:

- (b) Name and telephone nr. of Designer(s) contact person:

5. Name and telephone nr. of Principal Contractor's Construction Supervisor on Site as appointed in terms of Regulation 8(1):

6. Name(s) of Principal Contractor's Sub-Ordinate Supervisors on site as appointed in terms of Regulation 8(2):

7. Exact physical address of the Construction Site or Site Office:

8. Nature of the construction work:

TENDERER:

Initial: Authorized Signatory/ies:

1

2

CLIENT

Initial:

Gamagara Local Municipality

Witness:

9. Expected commencement date:

10. Expected completion date:

11. Estimated maximum number of persons on the Construction Site:

Total: _____ Male: _____ Female: _____

12. Planned number of Contractors on the Construction Site accountable to Principal Contractor:

13. Name(s) of Contractors already selected:

Principal Contractor

Date

Client's Agent (where applicable)

Date

Client's

Date

THIS DOCUMENT IS TO BE FORWARDED TO THE OFFICE OF THE DEPARTMENT OF LABOUR **PRIOR TO COMMENCEMENT OF WORK ON SITE.**

TENDERER:

Initial: Authorized Signatory/ies:

1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality

Witness:

Annexure 3

**OCCUPATIONAL HEALTH AND SAFETY ACT, 85 OF 1993
CONSTRUCTION REGULATIONS, 2014**

Medical Certificate of Fitness

Name of Employee_____ ID Number_____ Co Number_____

* Occupation e.g General worker, Welder, Brick-layer, Steel fixer, Mobile crane operator, etc	* Possible Exposure e.g Noise, Heat, Fall risk, Confined spaces, etc	* Job Specific Requirements e.g Operating mobile crane, Digging trenches, Erecting formwork, and support work etc	* Protective Clothing e.g Dust respirator, Welding gloves, etc

*** The Employer to complete the information in the spaces marked with an * before sending the Employee for a medical examination.**

Declaration by the Medical Examiner:
I certify that I have, by examination and testing, using the above criteria specified by the employer, satisfied myself that the abovementioned employee is fit to perform the duties as described by the employer in the matrix above.

Occupational Medicine Practitioner / Occupational Health Nursing Practitioner: _____

Signature_____Practice Number_____Date_____

Address_____

This Medical Certificate of Fitness is valid for one

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

C3. PRICING DATA

C3.1. PREAMBLE

GENERAL REFERENCES

1. The work scheduled below is described in more detail in the specifications and drawings. Where certain items are referred to the GCC 2015 or Specification or a certain drawing number for more information, the Contractor is referred to the complete GCC 2015, Specification and Drawings and it must not be presumed that the references are complete.
2. If a Bill of Quantities (or Bill of Quantities or schedule of rates) applies and there is an error in the line-item total resulting from the product of the unit rate and the quantity, the line-item total shall govern, and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line-item total as quoted shall govern, and the unit rate will be corrected.
3. Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the Tenderer's addition of prices, the total of the prices shall govern, and the Tenderer will be asked to revise selected item prices (and their rates if a Bill of Quantities applies) to achieve the Tendered total of the prices.
4. The price quoted in the Rate Column next to each item, shall be assumed the all-inclusive price for the work to be executed as referred to in the item.
5. The prices as Tendered in the Bill of Quantities shall be taken as being valid for the full duration of the Tender, unless otherwise stated in the Tender.
6. Should no rate be given, "Included Elsewhere" must be written in the Amount Column. Should this not be done, it will be assumed that the item was accidentally not priced, and the average rate of the other Tenderers will be written in next to the item. See *Volume 1, T2.1.1 Alterations by Tenderer*.
7. No deviation that may be requested by the Contractor from the above, or from the GCC 2015, Specification, Bill of Quantities, Tender form and conditions, shall be considered, unless **clearly** indicated on *Volume 1, T2.1.1 Alterations by Tenderer* when the Tender document is submitted.
8. The costs to comply with all the conditions, obligations and liabilities and as described in the GCC 2015 and Specifications shall be assumed as being all inclusive in this Bill of Quantities, except if indicated differently in *Volume 1, T2.1.1 Alterations by Tenderer*.
9. The Bill of Quantities must be filled in **BLACK INK** and must not be removed from the bound set of documents.
10. No correction fluid may be used.

TENDERER:

Initial: Authorized Signatory/ies:

1

2

CLIENT

Initial:

Gamagara Local Municipality

Witness:

C3.2. METHOD OF PRICING AND PRICE ADJUSTMENT

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

MVD KALAHARI CONSULTING ENGINEERS AND TOWN PLANNERS

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

3089-02

MBD 3.2

METHOD OF PRICING AND PRICE ADJUSTMENTS

**THIS TENDER WILL NOT BE CONSIDERED IF THIS DOCUMENT (MBD 3.2)
IS NOT FULLY COMPLETED.**

CONTRACT REF NO: GM2024/107

PLEASE INDICATE IF PRICES ARE FIRM OR NOT FIRM FOR THE DURATION OF THIS CONTRACT.

SELECT NUMBER 1 OR NUMBER 2

1. ☒ Prices are firm for the duration of this contract (including prices subject to Rates of Exchange or any other reasons) Variations will not be considered.
2. ☐ Prices not firm for the duration of this contract and price variations are applicable

If prices are not firm and number 2 was selected, select only one of the following options (A, B or C).

One of the options MUST be selected. If prices are not firm. If none or more than one (1) options were selected it will disqualify the tender.

A. ☐ NON-FIRM PRICES SUBJECT TO ESCALATION

1. **IN CASES OF PERIODIC CONTRACTS, NON FIRM PRICES WILL BE ADJUSTED (LOADED) WITH THE ASSESSED CONTRACT PRICE ADJUSTMENTS IMPLICIT IN NON FIRM PRICES WHEN CALCULATING THE COMPARATIVE PRICES**

2. **IN THIS CATEGORY PRICE ESCALATIONS WILL ONLY BE CONSIDERED IN TERMS OF THE FOLLOWING FORMULA:**

$$Pa = (1 - V) \left(D1 \frac{R1t}{R1o} + D2 \frac{R2t}{R2o} + D3 \frac{R3t}{R3o} + D4 \frac{D4t}{D4o} \right) + VPt$$

Where:

Pa = The new escalated price to be calculated.

(1-V)Pt = 85% of the original Tender price. **Note that Pt must always be the original Tender price and not an escalated price.**

D1, D2 = Each factor of the Tender price eg. labour, transport, clothing, footwear, etc. The total of the various factors D1,D2...etc. must add up to 100%.

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

R1t, R2t..... = Index figure obtained from new index (depends on the number of factors used).
R1o, R2o = Index figure at time of tendering.
VPt = 15% of the original Tender price. This portion of the Tender price remains firm i.e. it is not subject to any price escalations.

3. The following index/indices must be used to calculate your Tender price:

Index_____ Dated_____ Index_____ Dated_____

Index_____ Dated_____ Index_____ Dated_____

Index_____ Dated_____ Index_____ Dated_____

4. FURNISH A BREAKDOWN OF YOUR PRICE IN TERMS OF ABOVE-MENTIONED FORMULA. THE TOTAL OF THE VARIOUS PERCENTAGES MUST ADD UP TO 100%.

FACTOR (D1, D2 etc. eg. Labour, transport)	PERCENTAGE OF TENDER PRICE

B. ☐ PRICES SUBJECT TO RATE OF EXCHANGE VARIATIONS

C.
1. Please furnish full particulars of your financial institution, state the currencies used in the conversion of the prices of items to South African currency, which portion of the price is subject to rate of exchange variations and the amounts remitted abroad.

PARTICULARS OF FINANCIAL INSTITUTION	ITEM NO	PRICE	CURRENCY	RATE	PORTION OF PRICE SUBJECT TO ROE	AMOUNT IN FOREIGN CURRENCY REMITTED
				ZAR=		
				ZAR=		
				ZAR=		
				ZAR=		
				ZAR=		

TENDERER:

CLIENT

Initial: Authorized Signatory/ies:

1

Initial:

Gamagara Local Municipality

2

Witness:

				ZAR=			

2. Adjustments for rate of exchange variations during the contract period will be calculated by using the average monthly exchange rate as issued by your commercial bank for the periods indicated hereunder (proof from bank required)

AVERAGE MONTHLY EXCHANGE RATES FOR THE PERIOD:	DATE DOCUMENTATION MUST BE SUBMITTED TO THIS OFFICE	DATE FROM WHICH CALCULATED PRICE WILL BECOME EFFECTIVE	DATE UNTIL WHICH NEW CALCULATED PRICE WILL BE EFFECTIVE

- D. ☐ None firm prices based on documentary evidence (including actual supplier's invoices, motivations and letters of confirmation from the Tenderer's supplier)

I/WE AGREE TO THE CONDITIONS AS SET OUT IN THE ATTACHED SPECIFICATIONS AND CONDITIONS OF TENDERER

SIGNATURE OF TENDERER: _____

NAME OF COMPANY: _____

ADDRESS: _____

CELL TELEPHONE NO: _____ FAX NO. _____

E-MAIL ADDRESS: _____

AS WITNESSES: _____ Name Print _____

2. _____ Name Print _____

DATE: _____

NB: This form must be signed by the Tenderer and witnesses. Removal of any of the details from the Tender documents may disqualify the Tenderer.

TENDERER:

Initial: Authorized Signatory/ies:

1

2

CLIENT

Initial: Gamagara Local Municipality

Witness:

AMENDMENTS AND ALTERATIONS: ANNEXURE A

If the Tenderer desires to amend, vary or alter any of the specifications, conditions of contract, schedule of prices, he/she is to state so hereunder and is to set out clearly the details and character of any amendments, variations or alterations he proposes, together with the variation in cost from his Tender price, if there be any variation.

Unless noted in this page when tendering or supported by a covering letter attached to this bid, no variations or alterations which the Tenderer desires to put forward or into effect, will be executed strictly in accordance with these documents.

SIGNATURE OF TENDERER _____

DATE: _____

ANY ENQUIRIES REGARDING THE TENDERING PROCEDURE MAY BE DIRECTED TO:

Firm : MVD Kalahari
Contact Person : Mr A Coetzee
Tel : 053 831 1889
Cell : 082 784 7484

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

C3.3. LOCAL LABOUR EMPLOYMENT

The Tenderer shall list the local labourers and artisans that the tender entity proposes to use to complete the project. The policy of the Employer is to employ local labourers for any unskilled construction work and to complete construction activities with labour-intensive construction methods whenever possible.

DESCRIPTION	RATE	NUMBER
"Community Liaison Officer"	10 000/month	
Artisans		
Guards / Security (minimum 2)		
Unskilled Labour	38.50/hour	
Other: (specify)		
Other: (specify)		
Other: (specify)		

DATE: _____ SIGNATURE OF TENDERER _____

AS WITNESSES:

1. _____

2. _____

TENDERER: Initial: Authorized Signatory/ies: 1 _____ 2 _____

CLIENT Initial: Gamagara Local Municipality _____
Witness: _____

C3.4. SCHEDULE OF QUANTITIES

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION A: PRELIMINARY AND GENERAL**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
		<u>SECTION A: PRELIMINARY AND GENERAL</u>					
	A 8.3	<u>FIXED-CHARGE ITEMS</u>					
A.1	A 8.3.1	Contractual Requirements	Sum	1			
	A 8.3.2	Establishment of Facilities on the Site :					
		<u>a) Facilities for Engineer (As described under SANS 1200 AB)</u>					
A.2	A 8.3.2.1(a)	i) Provision to be made for waterproof offices as described under item SANS 1200 AB 3.2: Office Building(s)	Sum	1			
A.3	A 8.3.2.1(c)	ii) Name boards (2 No and described under SANS 1200 AB 5.1). As per attached drawing	Sum	1			
	A 8.3.2.2	<u>b) Facilities for the Contractor</u>					
A.4	(a)	Offices and storage sheds	Sum	1			
A.5	(b)	Workshops	Sum	1			
A.6	(d)	Living accommodation	Sum	1			
A.7	(e)	Ablution and latrine facilities	Sum	1			
A.8	(f)	Tools and equipment	Sum	1			
A.9	(g)	Water supplies, electric power and communications	Sum	1			
A.10	(h)	Access	Sum	1			
	A 8.3.3	<u>Other fixed-charge obligations</u>					
A.11	PS A 8.3.3 (a)	Provision to comply to the Environmental Management Plan (SANS 1200 PS A 5.9)	Sum	1			
		NOTE: Bidders are advised to study the Health & Safety Specifications according to The Occupational Health & Safety Act (Act 85 of 1993) and the Construction Regulation 2014 (SANS 1200 A 5.7) before pricing this bill.					
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION A: PRELIMINARY AND GENERAL**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
A.12	A 8.3.3	Bidders must note that it is compulsory to price all items as specified regarding Health and Safety in this bill, the Occupational Health and Safety Act (Act 85 of 1993) and the 2014 Construction Regulations.					
		FAILURE TO DO SO WILL INVALIDATE THE TENDER The following items serve as a breakdown of the expected cost items for the requirements of the Act and have to be duly completed and returned with the tender form (refer to the Occupational Health and Safety Specification for detail of clauses as listed). a) Preparation of Health and Safety Plan The sum shall cover all costs involved in the preparing of the Health and Safety Plan (which includes the risk assessment), which shall include the preparation of all permit applications and notifications as required by this specification and shall include the employment cost of all health and safety personnel employed for the preparation of the Contractor's Health and Safety Plan	Sum	1			
A.13	A 8.3.3	b) Health and Safety Training The sum shall cover all costs involved in preparation of all necessary Health and Safety Induction Training materials required from the training of the Contractor's employees, Sub-Contractors and all visitors to the Works.	Sum	1			
A.14	A 8.3.3	c) Personal Protective Clothing and Equipment The sum shall cover all costs involved in the initial provision of all personal protective clothing and equipment for the Contractor's employees and Sub-contractors and any visitors to the Works, as required by this specification (which includes the requirements of the Occupational Health and Safety Act, 1993 and its regulations, as amended).	Sum	1			
		d) Fences, Signs and Baricades					
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION A: PRELIMINARY AND GENERAL**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
A.15	A 8.3.3	The sum shall cover all costs involved in the initial provision of all fences, signs and barricades necessary for the protection of all persons, plant, vehicles, equipment or facilities, as required by this specification (which includes the requirements of the Occupational Health and Safety Act, 1993 and it's regulations, as amended).	Sum	1		Rate Only	
		e) Establishment of Safety Administration					
A.16	A 8.3.3	The sum shall cover all costs involved in establishment of all administrative matters required by this specification which shall include, but not limited to, the establishment of the Health and Safety File.	Sum	1			
		f) Other Health and Safety Fixed-charge Obligations					
A.17	A 8.3.3	The sum shall cover the fixed costs of all other obligations that are required for the safe execution of the Works in accordance with the requirements of this specification and that are not specifically covered in A.11 to A.15	Sum	1			
	PS A 8.3.3 (c)	Supervision & Co-operation with Other Contractors (SANS 1200 PS A 5.10)					
A.18		i) With Electrical & Mechanical Contractor	Sum	1			
A.19		ii) With Other Contractors	Sum	1			
	A 8.4	<u>TIME-RELATED ITEMS</u>					
A.20	A 8.4.1	Contractual Requirements	Sum	1			
A.21	A 8.4.2.1(a)	Operate and maintain facilities for the Engineer on the Site	Sum	1			
	A 8.4.2.2	<u>Facilities for Contractor for duration of construction, except where otherwise stated</u>					
A.22	(a)	Offices and storage sheds	Sum	1			
A.23	(d)	Living accommodation	Sum	1			
A.24	(g)	Water supplies, electric power and communications.	Sum	1			
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION A: PRELIMINARY AND GENERAL**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
A.25	(e)	Ablution and latrine facilities	Sum	1			
A.26	(f)	Tools and equipment	Sum	1			
A.27	A 8.4.3	Supervision for duration of constuction	Sum	1			
A.28	PS A 8.4.5(b)	a) Implementation and Maintenance of Health and Safety Plan (PS A 5.7) The sum shall cover all costs involved in the implementation and maintenance of the Health and Safety Plan. THis shall include but shall not be limited to the following: 1) The emplyment cost of all health and safety personnel including consultants, health and safety officers, inspectors, supervisors and issuers requirede in terms of the Contractor's Health and Safety Plan. 2) Updating the Health and Safety Plan as needed. 3) Carrying out of periodic audits and follow-up audits. 4) Compiling ongoing risk assessments and risk assessment reports as required by the Works. 5) Convening of regular safety meetings with the Safety Representatives. 6) Accompanying and supporting the Employer of his Safety Agent during ad hoc audits. 7) Compilation of monthly safety reports and statistics for the Employer or his Safety Agent.	Sum	1			
A.29	PS A 8.4.5(b)	b) Implementation and maintenance of Training The sum shall cover all costs involved in the implementation of the induction training of the Contractor's employees, Sub-contractors and all visitors to the Works.	Sum	1			
A.30	PS A 8.4.5(b)	c) Maintenance of Personnel Protective Clothing and Equipment	Sum	1			
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION A: PRELIMINARY AND GENERAL**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
A.31	PS A 8.4.5(b)	The sum shall cover all costs involved in maintenance, repair or replacement of personal protective clotng required by the Contractor's employees or Sub-contractors and all visitors to the Works. d) Maintenance of Fences, Signs and Barricades	Sum	1			
A.32	PS A 8.4.5(b)	The sum shall cover all costs involved in maintenance, repair or replacement for whatever reason of fences, signs and barricades used for the Works. The rate shall include for the provision of security guards for the safeguarding of the items provided should this be necessary. e) Implementation and Maintenance of Safety Administration	Sum	1			
A.33	PS A 8.4.5(b)	The sum shall cover all costs involved in establishment of all administrative matters required by this specification which shall include, but not limited to, the maintenance of the Health and Safety File or the completion and recording of the safety check lists required by this specification. f) Other Health and Safety Fixed-charge Obligations	Sum	1			
A.34	PSA 8.4.5(a)	The sum shall cover the time-related costs of all other obligations that are required for the proper execution of the Works in accordance with the requirements of this specification and that are not specifically covered in A.27 to A.32 g) Preventative measures to prevent the spread of COVID-19 Appointment of Environmental Control Officer (ECO)	Sum	1			
A.35	8.4.3	Supervision for Duration of Construction	Sum	1			
	A 8.4.5	<u>OTHER TIME-RELATED OBLIGATIONS</u>					
Total Carried Forward							

Tender No: GM2024/107
UPGRADING OF SPORTS FIELD IN DIBENG
Schedule of Quantities

SECTION A: PRELIMINARY AND GENERAL

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
A.36	PS A 8.6	a) Provision to be made for remuneration of the Community Liaison Officer (CLO)	Months	1	10000.00		
A.37		b) Handling fee for Contractor to CLO	%				
		<u>TEMPORARY WORKS</u>					
		Protection of Works and re-instatement					
		Setting out of Works					
A.38	PS A 8.8.9	Water Connection	Sum	1			
A.39	PS A 8.8.10	Electrical Connection	Sum	1			

Tender No: GM2024/107

UPGRADING OF SPORTS FIELD IN DIBENG

Schedule of Quantities

SECTION B: CONSTRUCTION OF BUILDING - CLUB HOUSE

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
		<u>SECTION B: CONSTRUCTION OF BUILDING - CLUB HOUSE</u>					
	SANS 1200 DB	<u>EXISTING SERVICES</u>					
	PS DB 8.3.5 (a)	a) Detection of Services Provision must be made to detect and protect existing services.					
B.2		i) Electrical services	No	1			
B.3		ii) Telkom services	No	1			
B.4		iii) Water pipes	No	1			
		iv) Storm water pipes	No	1			
	PS DB 8.3.5 (b)	b) Moving of Existing Services Provision must be made to move existing services detected that are in the way of construction work.					
B.5		i) Electrical services	No	1		Rate Only	
B.6		ii) Telkom services	No	1		Rate Only	
B.7		iii) Water pipes	No	1		Rate Only	
B.8		iv) Storm water pipes	No	1		Rate Only	
	PS DB 8.3.5 (c)	c) Repairing Damaged Services Provision must be made to repair existing services damaged by construction which were not shown on drawings nor pointed out by the Engineer.					
B.9		i) Electrical services	No	1		Rate Only	
B.10		ii) Telkom services	No	1		Rate Only	
B.11		iii) Water pipes	No	1		Rate Only	
B.12		iv) Storm water pipes	No	1		Rate Only	
	BW 8.2.4	<u>TILING</u>					
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION B: CONSTRUCTION OF BUILDING - CLUB HOUSE**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
B.13		a) 300 x 300 mm white porcelain tiles to be installed according to specialist specifications, including of cuttings, tile cement, grouting and strips.	m²	150			
B.14		b) Splashback area at urinals and above wash hand basin with 200 x 200 mm porcelain white tiles, 3 tiles high for full length of wall.	m²	15			
		BW 8.2.14	<u>JOINERY</u>				
		BW 8.2.14 (a)	Doors in accordance with door schedule. Frames, locks, doorstops, etc. included.				
B.15		a) D-1	No	11			
B.16		c) D-3	No	1			
B.17		f) D-6	No	2			
		BW 8.2.10 (a)	<u>ROOFING</u>				
B.18		a) Design and supply all labour, plant and material to construct the roof complete with roof covering and roof structure					
		Chromadek 0.60 mm thick IBR 686 profile roof sheeting complete with all fixings, flashing, side cladding as indicated on Architectural drawings. (Roof area is 180 m²). The new roof structure to be designed and supplied by a registered MiTek designer and manufacturer. Complete with design, supply and installation according to Architectural drawings.	Sum	1			
		BW 8.2.21	<u>BEAM FILLING</u>				
B.19			Placing of face brick beam filling on the outside walls after the placing of roof covering. New bricks to match existing.	m	55		
		BW 8.2.12	<u>CEILING</u>				
		The installation of the ceilings include all the tools and equipment required for the installation of the ceilings to give the client the required ceiling finish including of the required preperations and paintwork.					
B.20		a) Gypsum Ceilings	m²	150			
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION B: CONSTRUCTION OF BUILDING - CLUB HOUSE**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
B.21	BW 8.2.13	b) Gypsum Cornices to ceilings	m	205			
B.22		c) Branderling	m	550			
		<u>CEILING INSULATION</u>					
B.23	BW 8.2.17	40 mm Fibre Glass Ceiling Insulation	m²	150			
		<u>PAINTING</u>					
		Prepare walls and piant with 1 coat universal undercoat and 2 coats acrylic paint all in accordance with manufacturer's specification. Colour scheme shall be determined by Client. Price all inclusive.					
B.24	SANS 1200 MM	a) Internal walls	m²	600			
		<u>SIGNAGE PANELS (Price all inclusive)</u>					
		<u>Sign Faces with Galvanized Background, with Painted Symbols and with Signboards Constructed from:</u>					
	MM 8.3.1	Sheet Steel (1.6 mm thick) or area					
		<u>0 m² to 2 m²</u>					
B.25		a) 1 Mens Ablution Sign Panel (400 mm wide x 270 mm high, complete with figures as shown on drawings, fixed to wall above door as per suppliers specification)	No	1			
B.26		b) 1 Women Ablution Sign Panel (400 mm wide x 270 mm high, complete with figures as shown on drawings, fixed to wall above door as per suppliers specification)	No	1			
B.27		c) 1 Kiosk Sign Panel (600 mm wide x 270 mm high, complete with figuires as shown on drawings, fixed to wall above service hatch as per suppliers specification)	No	1			
B.28		d) Fire signage (150 mm x 150 mm) chromadek complete with required figures, fixed to walls where required.	No	6			
	SANS 1200 H	<u>STRUCTURAL STEEL</u>					
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION B: CONSTRUCTION OF BUILDING - CLUB HOUSE**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
	H 8.3.1 & H 8.3.2 & H 8.3.3	<u>Supply and fabrication (Section 8.3.1), delivery (Section 8.3.2), erection (Section 8.3.3), including all welding, nuts, bolts, cleats, etc. complete:</u> a) Remedial security steel cages around windows to be constructed and installed. New cages to match existing. Cages to be painted with 1 coat universal undercoat and 2 coats acrylic paint all in accordance with manufacturer's specification.					
B.29		1) W1	No	10			
B.30		2) W2	No	2			
B.31		3) W3	No	2			
B.32		4) W4	No	2			
	BW 8.2.19	<u>FIRE HOSE REEL</u>					
B.33		Supply new 30 m standard hose reel. Complete with 1.8 m x 25 mm galvanised pipe and 5 m x 32 mm HDPe PE100 PN10 pipe. Connection to 50 mm existing bulk water supply line. Price all required couplings inclusive.	No	1			
		<u>ANCILLARY WORK</u>					
		<u>EXCAVATION</u>					
B.34	SANS 1200 PS DB 8.3.2 (a)	0 - 1 m	m³	24			
	DB 8.3.2 (b)	b) Extra-over item B.34 including for (provisional):					
B.35		i) Hard rock excavation	m³	20			
		<u>TRIMMING</u>					
B.36	SANS 1200 PS DB 8.3.2 (c)	Trimming of excavations to specified dimensions and levels	m²	48			
	SANS 1200 LB	<u>BEDDING</u>					
B.37	8.2.2.3	Provide and place approved material as bedding cradle.	m³	5			
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION B: CONSTRUCTION OF BUILDING - CLUB HOUSE**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
	SANS 1200 LB	<u>BLANKET</u>					
B.38	8.2.2.1	Provide and place approved material as bedding blanket	m³	9			
		<u>BACKFILL</u>					
B.39	SANS 1200 PS DB 8.3.2 (d)	Backfill with main backfill from excavated material.	m³	24			
B.40	SANS 1200 PS DB 8.3.2 (e)	Carting away excess material and spread on building site as instructed by Client	m³	15			
	BW 8.2.29	<u>PLUMBING (Internal)</u>					
		Price shall cover the cost of providing and fixing of all plumbing elements as shown on drawings.					
		<u>110 mm PVC Fittings</u>					
B.41		a) Pan connector (SG 40)	No	8			
B.42		b) Reducing junction (SRJ 100)	No	8			
B.43		c) Distance piece: Length = 1000 mm	No	8			
B.44		d) 110 x 50 mm Venthorn bend access heel (SB 400)	No	4			
B.45		e) 110 x 87½° Bend access heel (SB 31)	No	8			
B.46		f) 110 x 87½° Double junction access (SY 404)	No	2			
B.47		g) 110 x 95° Junction access heel (SY 42)	No	4			
B.48		h) 110 x 50 x 95° Double reducing junction (SW 49)	No	4			
B.49		i) 110 x 50 mm Reducer (SE 404)	No	4			
B.50		j) 110 x 50 mm Reducing junciton access heel (SW 41)	No	2			
B.51		k) 160 x 110 mm Reducing junciton 45° (UY 64)	No	2			
B.52		l) 110 mm Pipe (Class 34)	m	30			
		<u>50 mm Fittings</u>					
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION B: CONSTRUCTION OF BUILDING - CLUB HOUSE**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT		
						R	c	
Brought Forward								
B.53	BW 8.2.29	a) Waste outlet (Chrome)	No	10				
B.54		b) P-trap rubber	No	7				
B.55		c) P-trap combination chrome (Urinal)	No	3				
B.56		d) 50 x 87.5° Bend access heel (WT 51)	No	12				
B.57		e) 50 x 87.5° Bend (WB 50)	No	12				
B.58		f) Tee x 87.5° access heel (WTE 50)	No	10				
B.59		g) Vent valve (SAV 50)	No	4				
B.60		h) 50 mm Pipe	m	40				
		<u>SANITARY FITTINGS (Internal)</u>						
		Price shall cover the cost of providing and fixing of all plumbing elements as shown on drawings. All fittings colour white.						
B.61	BW 8.2.19 (b)	a) "Rapido" porcelain low level toilet pan, hard plastic cistern with "Akuvuzi" water saving system and with "N.I.P." seat with lid, complete with flush system	No	8				
B.62		b) "Flair (Betta)" porcelain wash hand basin with two holes for taps including hanging barackets.	No	7				
B.63		c) "Dominox" stainless steel kitchen sink with single bowl (800 x 460 mm contractor) on falcon bracket.	No	1				
B.64		d) Fittings for disabled toilet, including all brackets, taps, handles, etc. as required.	No	1				
B.65		e) Porcelain urinal wall mounted with flush system	No	1				
			<u>WATER (Internal)</u>					
			Price shall cover the cost of providing and fixing of all water fittings to complete water system according to product codes or similar approved:					
B.66			a) 32 mm x 1" Reducing male connector	No	4			
B.67		b) 15 mm x 90° elbow C-M1 Conex (D-4XS)	No	8				
Total Carried Forward								

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION B: CONSTRUCTION OF BUILDING - CLUB HOUSE**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
B.68		c) 15 mm x 90° C/C elbow Conex (D-4XS)	No	10			
B.69		d) 28 x 15 mm Red Tee C-C Conex (D-280XS)	No	6			
B.70		e) 15 mm Equal tee C-C Conex (D-12XS)	No	8			
B.71		f) 28 x 15 mm Red Tee C-C Conex (D-80XS)	No	20			
B.72		g) 1 5mm x ½" Straight coupler C-FI Conex (D-3XS)	No	10			
B.73		h) 28 mm x 1" Straight Coupler C-F1 Conex (D-3XS)	No	5			
B.74		i) 15 mm Ball-o-stop	No	16			
B.75		j) 15 mm Cobra stoptap - rough brass C-C 131	No	6			
B.76		k) ½" Flexi connector chrome l = 300 mm	No	26			
B.77		l) 15 mm Policop pipe	m	401			
B.78		m) 28 mm Policop pipe	m	50			
B.79		n) 15 mm Single tube clip (plastic) (9826C)	No	60			
B.80		o) 28 mm Single tube clip (plastic) (9826C)	No	50			
B.81		p) 15 mm Taps "Tommi-metals" bib tap with long chrome body	No	10			
B.82		q) 15 mm Brass tap with long body	No	1			
B.83		r) 32 mm HDPe PE100 PN10 pipe	m	40			
Total Carried Forward To Summary							

Tender No: GM2024/107

UPGRADING OF SPORTS FIELD IN DIBENG

Schedule of Quantities

SECTION C: CONSTRUCTION OF BUILDING - TICKET OFFICE

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
		<u>SECTION C: CONSTRUCTION OF BUILDING - TICKET OFFICE</u>					
	SANS 1200 DB	<u>EXISTING SERVICES</u>					
	PS DB 8.3.5 (a)	a) Detection of Services Provision must be made to detect and protect existing services.					
C.1		i) Electrical services	No	1			
C.2		ii) Telkom services	No	1			
C.3		iii) Water pipes	No	1			
C.4		iv) Storm water pipes	No	1			
	PS DB 8.3.5 (b)	b) Moving of Existing Services Provision must be made to move existing services detected that are in the way of construction work.					
C.5		i) Electrical services	No	1		Rate Only	
C.6		ii) Telkom services	No	1		Rate Only	
C.7		iii) Water pipes	No	1		Rate Only	
C.8		iv) Storm water pipes	No	1		Rate Only	
	PS DB 8.3.5 (c)	c) Repairing Damaged Services Provision must be made to repair existing services damaged by construction which were not shown on drawings nor pointed out by the Engineer.					
C.9		i) Electrical services	No	1		Rate Only	
C.10		ii) Telkom services	No	1		Rate Only	
C.11		iii) Water pipes	No	1		Rate Only	
C.12		iv) Storm water pipes	No	1		Rate Only	
	BW 8.2.14	<u>JOINERY</u>					
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION C: CONSTRUCTION OF BUILDING - TICKET OFFICE**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
C.13	BW 8.2.14 (a)	Doors in accordance with door schedule. Frames, locks, doorstops, etc. included.					
		a) D6	No	1			
C.14		b) D5	No	1			
	BW 8.2.10 (a)	<u>ROOFING</u>					
		a) Design and supply all labour, plant and material to construct the roof complete with roof covering and roof structure					
C.15		Chromadek 0.60 mm thick IBR 686 profile roof sheeting complete with all fixings, flashing, side cladding as indicated on Architectural drawings. (Roof area is 20 m²). The new roof structure to be designed and supplied by a registered MiTek designer and manufacturer. Complete with design, supply and installation according to Architectural drawings.	Sum	1			
	BW 8.2.21	<u>BEAM FILLING</u>					
C.16		Placing of face brick beam filling on the outside walls after the placing of roof covering. New bricks to match existing.	m	3			
	BW 8.2.17	<u>PAINTING</u>					
		Prepare walls and piant with 1 coat universal undercoat and 2 coats acrylic paint all in accordance with manufacturer's specification. Colour scheme shall be determined by Client. Price all inclusive.					
C.17		a) Internal walls	m²	30			
C.18		b) Concrete floor	m²	15			
	SANS 1200 H	<u>STRUCTURAL STEEL</u>					
	H 8.3.1 & H 8.3.2 & H 8.3.3	<u>Supply and fabrication (Section 8.3.1), delivery (Section 8.3.2), erection (Section 8.3.3), including all welding, nuts, bolts, cleats, etc. complete:</u>					
Total Carried Forward							

Tender No: GM2024/107
UPGRADING OF SPORTS FIELD IN DIBENG
Schedule of Quantities

SECTION C: CONSTRUCTION OF BUILDING - TICKET OFFICE

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
C.19		a) Remedial security steel cages around windows to be constructed and installed. New cages to match existing. Cages to be painted with 1 coat universal undercoat and 2 coats acrylic paint all in accordance with manufacturer's specification. 1) W4	No	3			
Total Carried Forward To Summary							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION D: BUILDING WORK - PAVILION**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
		<u>SECTION D: BUILDING WORK - PAVILION</u>					
	SANS 1200 DB	<u>EXISTING SERVICES</u>					
	PS DB 8.3.5 (a)	a) Detection of Services					
		Provision must be made to detect and protect existing services.					
D.1		i) Electrical services	No	1			
D.2		ii) Telkom services	No	1			
D.3		iii) Water pipes	No	1			
D.4		iv) Storm water pipes	No	1			
	PS DB 8.3.5 (b)	b) Moving of Existing Services					
		Provision must be made to move existing services detected that are in the way of construction work.					
D.5		i) Electrical services	No	1		Rate Only	
D.6		ii) Telkom services	No	1		Rate Only	
D.7		iii) Water pipes	No	1		Rate Only	
D.8		iv) Storm water pipes	No	1		Rate Only	
	PS DB 8.3.5 (c)	c) Repairing Damaged Services					
		Provision must be made to repair existing services damaged by construction which were not shown on drawings nor pointed out by the Engineer.					
D.9		i) Electrical services	No	1		Rate Only	
D.10		ii) Telkom services	No	1		Rate Only	
D.11		iii) Water pipes	No	1		Rate Only	
D.12		iv) Storm water pipes	No	1		Rate Only	
	SANS 1200 D	<u>Restricted Excavation</u>					
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION D: BUILDING WORK - PAVILION**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
D.13	D 8.3.3 (a)	Excavate for restricted foundations and concrete footings in all materials and use for backfill or embankment or dispose a) Strip foundations to a depth of between 600 mm and 750 mm or as instructed by Engineer.	m³	3			
	SANS 1200 G	<u>CONCRETE</u> Provide, mix, place and curing of concrete. Minimum strength after 28 days as specified. Included steel and/or wood floating of concrete surfaces and shuttering complete.					
D.14		a) Strip foundations (Class 20 MPa/19 mm). Wood float.	m³	1			
	SANS 1200 GA	<u>CONCRETE CUBES</u>					
D.15	GA 7.2.1	Make provision to make concrete cubes for testing. Sets of 6.	No	1			
	SABS 1200 G	<u>REINFORCEMENT</u>					
	G 8.3.1	<u>Steel Bars</u>					
D.16		a) Strip footings - Y12 @ 0.888kg/m	kg	10			
D.17		b) Strip footings - R8 @ 0.395 kg/m	kg	2			
	BW 8.2.4	<u>TILING</u>					
D.18		a) White porcelain shower tiles to be installed according to specialist specifications, including of cuttings, tile cement, grouting and strips.	m²	10			
D.19		b) Splashback area at urinals and above wash hand basin with 200 x 200 mm porcelain white tiles, 3 tiles high for full length of wall.	m²	8			
	BW 8.2.8 (a)	<u>WATERPROOFING (Damp-Proof Course in Walls)</u> Plastic damp-proof course of 375 micron bossed polyethylene.					
D.20		a) 230 mm wide wall	m	4			
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION D: BUILDING WORK - PAVILION**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
D.21	BW 8.2.1	<u>BRICKWORK</u> Brickwork from approved bricks (14 MPa). Included brickforce as prescribed and typical fixing details to columns: a) 220 mm Wall with approved cement stock bricks (internal).	m²	10			
D.22	BW 8.2.5	<u>PLASTER WORK</u> One layer 12 mm cement plaster on the inside surfaces of walls, window sills, etc.	m²	20			
	BW 8.2.14	<u>JOINERY</u>					
D.23	BW 8.2.14 (a)	<u>Doors in accordance with door schedule. Frames, locks, doorstops, etc. included.</u> a) D-1	No	7			
D.24		b) D-2	No	2			
D.25		c) D-6	No	5			
	BW 8.2.17	<u>PAINTING</u> Prepare walls and piant with 1 coat universal undercoat and 2 coats acrylic paint all in accordance with manufacturer's specification. Colour scheme shall be determined by Engineer. Price all inclusive.					
D.26		a) Internal walls	m²	550			
D.27		b) Concrete floor	m²	15			
	SANS 1200 MM	<u>SIGNAGE PANELS (Price all inclusive)</u>					
	MM 8.3.1	<u>Sign Faces with Galvanized Background, with Painted Symbols and with Signboards Constructed from:</u> Sheet Steel (1.6 mm thick) or area <u>0 m² to 2 m²</u>					
D.28		a) 1 Mens Ablution Sign Panel (400 mm wide x 270 mm high, complete with figuires as shown on drawings, fixed to wall above door as per suppliers specification)	No	1			
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION D: BUILDING WORK - PAVILION**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
D.29		b) 1 Women Ablution Sign Panel (400 mm wide x 270 mm high, complete with figures as shown on drawings, fixed to wall above door as per suppliers specification)	No	1			
D.30		c) 1 Kiosk Sign Panel (600 mm wide x 270 mm high, complete with figures as shown on drawings, fixed to wall above service hatch as per suppliers specification)	No	1			
D.31		d) Fire signage (150 mmx150 mm) chromadek complete with required figures, fixed to walls where required.	No	6			
D.32		e) 1 Disabled Ablution Sign Panel (400 mm wide x 270 mm high, complete with figures as shown on drawings, fixed to wall above door as per suppliers specification)	No	1			
	BW 8.2.30	<u>METAL WORK</u> <u>Windows</u> Supply and complete installation of windows in accordance with window schedule. Price all inclusive.					
D.33	SANS 1200 H H 8.3.1 & H 8.3.2 & H 8.3.3	a) W2	No	5			
D.34		b) W3	No	6			
		<u>STRUCTURAL STEEL</u> <u>Supply and fabrication (Section 8.3.1), delivery (Section 8.3.2), erection (Section 8.3.3), including all welding, nuts, bolts, cleats, etc. complete:</u>					
		a) Remedial security steel cages around windows to be constructed and installed. New cages to match existing. Cages to be painted with 1 coat universal undercoat and 2 coats acrylic paint all in accordance with manufacturer's specification.					
D.35		a) W2	No	5			
D.36		b) W3	No	6			
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION D: BUILDING WORK - PAVILION**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
	SANS 1200 HC	<u>Corrosion Protection</u>					
	HC 8.2.1 & HC 8.2.2 & HC 8.2.3 & HC 8.2.4	Corrosion protection as specified on drawing, including all nuts, bolts, cleats, etc. complete : a) Repair and re-paint entire steel structure					
D.37		1) 152 x 152 x 23 kg/m H-section	kg	2737			
D.38		2) 200 x 102 x 23 kg/m I section	kg	1530			
D.39		3) 180 x 91 x 19 kg/m I section	kg	342			
D.40		4) 40 x 40 x 3 mm HRA (1.874 kg/m)	kg	47			
D.41		5) 60 x 60 x 4 mm HRA (3.696 kg/m)	kg	435			
D.42		6) 150 x 50 x 20 x 2 mm CFLC (4.3 kg/m)	kg	1165			
D.43		7) 3 mm bended thick plate that is bended for seating and structure to pavilion (23.55 kg/m²)	kg	7125.0			
	BW 8.2.19	<u>FIRE HOSE REEL</u>					
D.44		Supply new 30 m standard hose reel. Complete with 1.8 m x 25 mm galvanised pipe and 5 m x 32 mm HDPe PE100 PN10 pipe. Connection to 50 mm existing bulk water supply line. Price all required couplings inclusive.	No	2			
		<u>ANCILLARY WORK</u>					
		<u>EXCAVATION</u>					
D.45	SANS 1200 PS DB 8.3.2 (a)	0 - 1 m	m³	15			
	DB 8.3.2 (b)	b) Extra-over item D.12 to C.13 including for (provisional):					
D.46		i) Hard rock excavation	m³	12			
		<u>TRIMMING</u>					
D.47	SANS 1200 PS DB 8.3.2 (c)	Trimming of excavations to specified dimensions and levels	m²	30			
Total Carried Forward							

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ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
	SANS 1200 LB	<u>BEDDING</u>					
D.48	8.2.2.3	Provide and place approved material as bedding cradle.	m³	4			
	SANS 1200 LB	<u>BLANKET</u>					
D.49	8.2.2.1	Provide and place approved material as bedding blanket	m³	5			
		<u>BACKFILL</u>					
D.50	SANS 1200 PS DB 8.3.2 (d)	Backfill with main backfill from excavated material.	m³	15			
D.51	SANS 1200 PS DB 8.3.2 (e)	Carting away excess material and spread on building site as instructed by Client	m³	9			
	BW 8.2.29	<u>PLUMBING (Internal)</u>					
		Price shall cover the cost of providing and fixing of all plumbing elements as shown on drawings.					
		<u>110 mm PVC Fittings</u>					
D.52		a) Pan connector (SG 40)	No	6			
D.53		b) Reducing junction (SRJ 100)	No	6			
D.54		c) Distance piece: Length = 1000 mm	No	6			
D.55		d) 110 x 50 mm Venthorn bend access heel (SB 400)	No	4			
D.56		e) 110 x 87½° Bend access heel (SB 31)	No	6			
D.57		f) 110 x 87½° Double junction access (SY 404)	No	2			
D.58		g) 110 x 95° Junction access heel (SY 42)	No	4			
D.59		h) 110 x 50 x 95° Double reducing junction (SW 49)	No	4			
D.60		i) 110 x 50 mm Reducer (SE 404)	No	4			
D.61		j) 110 x 50 mm Reducing junciton access heel (SW 41)	No	2			
Total Carried Forward							

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ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
D.62	BW 8.2.29	k) 160 x 110 mm Reducing junciton 45° (UY 64)	No	5			
D.63		l) 110 mm Pipe (Class 34)	m	30			
		<u>50 mm Fittings</u>					
D.64		a) Waste outlet (Chrome)	No	10			
D.65		b) P-trap rubber	No	7			
D.66		c) P-trap combination chrome (Urinal)	No	3			
D.67		d) 50 x 87.5° Bend access heel (WT 51)	No	12			
D.68		e) 50 x 87.5° Bend (WB 50)	No	12			
D.69		f) Tee x 87.5° access heel (WTE 50)	No	10			
D.70		g) Vent valve (SAV 50)	No	4			
D.71		h) 50 mm Pipe	m	50			
		<u>SANITARY FITTINGS (Internal)</u>					
		Price shall cover the cost of providing and fixing of all plumbing elements as shown on drawings. All fittings colour white.					
D.72		a) "Rapido" porcelain low level toilet pan, hard plastic cistern with "Akuvuzi" water saving system and with "N.I.P." seat with lid, complete with flush system	No	7			
D.73	b) "Flair (Betta)" porcelain wash hand basin with two holes for taps including hanging barackets.	No	8				
D.74	c) "Dominox" stainless steel kitchen sink with single bowl (800 x 460 mm contractor) on falcon bracket.	No	1				
D.75	d) Fittings for disabled toilet, including all brackets, taps, handles, etc. as required.	No	1				
D.76	e) Porcelain urinal wall mounted with flush system	No	1				
	BW 8.2.19 (b)	<u>WATER (Internal)</u>					
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION D: BUILDING WORK - PAVILION**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
		Price shall cover the cost of providing and fixing of all water fittings to complete water system according to product codes or similar approved:					
D.77		a) 32 mm x 1" Reducing male connector	No	4			
D.78		b) 15 mm x 90° elbow C-M1 Conex (D-4XS)	No	8			
D.79		c) 15 mm x 90° C/C elbow Conex (D-4XS)	No	10			
D.80		d) 28 x 15 mm Red Tee C-C Conex (D-280XS)	No	6			
D.81		e) 15 mm Equal tee C-C Conex (D-12XS)	No	8			
D.82		f) 28 x 15 mm Red Tee C-C Conex (D-80XS)	No	20			
D.83		g) 15 mm x ½" Straight coupler C-FI Conex (D-3XS)	No	10			
D.84		h) 28 mm x 1" Straight Coupler C-F1 Conex (D-3XS)	No	5			
D.85		i) 15 mm Ball-o-stop	No	16			
D.86		j) 15 mm Cobra stoptap - rough brass C-C 131	No	6			
D.87		k) ½" Flexi connector chrome l = 300 mm	No	26			
D.88		l) 15 mm Policop pipe	m	40			
D.89		m) 28 mm Policop pipe	m	50			
D.90		n) 15 mm Single tube clip (plastic) (9826C)	No	60			
D.91		o) 28 mm Single tube clip (plastic) (9826C)	No	50			
D.92		p) 15 mm Taps "Tommi-metals" bib tap with long chrome body	No	10			
D.93		q) 15 mm Brass tap with long body	No	1			
D.94		r) 32 mm HDPe PE100 PN10 pipe	m	50			
Total Carried Forward To Summary							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION E: CONSTRUCTION OF PUMP HOUSE**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
		<u>SECTION E: CONSTRUCTION OF PUMP HOUSE</u>					
	SANS 1200 G	<u>CONCRETE</u>					
	G 8.4.1	<u>Prescribed Mix Concrete</u>					
		Provide, mix, place and curing of concrete. Minimum strength after 28 days as specified. Included steel and/or wood floating of concrete surfaces complete.					
E.1		a) Floor Slab (Class 30 MPa/19 mm). Off-shutter finish	m ³	4			
E.2		b) Blinding (Class 15 MPa/19 mm). Wood float.	m ³	1			
E.3		c) Walls 100 mm thick (Class 30 MPa /19 mm). Off-shutter finish.	m ³	3			
E.4		d) Roof slab 100 mm thick (Class 30 MPa /19 mm). Steel float.	m ³	2			
	GA 8.2.2	<u>FORMWORK</u>					
		Price to include all labour, material, etc. needed and which is not measured elsewhere. Complete.					
E.5		a) Smooth shuttering	m ²	80			
	GA 8.2.4	<u>BOX OUT HOLES/FORM VOIDS</u>					
		Make provision to form opening in concrete wall for windows, doors and incoming pipes as shown on drawing. Included in price is the placement of 30 MPa concrete to cover opening.					
E.6		a) Door	No	1			
E.7		b) Windows	No	2			
E.8		c) Manhole	No	1			
	SANS 1200 GA	<u>REINFORCING</u>					
	G 8.3.1	<u>Steel Bars</u>					
E.9		a) Pump house - Y12 @ 0.888 kg/m	kg	12			
E.10		b) Mesh ref 617	kg	370			
Total Carried Forward							

Tender No: GM2024/107

UPGRADING OF SPORTS FIELD IN DIBENG

Schedule of Quantities

SECTION E: CONSTRUCTION OF PUMP HOUSE

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
E.11	BW 8.2.30	<u>METALWORK</u> <u>Windows</u> Supply and complete installation of windows in accordance with window schedule. Price all inclusive. a) Window	No	2			
		<u>Door</u> Supply and complete installation of door in accordance with door schedule. Price all inclusive. a) Door					
E.12		<u>Manhole Cover</u> Supply and cast manhole into concrete roof slab complete installation in accordance with engineers details. Price all inclusive. a) Manhole type 9E	No	1			
E.13			No	1			
Total Carried Forward To Summary							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION F: SEWER**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
		<u>SECTION F: SEWER</u>					
	SANS 1200 DB	<u>EXISTING SERVICES</u>					
	PS DB 8.3.5 (a)	a) <u>Detection of Services</u> Provision must be made to detect and protect existing services.					
F.1		i) Electrical services	No	1			
F.2		ii) Telkom services	No	1			
F.3		iii) Water pipes	No	1			
F.4		iv) Storm water pipes	No	1			
	PS DB 8.3.5 (b)	b) <u>Moving of Existing Services</u> Provision must be made to move existing services detected that are in the way of construction work.					
F.5		i) Electrical services	No	1		Rate Only	
F.6		ii) Telkom services	No	1		Rate Only	
F.7		iii) Water pipes	No	1		Rate Only	
F.8		iv) Storm water pipes	No	1		Rate Only	
	PS DB 8.3.5 (c)	c) <u>Repairing Damaged Services</u> Provision must be made to repair services damaged by construction which was not indicated on the drawings nor pointed out by the engineer.					
F.9		i) Electrical services	No	1		Rate Only	
F.10		ii) Telkom services	No	1		Rate Only	
F.11		iii) Water pipes	No	1		Rate Only	
F.12		iv) Storm water pipes	No	1			
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION F: SEWER**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
F.13	SANS 1200 C	<u>BULK SEWER</u> <u>CLEAR SITE</u>					
	PS C 8.2.1	Clear site of all plant, rubble, etc. 1,0 m wider in excavation width and remove material to a dumping site provided by the Client. Demolish and remove Structures/Buildings. The area where structures were removed must be backfilled with G6 or better material in layers not exceeding 150 mm and compacted to a minimum of 93% Mod. AASHTO density. Demolished material to be disposed at a site located by the Contractor	m	70			
F.14	8.2.8	a) 1 m x 1 m x 1 m manholes	Sum	5			
F.15	8.2.8	b) 5 m x 2.5 m x 2 m deep conservancy tank.	Sum	1			
F.16		Removal and reinstatement of existing 2.4 m high Concrete palisade fencing. a) The rate to include all plant, material and labour to remove the existing concrete palisade fencing, storing on site and reinstalling the fence, to supplier's standards, after the new sewer line is installed.	m	10			
	SANS 1200 DB	<u>EXCAVATION</u>					
F.17	PS DB 8.3.2 a)	a) Excavate in all materials for trenching for laying of gravitational sewer network and house connections for all diameter pipes specified for the following trench depths. The rate shall cover the cost of complying with requirements as set out in SANS 1200 DB 5.1, excavation, backfilling, trimming, shaping and compaction of trench bottom and disposing of surplus material within freehaul distance.					
		i) 0 m to 1 m deep	m³	67			
F.18		ii) 1 m to 2 m deep	m³	100			
	DB 8.3.2 (b)	b) Extra-over items F.17 to F.18 including for (provisional):					
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION F: SEWER**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
F.19	SANS 1200 LB	i) Hard rock excavation	m³	134			
		<u>BEDDING</u>					
		<u>PROVISION OF BEDDING CRADLE AND BLANKET</u>					
	LB 8.2.2.2	From Municipal Borrow Pit (provisional):					
F.20		a) Selected granular material (Cradle) and compacted to 90% Mod. AASHTO	m³	43			
F.21		b) Selected fill material (Blanket) and compacted to 90% Mod AASHTO.	m³	32			
	LB 8.2.2.3	Commercial source (provisional):					
F.22		a) Selected granular material (Cradle) and compacted to 90% Mod. AASHTO	m³	43		Rate Only	
F.23		b) Selected fill material (Blanket) and compacted to 90% Mod AASHTO.	m³	32		Rate Only	
		<u>CONSTRUCTION OF MANHOLES</u>					
		Excavate, backfill and construct prefabricated Concrete manholes (rocla or equal approved), complete with heavy-duty concrete cover and frame and benching according to details for the following depths. The rate shall cover the cost of all excavation in all material, disposal of surplus, construction of manholes complete inclusive of short pipes and couplings, backfilling and compacting.					
		<u>1 m Ø Precast Concrete Manholes Complete</u>					
F.24	LD 8.2.3	a) Depth of manhole : 0.5 - 1.0 m	No	2			
F.25	LD 8.2.3	b) Depth of manhole : 1.0 - 1.5 m	No	1			
		<u>1.25 m Ø Precast Concrete Manholes Complete</u>					
F.26	LD 8.2.3	a) Depth of manhole : 1.5 - 2.0 m	No	1			
	SANS 1200 LD	<u>SEWER PIPE WORK (uPVC)</u>					
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION F: SEWER**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
F.27	LD 8.2.1	Supply, lay, joint, bed and test pipe line. All installations shall be in accordance with specifications, drawings and to the supplier's specifications. Price to include all labour, material, compaction, etc. as shown on drawings and which are not measured elsewhere. Pipes to be supplied for the following pipe diametres: uPVC Sewerage Pipes (SANS 791) (Class 34) inclusive of couplings: a) 160 mm Ø	m	70			
	SANS 1200 LD	<u>ACCESSORIES</u>					
	LD 8.2.1	160 mm uPVC Rodding eye complete with concrete cover slab and 45° elbow as per detail on drawings, for the following depth increments:					
F.28	BW 8.2.31	a) 0.5 m to 1.0 m <u>Deficiencies in Backfill Material:</u>	No	2			
F.29	DB 8.3.3.1(c)	Make up deficiencies in backfill material by importation from commercial or off-site source selected by contractor as ordered in writing by engineer. The rate shall cover the cost of selection of suitable material, moving, and the disposal of the material that is replaced within freehaul distance. (Provisional)	m³	108			
	SANS 1200 LD	<u>Connection to existing sewer at:</u> Excavate around the existing manhole, cut into the existing manhole, remove and replace benching, and provide a flexible concrete joint for the 160 mm uPVC pipe, backfill and make good.					
F.30	PS LD 8.2.11	a) Existing manhole outside erf boundary	No	1			
	SANS 1200 LD	<u>MARKER POSTS</u>					
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION F: SEWER**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
F.31	LD 8.2.9	Install marker posts as per details. The rate shall cover the cost of manufacturing, installing, painting the identification marks, and submitting to the engineer the records of all marker posts.	No	2			
	SANS 1200 GA	<u>CONCRETE</u>					
F.32	GA 8.4.1	Supply all material and plant to cast Grade 20 concrete (20 MPa) where so instructed by the Engineer in writing stating position and dimensions.	m³	5			
Total Carried Forward To Summary							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION G: WATER**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
		<u>SECTION G: WATER</u>					
	SANS 1200 DB	<u>EXISTING SERVICES</u>					
	PS DB 8.3.5 (a)	a) <u>Detection of Services</u> Provision must be made to detect and protect existing services.					
G.1		i) Electrical services	No	1			
G.2		ii) Telkom services	No	1			
G.3		iii) Water pipes	No	1			
G.4		iv) Storm water pipes	No	1			
	PS DB 8.3.5 (b)	b) <u>Moving of Existing Services</u> Provision must be made to move existing services detected that are in the way of construction work.					
G.5		i) Electrical services	No	1		Rate Only	
G.6		ii) Telkom services	No	1		Rate Only	
G.7		iii) Water pipes	No	1		Rate Only	
G.8		iv) Storm water pipes	No	1		Rate Only	
	PS DB 8.3.5 (c)	c) <u>Repairing Damaged Services</u> Provision must be made to repair services damaged by construction which was not indicated on the drawings nor pointed out by the engineer.					
G.9		i) Electrical services	No	1		Rate Only	
G.10		ii) Telkom services	No	1		Rate Only	
G.11		iii) Water pipes	No	1		Rate Only	
G.12		iv) Storm water pipes	No	1		Rate Only	
		d) <u>Finishing</u> Reinstate road surface complete with all courses					
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION G: WATER**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
G.13		i) Gravel shoulders	m ²	15			
G.14		ii) Interlocking block paving	m ²	15			
		<u>BULK WATER</u>					
	SANS 1200 C	<u>CLEAR SITE</u>					
G.15	PS C 8.2.1	Clear site of all plant, rubble, etc. 1,0 m wider in excavation width and remove material to a dumping site provided by the Client.	m	180			
G.16		The rate to include all plant, material and labour to remove the existing concrete palisade fencing, storing on site and reinstalling the fence, to supplier's standards, after the new sewer line is installed.	m	5			
	SANS 1200 DB	<u>EXCAVATIONS</u>					
		a) Excavate in all materials, as well as possible pump work and shoring that may be required, for trenches for laying of gravitational sewer network for all dia. pipes specified for the following trench depths:					
G.17	PS DB 8.3.2 a)	i) 0 m to 1 m deep	m ³	6			
G.18	PS DB 8.3.2 a)	ii) 1 m to 2 m deep	m ³	121			
		b) Extra-over items G.17 to G.18 including for (provisional):					
G.19	DB 8.3.2 (b)	i) Hard rock excavation	m ³	95			
	SANS 1200 LB	<u>BEDDING</u>					
		<u>PROVISION OF BEDDING CRADLE AND BLANKET</u>					
	LB 8.2.2.2	From Municipal Borrow Pit (provisional):					
G.20		a) Selected granular material (Cradle) and compacted to 90% Mod. AASHTO	m ³	81			
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION G: WATER**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
G.21	LB 8.2.2.3	b) Selected fill material (Blanket) and compacted to 90% Mod AASHTO.	m³	63		Rate Only	
		Commercial source (provisional):					
G.22		a) Selected granular material (Cradle) and compacted to 90% Mod. AASHTO	m³	81			
G.23		b) Selected fill material (Blanket) and compacted to 90% Mod AASHTO.	m³	63		Rate Only	
	SANS 1200 L	<u>WATER NETWORK (HDPE PE100 PN10)</u>					
	L 8.2.1	<u>Supply, Lay, and Bed Pipes Complete with Couplings</u>					
G.24		a) 90 mm HDPe PE100 PN10	m	24			
G.25		b) 63 mm HDPe PE100 PN10	m	67			
G.26		c) 50 mm HDPe PE100 PN10	m	87			
	SANS 1200 L	<u>WATER NETWORK (GALVANISED SANS 62 SCREW THREADED ENDS - MEDIUM CLASS)</u>					
	L 8.2.1	Supply, Lay, and Bed Pipes Complete with Couplings					
G.27		a) 50 mm Galvanised	m	3			
	L 8.2.2	<u>SPECIALS AND FITTINGS</u> Fittings for the following pipelines: Pipeline to Segmental Tank <u>Compression fittings for HDPE pipes</u>					
G.28		a) 63 mm x 50 mm reducer	No	1			
G.29		b) 50 mm 90° elbow	No	1			
G.30		c) 50 mm female threaded tee <u>Threaded fittings for Galvanise pipes</u>	No	2			
G.31		a) 50 mm 90° elbow	No	2			
G.32		b) 50 mm Barrel nipple	No	2			
G.33		c) 50mm Threaded flange	No	2			
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION G: WATER**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
G.34	PS L 8.2.3	d) 50 mm Female threaded elbow	No	1			
		Main Line					
		<u>Compression fittings for HDPE pipes</u>					
G.35		a) 90 mm x 50 mm Reducing tee	No	1			
G.36		b) 90 mm x 64 mm Reducing tee	No	1			
G.37		c) 90 mm x 603 mm Reducer	No	2			
G.38		d) 63 mm x 50 mm Reducer	No	1			
G.39		e) 50 mm End cap	No	1			
G.40		f) 50 mm Elbow	No	1			
		<u>PIPELINE TO IRRIGATION DAM</u>					
G.41	L8.2.3	Supply all material, plant, labour and equipment to install irrigation dam connection complete as per details on drawing.	No	1			
		<u>VALVES</u>					
		<u>Flow Control Valves</u>					
G.42		a) 50 mm high flow ball type float valve	No	1			
		<u>Brass Gate Valves</u>					
		Supply in chamber and installation on concrete bed, jointing, including cutting pipes to length, and couplings for gate valves.					
G.43	PS L 8.2.16	a) 63 mm gate valve	No	4			
G.44		b) 50 mm gate valve	No	5			
		<u>Brass Check Valves</u>					
		Supply in chamber and installation on concrete bed, jointing, including cutting pipes to length, and couplings for gate valves.					
G.45		a) 50 mm Spring loaded brass check valve	No	1			
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION G: WATER**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT		
						R	c	
Brought Forward								
G.46		Supply and install 80 mm above ground hydrant on the following HDPE pipelines. Price all inclusive: a) 90 mm <u>DOMESTIC PRESSURE PUMP</u>	No	1				
G.47		Supply and install DAB Esybox (or equal approved) domestic pressure pump complete with all fittings to <u>ERF CONNECTION</u>	No	1				
G.48		Supply all material, plant, labour, and equipment to install an ERF connection complete with an isolation valve, strainer, water meter, check valve, and isolation valve in the manhole chamber, as indicated on the drawing.	No	1				
G.49		PS L 8.2.16	<u>Connect to Existing Network</u> a) Connect to 110 mm municipal pipeline (Price all inclusive) <u>BOREHOLE PIPELINE</u>	No	1			
G.50		SANS 1200 C	<u>CLEAR SITE</u>					
G.51	PS C 8.2.1	Clear site of all plant, rubble, etc. 1,0 m wider in excavation width and remove material to a dumping site provided by the Client.	m	120				
		The rate to include all plant, material and labour to remove the existing concrete palisade fencing, storing on site and reinstalling the fence, to supplier's standards, after the new sewer line is installed.	m	5				
	SANS 1200 DB	<u>EXCAVATIONS</u>						
Total Carried Forward								

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION G: WATER**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
		a) Excavate in all materials for trenching for laying of gravitational sewer network and house connections for all diameter pipes specified for the following trench depths. The rate shall cover the cost of complying with requirements as set out in SANS 1200 DB 5.1, excavation, backfilling, trimming, shaping and compaction of trench bottom and disposing of surplus material within freehaul distance.					
G.52	PS DB 8.3.2 a)	i) 0 m to 1 m deep	m³	0			
G.53	PS DB 8.3.2 a)	ii) 1 m to 2 m deep	m³	89			
		b) Extra-over items G.52 to G.53 including for (provisional):					
G.54	DB 8.3.2 (b)	i) Hard rock excavation	m³	67			
	SANS 1200 LB	<u>BEDDING</u>					
		<u>PROVISION OF BEDDING CRADLE AND BLANKET</u>					
	LB 8.2.2.2	From Municipal Borrow Pit (provisional):					
G.55		a) Selected granular material (Cradle) and compacted to 90% Mod. AASHTO	m³	51			
G.56		b) Selected fill material (Blanket) and compacted to 90% Mod AASHTO.	m³	40			
	LB 8.2.2.3	Commercial source (provisional):					
G.57		a) Selected granular material (Cradle) and compacted to 90% Mod. AASHTO	m³	50		Rate Only	
G.58		b) Selected fill material (Blanket) and compacted to 90% Mod AASHTO.	m³	40		Rate Only	
	SANS 1200 L	<u>WATER NETWORK (HDPE PE100 PN10)</u>					
	L 8.2.1	<u>Supply, Lay, and Bed Pipes Complete with Couplings</u>					
G.59		a) 63 mm HDPe PE100 PN10	m	120			
		<u>PIPELINE TO IRRIGATION DAM</u>					
Total Carried Forward							

Tender No: GM2024/107
UPGRADING OF SPORTS FIELD IN DIBENG
Schedule of Quantities

SECTION G: WATER

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
G.60	PS L 8.2.16	Supply all material, plant, labour and equipment to install irrigation dam connection complete as per details on drawing.	No	1			
		<u>CONNECT TO BOREHOLE</u>					
G.61		Connect to 63 mm HDPE pipe to borehole (Price all inclusive)	No	1			

Tender No: GM2024/107

UPGRADING OF SPORTS FIELD IN DIBENG

Schedule of Quantities

SECTION H : ELECTRICAL INSTALLATION

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
		<u>SECTION H : ELECTRICAL INSTALLATION</u> <u>BILL NO 1 - PRELIMANARIES AND GENERAL</u> Allow for all preliminary and general items required to provide the electrical and civil installation for this project, but excluding items priced elsewhere in these Bills (These amounts will be paid pro rata to the rest of the amounts claimed by the contractor relative to the tender amount) <u>FIXED CHARGE ITEMS</u> Contractual requirements, establish facilities on site:					
H.1		a) Office and storage sheds	Sum	1			
H.2		b) Living accommodation	Sum	1			
H.3		c) Ablution and toilet facilities	Sum	1			
H.4		d) Water supplies, electric power & access	Sum	1			
H.5		Allow for Setting out of works	Sum	1			
H.6		Allow Survey and pegging of works	Sum	1			
H.7		Allow for all construction signs and notices	Sum	1			
H.8		Remove Contractor's site on completion	Sum	1			
H.9		Allow for project notice board	Sum	1			
H.10		Allow for co-operation and programming with other parties that may be working on site.	Sum	1			
H.11		Allow for submission for revisions of Works programme with critical path schedule.	Sum	1			
H.12		Allow for the submission of instruction manuals and record drawings.	Sum	1			
H.13		Allow for the required surety of 10 % of the contract amount.	Sum	1			
H.14		Allow for the required finance and retention.	Sum	1			
H.15		Allow for test and commissioning of the complete installation.	Sum	1			
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION H : ELECTRICAL INSTALLATION**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
H.16		Allow for off-loading and storage of material and equipment.	Sum	1			
H.17		Allow for on-site security guards.	Sum	1			
H.18		Allow for the compliance with all statutory requirements as specified.	Sum	1			
		<u>HEALTH AND SAFETY</u>					
		The Contractor shall, as a condition of the contract ensure that the site of the Works and the Works at all times comply with all relevant legislation regarding Health and Safety of employees, as well as public legitimately on the Site or in the vicinity of the Site, while preventing unauthorised access to the Site of the Works. Contractor to comply to the OHS Act 1993 and as amended.					
H.19		Training	Sum	1			
H.20		Health and Safety Plan (documentation)	Sum	1			
H.21		Safety clothes and equipment (PPE), including for local labour.	Sum	1			
H.22		OHS Safety Officer	Sum	1			
		<u>TIME RELATED ITEMS</u>					
		Allow for the following insurance:					
H.23		a) Of the Works	Sum	1			
H.24		b) Public liability	Sum	1			
H.25		c) Plant and equipment	Sum	1			
H.26		d) Common law liability	Sum	1			
H.27		e) Any other insurance	Sum	1			
H.28		f) Specify:	Sum	1			
		Supervision and Maintenance:					
H.29		a) Allow for supervision	Sum	1			
H.30		b) Allow for maintenance	Sum	1			
H.31		c) Allow for project management	Sum	1			
Total Carried Forward							

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UPGRADING OF SPORTS FIELD IN DIBENG
Schedule of Quantities

SECTION H : ELECTRICAL INSTALLATION

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
H.32		Contractual Requirements, establish facilities on site: a) Vehicles	Sum	1			
H.33		b) Living accomodation	Sum	1			
H.34		c) Telephone and fax facilities	Sum	1			
		Specify other related obligations not covered above:					
H.35		Specify:	Sum	1			

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION H : ELECTRICAL INSTALLATION**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
		<u>BILL NO 2: ELECTRICAL DISTRIBUTION: LV CABLE RETICULATION</u> <u>CABLE TRENCHES</u> All cable trenching necessary to lay new cables, including backfilling. All to specification with 150 mm earth bed and 150 mm earth blanket for cables in soft and hard rock trenches (500 mm wide x 750 mm deep).					
H.36		Excavations in earth 35%	m³	28			
H.37		Excavations in hard rock 85%	m³	158			
H.38		Bedding & Blanket (150 mm bed and 150 mm blanket x 500 mm wide)	m³	74			
		<u>DANGER TAPE</u>					
H.39		PVC Danger tape (Red/Yellow) with wording "ELECTRIC CABLE BELOW" and "ELEKTRIESE KABEL BENEDE" and danger sign	m	550			
		<u>SLEEVES</u> Supply, delivery and installation of all sleeves for the cables installed in trenches, bedding and walls of building complete with adapters between standard lengths					
H.40		50 mm diameter PVC sleeve	m	5			
H.41		75 mm diameter PVC sleeve	m	30			
		Supply, delivery and installation of all sleeve bends (90° slow bend) for the cables installed in trenches, bedding and walls of building complete with adapters between standard lengths					
H.42		50 mm diameter PVC sleeve	No	1		Rate Only	
H.43		75 mm diameter PVC sleeve	No	6			
		<u>LOW VOLTAGE CABLES</u>					
Total Carried Forward							

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ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
		Supply, delivery and installation of the following copper cables between the various distribution points in trenches or sleeves or on cable ladders as specified including delivery on site, unloading and storing. Stranded copper core, PVC/PVC/SWA/PVC 600/1000V copper cables:					
H.44		35 mm² x 4-core copper PVC/PVC/SWA/PVC cable	m	132			
H.45		25 mm² x 4-core copper PVC/PVC/SWA/PVC cable	m	85			
H.46		16 mm² x 4-core copper PVC/PVC/SWA/PVC cable	m	1		Rate Only	
H.47		10 mm² x 4-core copper PVC/PVC/SWA/PVC cable	m	80			
H.48		6 mm² x 4-core copper PVC/PVC/SWA/PVC cable	m	310		Rate Only	
H.49		6 mm² x 3-core copper PVC/PVC/SWA/PVC cable	m	165			
H.50		4 mm² x 4-core copper PVC/PVC/SWA/PVC cable	m	1		Rate Only	
H.51		4 mm² x 3-core copper PVC/PVC/SWA/PVC cable	m	110			
H.52		2,5 mm² x 4-core copper PVC/PVC/SWA/PVC cable	m	30			
H.53		2,5 mm² x 3-core copper neoprene UV resistente H07 cable	m	32		Rate Only	
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION H : ELECTRICAL INSTALLATION**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
		<u>CABLE GLANDS</u>					
		Supply and installation of all cable glands complete with neoprene shroud, brass lock nuts, cable crimping lugs, cut-off cable gland openings in boards and gland plates connected to the relevant cable					
H.54		35 mm² x 4-core copper PVC/PVC/SWA/PVC cable	No	2			
H.55		25 mm² x 4-core copper PVC/PVC/SWA/PVC cable	No	2			
H.56		16 mm² x 4-core copper PVC/PVC/SWA/PVC cable	No	1		Rate Only	
H.57		10 mm² x 4-core copper PVC/PVC/SWA/PVC cable	No	2			
H.58		6 mm² x 4-core copper PVC/PVC/SWA/PVC cable	No	8		Rate Only	
H.59		6 mm² x 3-core copper PVC/PVC/SWA/PVC cable	No	4			
H.60		4 mm² x 4-core copper PVC/PVC/SWA/PVC cable	No	1		Rate Only	
H.61		4 mm² x 3-core copper PVC/PVC/SWA/PVC cable	No	2			
H.62		2,5 mm² x 4-core copper PVC/PVC/SWA/PVC cable	No	16			
H.63		2,5 mm² x 3-core copper neoprene UV resistente H07 cable	No	32		Rate Only	
		<u>EARTH WIRE</u>					
		Supply and installation of bare stranded copper earth wire strapped to the relative size PVC insulated copper cables at 600 mm (minimum) intervals including terminations at both ends of each earth wire					
H.64		25 mm² bare stranded copper conductor	m	132			
H.65		16 mm² bare stranded copper conductor	m	85			
H.66		10 mm² bare stranded copper conductor	m	1		Rate Only	
H.67		6 mm² bare stranded copper conductor (masts)	m	80			
Total Carried Forward							

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ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
H.68		4 mm² bare stranded copper conductor (masts)	m	310		Rate Only	
H.69		2,5 mm² bare stranded copper conductor (masts)	m	30		Rate Only	
		<u>WIRING CHANNELS AND TRUNKING</u>					
		Galvanised trunking including all splices, T-pieces, end caps, corner units, cover plates, fixing screws, cutting and cleaning for wiring purposes and cut outs for 5A sockets for light fittings where required.					
H.70		O-line 2200, 50 x 50 mm	m	1		Rate Only	
		<u>CABLE TRAYS</u>					
		Galvanised wiremesh baskets including all splices, T-pieces, bends, fixing screws, cutting and cleaning for wiring purposes in the ceiling void for electronic services and electrical feeder cables, including supports to steel and timber roof trusses.					
H.71		O-Line GS50-100 mm Wide x 50 mm high	m	1		Rate Only	
		<u>SPORTSFIELD LIGHTING LUMINAIRES</u>					
H.72		Supply, delivery to site and installation of type BEKA OMNIBLAST 1-E MIDI LED 160 412W QE-OPTIC 5359 floodlight luminaires or equal and approved on the existing 25 m scissor masts, including aiming of luminaires after installation.	No	16		Rate Only	
H.73		Disconnect and remove existing high pressure lamp light fittings	No	16		Rate Only	
		<u>3-PHASE INDUSTRIAL SOCKETS</u>					
H.74		Supply,delivery to site and installation of type GEWISS industrial 3-phase, 32A, 5-pin sockets, IP54.	No	8		Rate Only	
		<u>DISTRIBUTION BOARDS AND KIOSKS</u>					
Total Carried Forward							

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ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
H.75		Supply, install, connect, test and commissioning of the distribution boards in the position as indicated on the drawings and specifications, complete with all internal equipment, switchgear and wiring as shown on the schematic wiring diagrams or schedules. Including all wire trays, doors, labels, legend cards, busbars, surge arrestors, conduit connections and wiring connections. (Supply of cable connections are excluded)					
		DB MAST 1 & 3: Weatherproof LV Distribution Board, surface-mast mounted, barker & nelson pad-lockable single door (Normal power section)	No	2		Rate Only	
H.76		DB MAST 2 & 4: Weatherproof LV Distribution Board, surface-mast mounted, barker & nelson pad-lockable single door (Normal power section)	No	2		Rate Only	
H.77		Kiosk 1: Weatherproof LV Distribution kiosk, plinth mounted including pre-cast concrete plinth, barker & nelson pad-lockable single door on both supply/ load sides (Normal power section)	No	1			
		<u>ESKOM LV CONNECTION</u>					
H.78		PC Amount for the re-instatement of the existing 50 kVA low voltage Eskom connection	PC Sum	1	38500.00	38500	00
H.79		Contractor's profit and attendance on item G.78 above.	%				
		<u>GENERAL</u>					
		Testing and Commissioning					
H.80		a) Allow for the testing, recording and commissioning of the LV distribution network	Sum	1	135000.00	135000	00
H.81		b) Allow for the testing, recording and commissioning of the Sportfield mast system	Sum	1			
		Any item which the contractor deems necessary for the successful completion of this assessment stage (state in detail):					
H.82		a)	Sum	1			
Total Carried Forward							

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UPGRADING OF SPORTS FIELD IN DIBENG

Schedule of Quantities

SECTION H : ELECTRICAL INSTALLATION

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Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION H : ELECTRICAL INSTALLATION**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
		<u>BILL NO 3: PAVILION: SMALL POWER & LIGHTING: CONTAINMENT AND WIRING</u>					
		<u>CONDUIT</u>					
		PVC conduit, including all couplings, locknuts and plugs, fixing saddles and screws, cutting, bending, reaming, fixing, cleaning for wiring purposes and chasing in brick walls					
H.86		20 mm PVC cast in concrete/chased into brickwork/surface mounted in ceiling void	m	300			
H.87		20 mm galvanised conduit surface mounted against steel roof trusses	m	65			
H.88		25 mm flexible conduit (Kopex)	m	6			
		<u>DRAW BOXES</u>					
		Supply and installation of pressed steel hot dipped galvanised boxes for sockets, draw boxes, etc. flush mounted in brickwork or cast into concrete connected to the conduit installation as specified					
H.89		100 x 50 x 50 mm boxes	No	9			
H.90		100 x 100 x 50 mm boxes	No	3			
		Supply and installation of round 1 to 4 way draw boxes 65 mm Ø installation in brickwork or in ceilings complete with box lid fixing screws					
H.91		PVC round 65 mm Ø x 50 mm deep for 20 mm conduit	No	26			
H.92		Galvanised round 65 mm Ø x 50 mm deep for 20 mm conduit	No	6			
		<u>SWITCH SOCKETS (FLUSH)</u>					
		Supply and installation of sockets installed in flush and galvanized draw boxes complete with socket fixing screws					
H.93		16A 3-pin single switch socket with cover plate (type Crabtree steel)	No	1		Rate Only	
H.94		16A 3-pin double switch socket with cover plate (type Crabtree steel)	No	3			
Total Carried Forward							

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ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
H.95		16A 3-pin single switch socket with cover plate mounted in and including weatherproof york box <u>SWITCH SOCKETS (SURFACE)</u> Supply and installation of sockets installed in surface mounted, extension steel draw boxes complete with socket fixing screws	No	1		Rate Only	
H.96		16A 3-pin single switch socket with cover plate (type Crabtree steel)	No	1		Rate Only	
H.97		16A 3-pin double switch socket with cover plate (type Crabtree steel)	No	1		Rate Only	
H.98		16A 3-pin single switch socket with cover plate mounted in and including weatherproof york box <u>WIRING CHANNELS/TRUNCKING</u> Galvanised trunking including all splices, T-pieces, end caps, corner units, cover plates, fixing screws, cutting and cleaning for wiring purposes.	No	1		Rate Only	
H.99		O-line 9000, 127 x 76 x 76 mm <u>ISOLATORS (FLUSH)</u> Supply and installation of flush mounted isolating switches for power points complete with 100 x 100 x 50 mm galvanised draw box complete with cover plate and fixing screws	m	40			
H.100		20A double pole isolating switch with cover plate <u>ISOLATORS (SURFACE)</u> Supply and installation of surface mounted, weatherproof isolating switches for power points complete with 100 x 100 x 50 mm galvanized draw box complete with cover plate and fixing screws	No	1			
H.101		30A Tripple pole isolating switch with cover plate <u>LIGHT SWITCHES (FLUSH)</u>	No	2		Rate Only	
Total Carried Forward							

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ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
H.102		Supply and installation of the light switches installed in 100 x 50 x 50 mm deep galvanised flush draw box or 65 mm deep round box complete with fixing screws and cover plate 16A single lever one-way with cover plate	No	9		Rate Only	
H.103		16A two lever one-way with cover plate <u>LIGHT SWITCHES (SURFACE)</u>	No	1			
		Supply and installation of the light switches installed in 100 x 50 x 50 mm deep steel surface mounted extension box complete with fixing screws and cover plate					
H.104		16A single lever one-way with cover plate	No	1		Rate Only	
H.105		16A single lever one-way watertight weatherproof, vandal resistant rotating switch for outdoor use <u>CONDUCTORS</u>	No	1		Rate Only	
		PVC insulated stranded copper conductors for electrical circuits installed in conduit, power skirting, bed-head trunking, wiring channels, etc., grouped and connected to equipment (All wasted cut-offs must be included in the tender price).					
H.106		1.5 mm²	m	720			
H.107		2.5 mm²	m	63			
H.108		Install	m	60			
		Bare stranded copper earth wire for all electrical circuits installed in conduit, power skirting, bed-head trunking, wiring channels, etc., grouped and connected to the equipment. (All wasted cut-offs must be included in the tender price).					
H.109		2.5 mm² <u>CONNECTIONS TO EQUIPMENT</u>	m	422			
		Supply and installation of the complete termination sets, including spragues, terminations, etc. required for each of the following equipment.					
Total Carried Forward							

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ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
H.110		Termination at HOTWATER CYLINDER <u>LIGHT FITTINGS</u> Supply and installation of the following light fittings including lamps, wiring, connections and earthing. Refer schedule of light fittings.	No	1			
H.111		Type A	No	28			
H.112		Type B	No	3			
H.113		Type P <u>HOT WATER CYLINDER</u>	No	1			
H.114		Supply and installation of a Compact KWIKOT Prisma Under Basin 10 ℓ hot water cylinder complete with all fixing bolts for wall mounting. All plumbing measured elsewhere.	No	1	72000.00	72000	00
H.115		Supply and installation of a Vertical KWIKOT 150 ℓ hot water cylinder complete with all fixing bolts for wall mounting. All plumbing measured elsewhere. <u>DISTRIBUTION BOARDS</u> Supply, install, connect or upgrade, and test and commissioning of the distribution boards in the position as indicated on the drawings and specifications, complete with all internal equipment, switchgear and wiring as shown on the schematic wiring diagrams or schedules. Including all wire trays, doors, labels, legend cards, busbars, surge arrestors, conduit connections and wiring connections. (Supply of cable connections are excluded)	No	2			
H.116		Pavilion: DB PAV, Flush wall mounted, barker & nelson pad-lockable single door (Normal power section) <u>GENERAL</u> Testing and Commissioning	No	1			
H.117		Allow for the testing, recording and commissioning of the small power & lighting installations	Sum	1			
Total Carried Forward							

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UPGRADING OF SPORTS FIELD IN DIBENG
Schedule of Quantities

SECTION H : ELECTRICAL INSTALLATION

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
		Any item which the contractor deems necessary for the successful completion of this assessment stage (state in detail):					
H.118		a)	Sum	1			
H.119		b)	Sum	1			
H.120		c)	Sum	1			
H.121		d)	Sum	1			
							</

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ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
		<u>BILL NO 4: CLUBHOUSE: SMALL POWER & LIGHTING: CONTAINMENT AND WIRING</u>					
		<u>CONDUIT</u>					
		PVC conduit, including all couplings, locknuts and plugs, fixing saddles and screws, cutting, bending, reaming, fixing, cleaning for wiring purposes and chasing in brick walls					
H.122		20 mm PVC cast in concrete/chased into brickwork/surface mounted in ceiling void	m	220			
H.123		20 mm galvanised conduit surface mounted against steel roof trusses	m	1		Rate Only	
H.124		25 mm flexible conduit (Kopex)	m	2			
		<u>DRAW BOXES</u>					
		Supply and installation of pressed steel hot dipped galvanised boxes for sockets, draw boxes, etc. flush mounted in brickwork or cast into concrete connected to the conduit installation as specified					
H.125		100 x 50 x 50 mm boxes	No	8			
H.126		100 x 100 x 50 mm boxes	No	4			
		Supply and installation of round 1 to 4 way draw boxes 65 mm Ø installation in brickwork or in ceilings complete with box lid fixing screws					
H.127		PVC round 65 mm Ø x 50 mm deep for 20 mm conduit	No	30			
		<u>SWITCH SOCKETS (FLUSH)</u>					
		Supply and installation of sockets installed in flush and galvanized draw boxes complete with socket fixing screws					
H.128		16A 3-pin single switch socket with cover plate (type Crabtree steel)	No	1		Rate Only	
H.129		16A 3-pin double switch socket with cover plate (type Crabtree steel)	No	4			
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION H : ELECTRICAL INSTALLATION**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
H.130		16A 3-pin single switch socket with cover plate mounted in and including weatherproof yolk box <u>SWITCH SOCKETS (SURFACE)</u> Supply and installation of sockets installed in surface mounted, extension steel draw boxes complete with socket fixing screws	No	1		Rate Only	
H.131		16A 3-pin single switch socket with cover plate (type Crabtree steel)	No	1		Rate Only	
H.132		16A 3-pin double switch socket with cover plate (type Crabtree steel)	No	1		Rate Only	
H.133		16A 3-pin single switch socket with cover plate mounted in and including weatherproof yolk box <u>WIRING CHANNELS/TRUNCKING</u> Galvanised trunking including all splices, T-pieces, end caps, corner units, cover plates, fixing screws, cutting and cleaning for wiring purposes.	No	1		Rate Only	
H.134		O-line 9000, 127 x 76 x 76 mm <u>ISOLATORS (FLUSH)</u> Supply and installation of flush mounted isolating switches for power points complete with 100 x 100 x 50 mm galvanised draw box complete with cover plate and fixing screws	m	40			
H.135		20A double pole isolating switch with cover plate <u>ISOLATORS (SURFACE)</u> Supply and installation of surface mounted, weatherproof isolating switches for power points complete with 100 x 100 x 50 mm galvanized draw box complete with cover plate and fixing screws	No	1			
H.136		30A Tripple pole isolating switch with cover plate <u>LIGHT SWITCHES (FLUSH)</u>	No	1		Rate Only	
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION H : ELECTRICAL INSTALLATION**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
H.137		Supply and installation of the light switches installed in 100 x 50 x 50 mm deep galvanised flush draw box or 65 mm deep round box complete with fixing screws and cover plate 16A single lever one-way with cover plate	No	8		Rate Only	
H.138		16A two lever one-way with cover plate	No	1			
<u>LIGHT SWITCHES (SURFACE)</u>							
H.139		Supply and installation of the light switches installed in 100 x 50 x 50 mm deep steel surface mounted extension box complete with fixing screws and cover plate 16A single lever one-way with cover plate	No	1		Rate Only	
H.140		16A single lever one-way watertight weatherproof, vandal resistant rotating switch for outdoor use	No	1		Rate Only	
<u>CONDUCTORS</u>							
H.141		PVC insulated stranded copper conductors for electrical circuits installed in conduit, power skirting, bed-head trunking, wiring channels, etc., grouped and connected to equipment (All wasted cut-offs must be included in the tender price). 1.5 mm²	m	480			
H.142		2.5 mm²	m	84			
H.143		Install	m	20			
H.144		Bare stranded copper earth wire for all electrical circuits installed in conduit, power skirting, bed-head trunking, wiring channels, etc., grouped and connected to the equipment. (All wasted cut-offs must be included in the tender price). 2.5 mm²	m	292			
<u>CONNECTIONS TO EQUIPMENT</u>							
Supply and installation of the complete termination sets, including spragues, terminations, etc. required for each of the following equipment.							
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION H : ELECTRICAL INSTALLATION**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
H.145		Termination at HOTWATER CYLINDER <u>LIGHT FITTINGS</u> Supply and installation of the following light fittings including lamps, wiring, connections and earthing. Refer schedule of light fittings.	No	1			
H.146		Type A	No	22			
H.147		Type B	No	7			
H.148		Type P	No	1			
		<u>HOT WATER CYLINDER</u>					
H.149		Supply and installation of a Compact KWIKOT Prisma Under Basin 10 ℓ hot water cylinder complete with all fixing bolts for wall mounting. All plumbing measured elsewhere.	No	1	72000.00	72000	00
		<u>DISTRIBUTION BOARDS</u> Supply, install, connect or upgrade, and test and commissioning of the distribution boards in the position as indicated on the drawings and specifications, complete with all internal equipment, switchgear and wiring as shown on the schematic wiring diagrams or schedules. Including all wire trays, doors, labels, legend cards, busbars, surge arrestors, conduit connections and wiring connections. (Supply of cable connections are excluded)					
H.150		Pavilion: DB CLUBH, Flush wall mounted, barker & nelson pad-lockable single door (Normal power section)	No	1			
		<u>GENERAL</u> Testing and Commissioning					
H.151		Allow for the testing, recording and commissioning of the small power & lighting installations Any item which the contractor deems necessary for the successful completion of this assessment stage (state in detail):	Sum	1			
H.152		a)	Sum	1			
Total Carried Forward							

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Tender No: GM2024/107

UPGRADING OF SPORTS FIELD IN DIBENG

Schedule of Quantities

SECTION H : ELECTRICAL INSTALLATION

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
H.156		<u>BILL NO 5: GATEHOUSE: SMALL POWER & LIGHTING: CONTAINMENT AND WIRING</u>					
		<u>CONDUIT</u>					
		PVC conduit, including all couplings, locknuts and plugs, fixing saddles and screws, cutting, bending, reaming, fixing, cleaning for wiring purposes and chasing in brick walls					
		20 mm PVC cast in concrete/chased into brickwork/surface mounted in ceiling void					
H.157		<u>DRAW BOXES</u>					
		Supply and installation of pressed steel hot dipped galvanised boxes for sockets, draw boxes, etc. flush mounted in brickwork or cast into concrete connected to the conduit installation as specified					
H.158		100 x 50 x 50 mm boxes	No	1			
H.159		100 x 100 x 50 mm boxes	No	2			
		Supply and installation of round 1 to 4 way draw boxes 65 mm Ø installation in brickwork or in ceilings complete with box lid fixing screws					
		PVC round 65 mm Ø x 50 mm deep for 20 mm conduit	No	5			
		<u>SWITCH SOCKETS (FLUSH)</u>					
H.160		Supply and installation of sockets installed in flush and galvanized draw boxes complete with socket fixing screws					
		16A 3-pin single switch socket with cover plate (type Crabtree steel)	No	1		Rate Only	
H.161		16A 3-pin double switch socket with cover plate (type Crabtree steel)	No	2			
H.162		16A 3-pin single switch socket with cover plate mounted in and including weatherproof yolk box	No	1		Rate Only	
		<u>SWITCH SOCKETS (SURFACE)</u>					
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION H : ELECTRICAL INSTALLATION**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
H.163		Supply and installation of sockets installed in surface mounted, extension steel draw boxes complete with socket fixing screws 16A 3-pin single switch socket with cover plate (type Crabtree steel)	No	1		Rate Only	
H.164		16A 3-pin double switch socket with cover plate (type Crabtree steel)	No	1		Rate Only	
H.165		16A 3-pin single switch socket with cover plate mounted in and including weatherproof yolk box <u>WIRING CHANNELS/TRUNCKING</u>	No	1		Rate Only	
H.166		Galvanised trunking including all splices, T-pieces, end caps, corner units, cover plates, fixing screws, cutting and cleaning for wiring purposes. O-line 9000, 127 x 76 x 76 mm <u>ISOLATORS (FLUSH)</u>	m	1		Rate Only	
H.167		Supply and installation of flush mounted isolating switches for power points complete with 100 x 100 x 50 mm galvanised draw box complete with cover plate and fixing screws 20A double pole isolating switch with cover plate <u>ISOLATORS (SURFACE)</u>	No	1		Rate Only	
H.168		Supply and installation of surface mounted, weatherproof isolating switches for power points complete with 100 x 100 x 50 mm galvanized draw box complete with cover plate and fixing screws 30A Tripple pole isolating switch with cover plate <u>LIGHT SWITCHES (FLUSH)</u>	No	1		Rate Only	
H.169		Supply and installation of the light switches installed in 100 x 50 x 50 mm deep galvanised flush draw box or 65 mm deep round box complete with fixing screws and cover plate 16A single lever one-way with cover plate	No	1			
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION H : ELECTRICAL INSTALLATION**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
H.170		16A two lever one-way with cover plate <u>LIGHT SWITCHES (SURFACE)</u> Supply and installation of the light switches installed in 100 x 50 x 50 mm deep steel surface mounted extension box complete with fixing screws and cover plate	No	1		Rate Only	
H.171		16A single lever one-way with cover plate	No	1		Rate Only	
H.172		16A single lever one-way watertight weatherproof, vandal resistant rotating switch for outdoor use <u>CONDUCTORS</u> PVC insulated stranded copper conductors for electrical circuits installed in conduit, power skirting, bed-head trunking, wiring channels, etc., grouped and connected to equipment (All wasted cut-offs must be included in the tender price).	No	1		Rate Only	
H.173		1.5 mm²	m	60			
H.174		2.5 mm² Bare stranded copper earth wire for all electrical circuits installed in conduit, power skirting, bed-head trunking, wiring channels, etc., grouped and connected to the equipment. (All wasted cut-offs must be included in the tender price).	m	20			
H.175		2.5 mm² <u>CONNECTIONS TO EQUIPMENT</u> Supply and installation of the complete termination sets, including spragues, terminations, etc. required for each of the following equipment.	m	40			
H.176		Termination at HOTWATER CYLINDER <u>LIGHT FITTINGS</u> Supply and installation of the following light fittings including lamps, wiring, connections and earthing. Refer schedule of light fittings.	No	1		Rate Only	
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION H : ELECTRICAL INSTALLATION**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
H.177		Type A	No	1			
H.178		Type B	No	3			
H.179		Type P	No	1			
		<u>DISTRIBUTION BOARDS</u>					
		Supply, install, connect or upgrade, and test and commissioning of the distribution boards in the position as indicated on the drawings and specifications, complete with all internal equipment, switchgear and wiring as shown on the schematic wiring diagrams or schedules. Including all wire trays, doors, labels, legend cards, busbars, surge arrestors, conduit connections and wiring connections. (Supply of cable connections are excluded)					
H.180		Pavilion: DB GATEH, Flush wall mounted, barker & nelson pad-lockable single door (Normal power section)	No	1			
		<u>GENERAL</u>					
		Testing and Commissioning					
H.181		Allow for the testing, recording and commissioning of the small power & lighting installations	Sum	1			
		Any item which the contractor deems necessary for the successful completion of this assessment stage (state in detail):					
H.182		a)	Sum	1			
H.183		b)	Sum	1			
H.184		c)	Sum	1			
H.185		d)	Sum	1			
Total Carried Forward							

Tender No: GM2024/107

UPGRADING OF SPORTS FIELD IN DIBENG

Schedule of Quantities

SECTION H : ELECTRICAL INSTALLATION

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
H.186		<u>BILL NO 6: COMMISSIONING</u> <u>COMMISSIONING</u> Tenderers to allow for all the commissioning requirements, including testing, attendance, as-built drawings, manuals, etc. as set out in this specification and bills of quantities, prior to the installation being taken over as complete <u>GENERAL ITEMS</u> Any additional items that the tenderer deems necessary for the successful and total completion of the work required for this contract. (specify) a) b) c) d) e)	Sum	1	1200.00	1200	00
Total Carried Forward To Summary							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION I: GRAVEL PARKING AREA**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
I.1	SANS 1200 C	<u>SECTION I: GRAVEL PARKING AREA</u> <u>CLEAR SITE</u>	m²	3150			
	PS C 8.2.1	Remove all grass, rubble,organic residue, roots, etc. that fall within the existing embankment and dump at a place as indicated by the Contractor. Free-haul 35 km or less.					
I.3	SANS 1200 DM	<u>EARTHWORKS</u> <u>TREATMENT OF IN-SITU</u> Rip, mix, grade and compact (depth = 150 mm) in-situ material in accordance with specifications.	m³	473			
	DM 8.3.3	a) Parking area preparation and compaction of material to: 2) minimum of 93% of Mod.AASHTO maximum density.					
I.4		<u>Selected Layer</u> <u>PARKING AREA</u> Construct Parking area with:	m³	473			
	ME 8.3.3	150 mm thick imported G5 material from commercial sources compacted to 95% Mod.AASHTO maximum density.					
Total Carried Forward To Summary							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION J: FENCING**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
J.1	PS F	<u>SECTION J: FENCING</u> <u>EXISTING CONCRETE PALISADE SECURITY FENCE</u> Quantities in this schedule relate to fencing as specified in Particular Specification PSF. The security fencing must be erected in accordance with detail on drawings. Concrete Palisade fencoring, 2.4 m high , complete as per detail on drawings.	m	100			
	PS F 7.2	a) The complete manufacturing and erecting of the fence where fencing has been damaged and vandalised. Price all inclusive. <u>GATES</u> The tendered rate shall include full compensation for the supply and erection of gates as shown and specified on drawing and includes the costs of the supply and erection of the gateposts as shown and specified on the drawings (including labour and material).					
	PS F 7.3	a) 5 m x 2.4 m Sliding gate					
	PS F 7.3	b) 1 m x 1.2 m Single leaf gate					
	PS F 7.3	c) 2.5 m x 1.2 m Double leaf gate					
		<u>INTERNAL FENCING</u> 1.2 m High Econo Mesh <u>General</u> All steel materials shall be of good commercial quality, galvanized steel. All pipes shall be galvanized (one piece without joints), material must be CSIR and SABS approved, Zinc coating shall be smooth and essentially free from lumps, globs, or points. Miscellaneous material shall be galvanized, and them Poly Metric Bond Coated in Black Colour					
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION J: FENCING**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
J.5		<u>Post</u> Post shall be 1.8 m long Taper Locking Post. Post width shall be 85 mm - tapering to 45 mm with a depth of 85 mm. Post shall include ‘Locking Recess Mechanism’ to secure panel edge. Post finish shall be Galvanized and then Poly metric Bond Coated in Black Colour, Post foundation 400 mm x 400 mm x 600 mm with 15 MPa concrete. <u>Panels</u> Panel shall be of 3,305 m width and 1.2 m in height. Panel aperture size (centres) shall be 50.0 mm x 76.2 mm. The panel shall be reinforced with 3 x 50 mm deep ‘V’ formation horizontal recessed bands (rigidity) Panel shall have 2 x 70° flanges along sides (internal fixtures - all fixtures shall be on the inside of fence line). Panel shall have 1 x 30° flanges along toe and 1 x 90° flanges top (integrated rigid angle). Panel post shall have a flush panel post finish. Panel shall be affixed to post over 24 line wires using 8 x Single bolt comb clamps using Anti vandal bolts. Panel and fixtures shall be Galvanized and them Poly metric Bond Coated in Black Colour Clearvu, or equal approved, 1.2 m high fence. a) The complete manufacturing and erecting of the fence. Price all inclusive.	m	475			
Total Carried Forward To Summary							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION K: ATHLETICS TRACK / SOCCER & RUGBY FIELD**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
K.1		<u>SECTION K: ATHLETICS TRACK / SOCCER & RUGBY FIELD</u>					
		<u>SOCCER / RUGBY FIELD</u>					
	SANS 1200 C	<u>CLEAR SITE</u>					
	PS C 8.2.1	Remove all existing perimeter kerbing and stacking on site to be reused as perimeter kerb for the new field.	m	480			
K.2		<u>EARTHWORKS</u>					
	SANS 1200 DM	<u>Cut/Fill</u>					
		Complete cut and fill in-situ material to top of in-situ level as indicated on drawings.					
	DM 8.3.4	a) Cut to Fill					
		Cut to fill on site and compact to 90% Mod.AASHTO	m ³	1220			
		b) Import to Fill					
K.3	DM 8.3.4	Import to fill (RED SOIL) up to in-situ level and compact to 90% Mod. AASHTO	m ³	20			
		c) Cut to Spoil or Stockpile from:					
K.4	DM 8.3.4	Soft excavation	m ³	60			
K.5		<u>FERTILIZING</u>					
	PS LSC 8.4.3	Supply all plant, labour and material to spread general granular fertilizer according to manufacturer's specifications in accordance with PS L 3.1. No of applications = 1	m ²	15300			
		<u>GRASSING</u>					
K.6	PS LSC 8.2.2.2 D 8.3.11	Planting of kikuyu grass sods (PS LSC 3.4) or similar approved by the client. No planting of seeds.	m ²	15300			
		<u>TOP DRESSING</u>					
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION K: ATHLETICS TRACK / SOCCER & RUGBY FIELD**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT		
						R	c	
Brought Forward								
K.7	PS L 8.4.5	Supply all plant, labour and material to spread 25 mm thick layer of topsoil top dressing over existing turf cover. Topsoil shall be procured from a commercial source and shall be according to specification as set out in PS L 3.7 & PS L 5.2.1 <u>GOAL POSTS COMBINATION</u> Item to include all costs related to the manufacturing (painted with durable steel primer and two coats of white enamel paint) and installing of a set of goal posts as shown on drawing for:	m²	15300		Rate Only		
K.8		Soccer/Rugby combination post set <u>ATHLETICS TRACK</u>	No	2				
	SANS 1200 MK	<u>KERBING</u>						
K.9	MK 8.2.1	Item to include all costs related to the excavation, bedding and laying of kerbs that was stockpiled on site (SABS fig 5 type), according to specifications and drawings	m	470				
K.10	MK 8.2.1	Item to include all costs related to the supply, excavation, bedding and laying of kerbs (SABS fig 5 type), according to specifications and drawings <u>ATHLETICS ARENA</u> Items includes all costs related to the construction according to detail and specifications shown on drawing for the following items:	m	470				
K.11		Construction of long jump facility 40 m long with take-off board and sandpit landing area	No	1				
K.12		Construction and marking of shot putt area with paint and 1.22 x 100 x 114 mm 15 MPa concrete shot putt stop ring	No	2				
K.13		Construction of discus circle with discus cage complete as per drawing including excavation, concrete, cast-in hot dipped galvanised steel ring, etc.	No	1				
Total Carried Forward								

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION K: ATHLETICS TRACK / SOCCER & RUGBY FIELD**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
K.14	SANS 1200 DM	Complete construction of the high jump concrete floor slab. Inclusive in rate shall be all material, labour and incidentals necessary to construct a 6 m x 4 m x 0,150 m thick concrete slab with a smooth finish, mesh ref 245, joints, shuttering and 25/19 MPa concrete,	No	1			
K.15		Marking out the javelin throw take off area and border lines with paint as detailed per drawing	No	1			
K.16		Marking and painting of athletic tracks as per detail on drawing.	No	1			
K.17		<u>IRRIGATION</u> Design, supply and install an automatic irrigation network for the Athleticstrack /soccer and rugby field, complete with 180 kℓ water storage dam with lid and earthworks. Installation to include a booster pump,electrical switchgear with connection and electrical cable to electrical DB and station management computer. All pipes to be HDPe. Booster pump to be installed into caretaker's house.(Area to be irrigated = 16 070 m²) Irrigation to be of "hunter" type or similar approved by Engineer	No	1			
K.18		a) 150 mm thick stone pitching on flat areas according to drawing	m²	8	150000.00	1200000	00
K.19		b) 150 mm thick stone pitching on sloped areas according to drawing	m²	12	250000.00	3000000	00
Total Carried Forward To Summary							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION L: REFURBISHMENT OF MULTI-PURPOSE COURTS**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
		<u>SECTION L: REFURBISHMENT OF MULTI-PURPOSE COURTS</u>					
		<u>Tennis, Netball, Basketball, Volleyball Multi-Courts (X2)</u>					
		<u>PATCH AND REPAIR EXISTING PLAYING FIELD</u>					
L.1		The rate to include removal of all loose material from the playing field, cutting out of existing playing surface where necessary and repairing to accommodate new playing surface	m ²	1300			
		<u>NEW PLASTIC LAYERS</u>					
L.2		Supply and spread Barramesh layer	m ²	1300			
L.3		Supply and spread layer of barramastic.	m ²	3900			
		Supply and spread Barracote surface (colour layer) as specified on drawings:					
L.4		a) Green	m ²	930			
L.5		b) Biscuit	m ²	350			
L.6		Item includes all costs for the painting of the multi-purpose court with white/red/ yellow paint as shown on drawing.(sporting codes oncluded is, Tennis, Netbal, Volleyball and basketball)	Sum	2			
		<u>POSTS</u>					
		Supply and erect posts SETS complete with nets as detailed on drawings for the following:					
L.7		a) Tennis, complete with net	No	2			
L.8		b) Netball post set	No	2			
L.9		c) Basket ball post set	No	2			
L.10		d) Volley ball posts, complete with net	No	2			
		<u>FENCING</u>					
		<u>EARTHWORKS</u>					
		The average slope will still be the same as the slope of the courts.					
Total Carried Forward							

Tender No: GM2024/107**UPGRADING OF SPORTS FIELD IN DIBENG****Schedule of Quantities****SECTION L: REFURBISHMENT OF MULTI-PURPOSE COURTS**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
L.11		Foundation excavation for diamond fence poles (450 x 450 x 750 mm)	No	111			
L.12		Backfilling with soilcrete (450 x 450 x 100 mm)	No	111			
		<u>CONCRETE FOUNDATIONS</u>					
L.13		Excavation of the pole foundations is measured elsewhere; foundations 450 x 450 x 600 mm 20 MPa/19 mm concrete.	No	111			
		<u>DIAMOND MESH FENCE</u>					
L.14		Supply and erection of 3.6 m high diamond mesh fence complete as described and shown on drawing. This rate is for installation of poles (excavation and concrete measured elsewhere) erection of the fence, including additional wire for fixing it to anchor poles and all binding wire. All items to be primed with a durable primer and covered with two coats of silver enamel paint.	m	198			
		<u>PEDESTRIAN GATES</u>					
L.15		Install new pedestrian gate complete as per detail on drawing. Poles, struts as specified. All items to be primed with a durable primer and covered with two coats of silver enamel paint.	No	3			
Total Carried Forward To Summary							

Tender No: GM2024/107

UPGRADING OF SPORTS FIELD IN DIBENG

Schedule of Quantities

SECTION M: EQUIPING OF BOREHOLE

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
M.1		<u>SECTION M: EQUIPING OF BOREHOLE</u> <u>BOREHOLE DN12</u> <u>PUMP</u> Supply, deliver, install and commission in pump house a single phase submersible borehole pump with the following characteristics and duty points: - baseplate, - nylon rope, - HDPE pipe from pump to baseplate (pipework from borehole to reservoir measured elsewhere), - Galvanises pipe work from baseplate to underground - Electrical cable from VSD to pump, - MCC with VSD complete with COC, - Level control by means of pressure transducer - Water meter wih all applicable fittings Manufacturer: _____ 1.3 l/s @ 45 m head	m	430			
Total Carried Forward To Summary							

SECTION N : CONTINGENCIES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
N.1		<u>SECTION N: CONTINGENCIES</u> Provide an amount that can be used in total or partially to cover for unforeseen or additional work as instructed in writing by the Engineer. This amount will be deducted from the contract amount should it not be required. Amount = 0,10 (Sum of Section A - M) = 0,10 x R..... Amount = R.....	%	10			
Total Carried Forward To Summary							

GAMAGARA LOCAL MUNICIPALITY

TENDER NO: GM2024/107

UPGRADING OF SPORTS FIELD IN DIBENG

SCHEDULE OF QUANTITY SUMMARY

SECTION	DESCRIPTION	AMOUNT
A	PRELIMINARY AND GENERAL	R -
B	CONSTRUCTION OF BUILDING - CLUB HOUSE	R -
C	CONSTRUCTION OF BUILDING - TICKET OFFICE	R -
D	CONSTRUCTION OF BUILDING - PAVILION	R -
E	CONSTRUCTION OF PUMP HOUSE	R -
F	SEWER	R -
G	WATER	R -
H	ELECTRICAL INSTALLATION	R -
I	GRAVEL PARKING AREA	R -
J	FENCING	R -
K	ATHLETICS TRACK - SOCCER & RUGBY FIELD	R -
L	REFURBISHMENT OF MULTI-PURPOSE COURTS	R -
M	EQUIPING OF BOREHOLE	R -
N	CONTINGENCIES	R -
Nett Tender Total Excluding VAT		R -
ADD : VAT @ 15% on Nett Tender Total		R -
TOTAL CARRIED TO TENDER FORM, INCLUDING VAT @ 15%		R -

C4. CONDITIONS OF CONTRACT

The contract entered into for the work as described herein, shall comply to the *General Conditions of Contract, 2015 Third Edition*, as drawn up by the *South African Institution of Civil Engineering (SAICE)*, the *Institution of Municipal Engineering in Southern Africa (IMESA)* and the *South African Federation of Civil Engineering Contract (SAFCEC)*, of which the documents will be open to inspection at the offices of the Consulting Engineer or can be obtained from anyone of the abovementioned Institutes.

C4.1. SPECIAL CONDITIONS OF CONTRACT, 2015 (GCC 2015)

The following definite conditions will be applicable to this specific contract. The description hereafter of items as specified in the *GCC 2015*, serves as extensions to the different items and must not be seen as a replacement of the *GCC 2015*.

Where any contradictions appear between the Standard Specifications of all trades, as described elsewhere in the document, the *GCC 2015* and the Tender Data, the Tender Data will be accepted as the correct specification and shall be applicable to these works.

C4.1.1.EMPLOYER (CLAUSE 1.1.1.15)

Clause 1.1.1.15 of the *GCC 2015* denotes Gamagara Local Municipality. For the purpose of this Tender "Client" shall have the same meaning as "Employer" and the other way around.

C4.1.2.ENGINEER (CLAUSE 1.1.1.16)

"Engineer" means "Any Partner, Associate or Professional Engineer" whom is generally or specifically assigned by a Partner of MVD Kalahari to fulfil the function as Engineer on behalf of MVD Kalahari, Consulting Engineers, in terms of the *GCC 2015* for the execution of this Contract.

The Engineer shall also act as the Client's Agent with contact details as stipulated under *Volume 1, T1.2 Tender Data*.

C4.1.3.ENGINEER'S REPRESENTATIVE (CLAUSE 1.1.1.17)

Should the Engineer have a Representative on site, he shall notify the Contractor in writing accordingly. For the purpose of this contract, the Representative shall, as appointed by the Engineer in writing, have the same authority as the Engineer. However, the Engineer's decision will be binding should any dispute take place.

No decision by the Representative or any work approved by the Representative shall exempt the Contractor from his responsibilities. The Engineer reserves the right to revoke any work approved by the Representative, without additional remuneration to the Contractor.

C4.1.4.VARIATION ORDERS (CLAUSE 6.3 AND 6.4)

Any work that the Contractor must or would like to do for which he would expect to receive compensation and for which no allowance has been made in this Bill of Quantities, must only be executed if written, Client approved variation orders have been issued to the Contractor. Work done for which no variation order has been issued and that has not been allowed for in the Bill of Quantities shall be done at the Contractor's own expense. Should the Contractor ask for changes or additional work without supplying the cost implications with his request, it will be accepted that there are no cost implications.

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CLIENT

Initial:

Gamagara Local Municipality

Witness:

C4.1.5.AMBIGUITY IN DOCUMENTS (CLAUSE 2.4)

Should there be any contradictions, obscurities, or doubt in the text of the Tender Document or drawings, or if any obvious errors or illegible figures are found, the Contractor must, **before submitting the Tender**, get a written, signed declaration of the correct meaning of such descriptions, figures, clauses, etc. from the Engineer.

The Contractor shall not be permitted to submit any claims against the Client and/or Engineer after closing of Tender due to the abovementioned reasons.

The Contractor must examine the Tender Documents to ensure that it contains all the applicable pages and that a complete set of drawings has been issued. The Contractor must notify the Engineer accordingly should any pages and/or drawings not be there. The Engineer shall then immediately supply a complete set of Tender Documents and/or drawings in exchange of the incomplete set of Tender Documents and/or drawings.

Only information that was **formally** issued in **writing** by the Engineer to Tenderers during the Tender period will form part of the Tender. **No information** that was given **orally** to Tenderers during the site inspection and/or during the Tender period will be binding to the Tender and will not be deemed to be part of the Tender document. During the site inspection, certain additional information will, if deemed necessary, be included in the minutes of the site inspection, which will be issued to all Tenderers.

All information contained in the minutes of the site inspection and/or that was formally issued in writing by the Engineer to Tenderers during the Tender period will be binding to the Tender and deemed to be part of the Tender document.

C4.1.6.BASIS OF CONTRACT (CLAUSE 2)

Add the following to Clause 2:

2.1.4 The several documents forming the contract shall rank in the following order of precedence:

- a. Contract Document;
- b. Tender Form and Appendix;
- c. Special Conditions of Contract;
- d. Project Specifications;
- e. General Conditions of Contract;
- f. Standardised Specifications (SANS 1200) and particular specifications;
- g. Drawings;
- h. Schedule of Quantities and Summary;
- i. Statutory Regulations and Requirements;
- j. Standard SANS Specifications (not SANS 1200);
- k. Other Standard Specifications

C4.1.7.SUB-CONTRACTING (CLAUSE 4.4)

Add to Clause 4.4.4:

Where so instructed by the Engineer, an independent sub-contractor shall execute work.

The independent sub-contractor for the prescribed work shall serve as sub-contractor. The Contractor for the contract shall do everything in his power and to the satisfaction of the Engineer to ensure that the incorporation of the sub-contractor with the contract will run smoothly.

The Contractor has the opportunity to allow for remuneration for his supervision and help to the sub-contractor in the Bill of Quantities and this will be taken as complete remuneration of the Contractor to comply with these instructions. The Contractor shall pay the Sub- contractor, unless differently instructed by the Engineer. Payment to the sub-contractor shall be made within 7 (seven) days after the Contractor

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Witness:

has received his payment. Should this not take place, interest will be paid at prime rate plus 2 (two) percent. Interest will be deducted from payment to the Contractor. The sub-contractor must supply written proof that all previous payments have been made to him before a subsequent payment will be made to the Contractor.

After expiry of the retention period, the Contractor must, when requested by the Engineer in writing, hand over a bank guaranteed cheque in favour of the Contractor to the value of the retention monies due to the Contractor, to the Engineer. The Engineer will not hand the cheque over to the Contractor until such time as the Client has paid the outstanding retention monies to the Contractor.

The Contractor shall be held responsible for any losses suffered by the Client due to delays of the sub-contractor or any other losses suffered by the Client due to actions, conduct, etc. by the Contractor or any of his staff.

C4.1.8.SECURITY (CLAUSE 6.2)

It shall be expected of the Contractor to make use of the Surety Forms included in this Tender. No sureties shall be accepted from companies in which the Contractor or his fellow partners or directors are involved.

Add the following *Sub-Clause 6.2.4* to the existing *Clause 6.2. of the GCC 2015*:

6.2.4 Should any such guarantee, Company or Bank -

- a. be sequestrated, go into liquidation or be placed in execution (preliminary or finally), or
- b. does not respond to a lawful finding within 7 (seven) days, or
- c. enter or try to enter into a general agreement with his/their creditors, or
- d. in general, does not promptly comply with his/their liabilities, or
- e. give the Employer reason to being doubtful about his/their ability or preparedness to meet his/their responsibilities as in Sub-Clause (1) of this Clause [the Employer shall be entitled to ask the Contractor to supply a new surety or sureties, or a new guarantee from an Insurance- or any Registered Company or Bank within 7 (seven) days and the definition of Sub-Clause (1) of this Clause will be applicable mutates mutandis with regard to such surety, sureties or guarantee. Payment shall be in *Section A: General in the Bill of Quantities*].

C4.1.9.COMMENCEMENT OF THE WORKS (CLAUSE 5.3)

The Engineer, in writing a letter of appointment shall, inform the successful Contractor that the Client has accepted his Tender. Immediately after receiving the Engineer's letter of appointment, but no later than 7 (seven) days after the date of the letter of appointment, the Contractor shall notify the Engineer whether he accepts the appointment or not.

Should the Contractor accept the appointment, he will have 14 (fourteen) days from the date of the letter of appointment to supply the necessary sureties in favour of the Client, to the Engineer.

A suitable date for the signing of the Tender document shall be decided upon by mutual agreement, but the date of signing must be within 21 (twenty one) days after the date of the letter of appointment.

Unless the Contractor has been informed to the contrary in writing, the date of signing of the contract shall be taken as the commencement date for the period of completion in accordance with Clause 5.5.1 of the GCC 2015. The site, Tender document and drawings shall be handed over to the Contractor on this date.

The letter of appointment shall, unless the Contractor is notified to the contrary in writing, be taken as written instruction in accordance with Clause 5.6 of the GCC 2015 to commence with the work on the date of signing of the Tender. The Contractor must commence with the work within 14 (fourteen) days of the commencement date.

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Initial: Gamagara Local Municipality

Witness:

C4.1.10. INSTRUCTIONS (CLAUSE 5.9)

One set of drawings shall be issued together with the Tender documents. The drawings may also be inspected at the office of the Engineer during normal office hours.

The Contractor shall receive 3 (three) complete sets of drawings and 2 (two) blank documents at the handing over of the site. 1 (One) complete set of drawings and 1 (one) blank document of abovementioned drawings and documents must always be available on site for the **exclusive use** of the Engineer. Any additional drawings and documents will be supplied to the Contractor at his own expense.

Add Sub-Clause 5.9.8 to Clause 5.9:

"Only dimensions shown on the drawings may be used for the construction of the Works. **No** dimensions may be scaled down from the drawings without **written consent** from the Engineer".

C4.1.11. CONTRACTOR TO BE COMPENSATED (CLAUSE 4.5.4)

It shall be accepted that the Contractor provide for payment of Clause 4.5.4 under Section A of the **Bill of Quantities**. No further payments will be made to the Contractor under this Clause.

C4.1.12. FACILITIES FOR OTHERS (CLAUSE 4.8)

Add Sub-Clause 4.8.3 to Clause 4.8:

"The Contractor's attention is drawn to the fact that other Works by independent sub-contractor may be done simultaneously with this project.

The other Work that may be done simultaneously with this contract by independent sub-contractor is not limited.

The Contractor must ensure that neither his own nor his employees' operations interfere or place hindrances in the way of operations to be performed by the Employer or other sub-contractor. The Contractor herewith safeguards the Employer should any claims arise in this matter.

Any claims arising due to damages to existing services or works or any obstructions or hindrances caused by the sub-contractor and other parties, shall be the responsibility of the Contractor.

Any repair work, improvements or replacing of unsatisfactory work, shall be at the expense of the Contractor and to the Engineer's satisfaction".

C4.1.13. INFORMATION IN RESPECT OF EMPLOYEES (CLAUSE 4.10.2)

Replace the contents of Clause 4.10.2 with the following:

"The Contractor must supply a detailed list of supervising staff and employees taken into service for the execution of this contract, according to their respective categories, to the Engineer on a monthly basis. Such a report must be supplied during the **monthly site meeting**".

C4.1.14. QUALITY OF CONSTRUCTION EQUIPMENT (CLAUSE 7.1)

Add Clause 7.1.2 to Clause 7.1:

"The Contractor must supply a detailed inventory of construction equipment on site to the Engineer on a monthly basis. Distinction must be made between working and non-working equipment on a daily basis. Such a report must be supplied during the monthly site meeting".

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C4.1.15. TESTS (CLAUSE 7.4.3)

Water pipes will be tested to **SANS 1200** and evaluation of density tests shall be done in accordance with **TRH5**. There will however be no conditional acceptance of test results. Only tests requested in writing by the Engineer and that has been accepted by the Engineer, shall be considered for payment.

C4.1.16. NOTICE TO BE GIVEN WHEN READY FOR TESTING (CLAUSE 7.5.3)

The Contractor must give the Engineer at least 48 (forty-eight) hours' notice should an inspection be needed.

C4.1.17. VESTING OF PLANT AND MATERIALS (CLAUSE 6.9)

Material on site, for which the Contractor has received payment, becomes the **property** of the Client and may not be removed from the site without written consent from the Engineer. Decisions about whether material on site shall be paid, depends solely on the Engineer. Material on site shall also only be paid for if it is stored in a safe and secure place and at the discretion of the Engineer. Payment for material on site shall only be done if the Contractor supplies **invoices** to the Engineer.

The Engineer reserves the right to withhold payment for material on site, until the Contractor can supply, on request of the Engineer, **written** proof of **ownership** from the Supplier of material on site.

C4.1.18. PROTECTION OF THE WORKS (CLAUSE 8.1)

The Contractor must ensure at all times, **especially at night**, that all excavations are properly safeguarded with the necessary road signs, chevron safety bands, lights, etc. The Engineer reserves the right to instruct the Contractor to supply **additional safety measures, without additional payment**. Remuneration to comply with these requirements must be included in the Tendered amounts in **Section A of the Bill of Quantities** and no additional payment will be made.

The possible cost of shoring of excavation sides must be included in the cost of excavations. The Engineer reserves the right to request shoring or to strengthen any shoring without additional remuneration to the Contractor.

C4.1.19. INSURANCE (CLAUSE 8.6)

i. GENERAL

Remuneration of Tendered amounts for insurance under Section A of the Bill of Quantities will not be certified, unless the Contractor can prove that instalments have been paid. Engineer can at any time request proof of payment. Receipts will not be accepted as sufficient evidence. Written proof from the Insurer shall be required.

ii. INSURANCE AGAINST "POLITICAL RIOTING" ADD (CLAUSE 8.6.1.2)

Insurance against "Political Rioting" must be taken out on the contract. "Political Rioting" risks must be considered only as the risks for which the South African Special Risk Insurance Association provides for, according to their Regulations that are valid for the duration of the Tender.

The Client must submit any delays of the contract as a direct result of riots to the Engineer for consideration. The Engineer and the Client shall consider every case on merit.

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The Contractor must indemnify the Client against all damages as a result of riots under Section A in the Bill of Quantities. The Client shall not compensate the Contractor for any damages due to rioting.

With the stipulation of the insured amount in accordance with *Clause 8.6.1.1* of the *GCC 2015*, an amount equal to at least 10 (ten) % of the contract value must be supplied for Professional fees for *Clause 8.6.1.1.2* of the *GCC 2015*.

C4.1.20. PROGRESS OF THE WORKS (CLAUSE 5.7)

Add the following to Sub-Clause 5.7.1:

"No instruction of the Engineer to the Contractor to speed up the progress of the work, shall entitle the Contractor to additional remuneration, unless such instruction specifically mentions that the Contractor is entitled to additional remuneration, as well as the amount of remuneration, or in which way such remuneration will be calculated".

C4.1.21. TIME FOR PRACTICAL COMPLETION (CLAUSE 5.5.1)

The Time for Practical Completion specified for all sub-sections of this contract shall be specified by the Contractor in the Contract Data.

C4.1.22. EXTENSION OF TIME DUE TO ABNORMAL CLIMATIC CONDITIONS (CLAUSE 5.12.2.2)

Should there be any **abnormal rain and/or wet conditions** during the period of completion of the Works or any extension of time, as granted under *Clause 5.10* of the *GCC 2015*, an extension of time will be granted in accordance with *Clause 5.10* of the *GCC 2015* by the Client in accordance with the following formula for each calendar month or part thereof:

$$V = (Nw - Nn) + \frac{(Rw - Rn)}{X}$$

- V = Delay due to rain in calendar days for the calendar month under consideration.
- Nw = Actual number of days during the calendar month on which a rainfall of Y mm or more per day has been recorded.
- Nn = Average number of days, as derived from existing official records, on which a rainfall of Y mm or more has been recorded for the calendar month.
- Rw = Actual rainfall measured in mm for the calendar month under consideration.
- Rn = Average rainfall in mm as derived from official records for the calendar month.

Nn, Rn, X and Y's values shall be as given hereunder.

The total extension of time granted due to abnormal rainfall and/or wet conditions, according to *Clause 5.12.2.2* of the *GCC 2015*, shall be the algebraically sum of all monthly totals for the time under consideration. **Should the figure be negative due to less than average rainfall, the time for completion will not be reduced.** Extension of time for part of a month will be determined with a pro-rata value for Nn and Rn.

The abovementioned comparison does not provide for flood damages that might have further or concurrent delays. Possible claims due to flood damages will be handled separately with regard to extension of time.

The factor (Nw-Nn) shall be considered to represent a fair allowance for variations from the average number of days during which rainfall exceeds Y mm. The factor (Rw-Rn)/X shall be considered to represent a fair allowance for variations from the average in the number of days during which the rainfall did not exceed Y mm, but wet conditions prevented or disrupted work.

Below are the values that must be used for determining the extension of time due to abnormal rain.

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Witness:

MONTH	Rn	Nn	
JANUARY	83	7	
FEBRUARY	83	9	
MARCH	81	9	
APRIL	50	6	
MAY	20	3	
JUNE	7	2	X = 10 mm
JULY	3	1	Y = 5 mm
AUGUST	8	2	
SEPTEMBER	6	1	
OCTOBER	27	4	
NOVEMBER	43	6	
DECEMBER	46	6	

Accurate rain gauging's shall be taken at a suitable point on the site daily at **08:00** unless otherwise agreed to by the Engineer and the Contractor shall, at his own expense, take all necessary precautions to ensure that the rain gauges cannot be interfered with by unauthorized persons.

Information regarding existing rainfall records, if available from a suitable rainfall station near the site, will be supplied in the project specifications together with calculations of rain delays for previous years in accordance with the above formula. The average of these delays will be regarded as normal rain delays which the Contractor shall accommodate in his programme, and for which no extension of time will be considered.

If no suitable rainfall records are available, the above formula will not apply.

C4.1.23. PENALTY FOR DELAYS (CLAUSE 5.13)

The amount due to the Client by the Contractor for damages incurred because of delays as defined in Clause 5.13 of the GCC 2015, amounts to the contract value x (5.75 c per R 100.00 per calendar day). The Employer reserves the right to recover actual losses where applicable.

Add Sub-Clause 5.13.3 to Clause 5.13:

"Notwithstanding abovementioned, should the construction fall behind with regard to the construction program as submitted in terms of *Clause 5.6*, or any changes in terms of *Clause 5.5*, then, after written instruction has been given in this matter, the Engineer will give the Contractor 7 (seven) days grace to catch up. Should the Contractor fail to catch up with the construction program, **the Client will have the right to appoint any other Contractor to help the Contractor to catch up on lost time, or to complete the outstanding work on behalf of the Contractor under this Contract.**

In the event where such an additional contractor gets appointed to complete the outstanding work, the Contractor shall be obliged to remunerate the additional Contractor for such work in terms of this Contract. Any difference in costs as asked by the additional Contractor and the cost of the concerned work as Tendered by the Main sub-contractor and as adjusted by the Price Adjustment Formula, where applicable, shall be carried by the Contractor".

C4.1.24. METHOD OF MEASUREMENT (CLAUSE 6.7.5)

TENDERER:

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1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality

Witness: _____

The Engineer shall do measurement for the monthly payment certificates. Where ways of calculating for quantities for the Bill of Quantities differ from ways of calculating as set out under Standard Specifications, the way it has been set out in the Bill of Quantities, shall be used. Measuring shall be done in accordance with the **drawings** or the **altered drawings**.

C4.1.25. ADDITIONAL WORK (CLAUSE 6.3.1.5)

Only additional work, for which the Contractor received **written notification** from the Engineer, shall be remunerated. The Contractor must **apply** in writing to **request** remuneration for additional work. Also see C4.1.4 Variation Orders (Clause 6.3 And 6.4), page 226

C4.1.26. INTERIM PAYMENT (CLAUSE 6.10.1)

Payment shall be done in accordance with **Clause 6.10.1** of the GCC 2015.

C4.1.27. VARIATIONS EXCEEDING 15% (CLAUSE 6.11)

For the purpose of this Tender the abovementioned Clause shall change so that **15** (fifteen) % reads **20** (twenty) %.

C4.1.28. COMPLETION (CLAUSE 5.14)

The Engineer is entitled to approve work as it is completed. Work that has been approved shall not be taken as acceptable for *taking-over* with regard to **retention purposes**, unless a certificate has been issued in this regard. Taking-over with retention in mind, shall only take place with the completion and approval of the Works.

C4.1.29. DEFECTS LIABILITY PERIOD (CLAUSE 1.1.1.13)

The duration of the Defects Liability Period of the Works, as set out in **Clause 1.1.1.13** of the GCC 2015, are 12 (twelve) months from the **date of completion** of the Works as certified by the Engineer.

C4.1.30. TERMINATION BY EMPLOYER (CLAUSE 9.2)

Further to **Clause 9.2** of the GCC 2015, the Contractor shall supply the Engineer with a complete list of equipment, as well as a declaration of ownership of such equipment, i.e. also rented equipment. It is necessary that the ownership of the equipment be declared, especially with reference to confiscation when the Works are set foot on by the Employer in terms of **Clause 9.2** of the GCC 2015.

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Witness:

C5. SPECIFICATIONS

C5.1. STANDARD SPECIFICATIONS

The **Standard Specifications** on which this contract is based are the *South African Bureau of Standard's Standardised Specifications for Civil Engineering Construction (SANS 1200)*. Note: The "**SABS**" has been changed to "**SANS**"; the *SABS 1200* specifications are due to be replaced in the foreseeable future by *SANS 1200*.

Although not bound or issued with this document, the following sections of the *Standardised Specifications* of *SANS 1200* shall form part of this contract:

1. 1200 A General
2. 1200 AB Engineer's Office
3. 1200 C Site Clearance
4. 1200 DA Earthworks (Small works)
5. 1200 D Earthworks
6. 1200 DB Earthworks (Pipe Trenches)
7. 1200 DM Earthworks (Roads, Subgrade)
8. 1200 GA Concrete (Small works)
9. 1200 LE Stormwater Drainage
10. 1200 M Roads (General)
11. 1200 ME Sub Base
12. 1200 MF Base
13. 1200 MJ Segmented Paving
14. 1200 MK Kerbing and Channelling
15. 1200 MM Ancillary Road Works

Note: In all cases the latest editions will be applicable.

TENDERER:

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CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

C5.2. PROJECT SPECIFICATIONS

The Project Specification, consisting of two parts, forms an integral part of the Contract and supplements the Standard Specifications.

Part A contains a description of the project, general information and a general description of the works, the site and the requirements to be met.

Part B contains variations, amendments and additions to the Standardised Specifications and, if applicable, the Particular Specifications.

In the event of any discrepancy between a part or parts of the Standardised and Project Specifications, the **Project Specifications** shall take precedence and shall govern. In the event of a discrepancy between the Specifications (including the Project Specifications and the drawings and/or Schedule of Quantities, the discrepancy shall be resolved by the Engineer before the execution of the works under the relevant item.

C5.3. PART A: PROJECT DESCRIPTION AND GENERAL INFORMATION

C5.3.1. SCOPE AND OVERVIEW OF THE WORKS

Upgrading of Sports Fields in Dibeng consists of repairs of changing room, ablutions, and kitchen, grandstands, grassed soccer and rugby field, perimeter fencing and ticket office, water supply and electrical connection and floodlights, refurbishment of multi-courts.

C5.3.2. EXTENT OF THE WORKS

All work shall be done according to specifications using **approved** materials and equipment **suitable** to these systems and/or facilities they serve.

The said work shall be executed within the period as stated in the Contract Data to the Tender. All new equipment materials and systems shall be furnished with a written guarantee including a defect liability period of **twelve (12)** months from date of completion of the project. These guarantees shall be furnished in favour of the Gamagara Local Municipality. On completion of the said contract the works shall be handed over to the satisfaction of the Engineer and the Gamagara Local Municipality.

- **The project comprises of the following:**

- ***The Changing room, toilets and kitchen repairs:***

- Replace all floor and wall tiles, shower, toilet facilities.
 - Replace trusses, window frames, doors.
 - Repaint all internal walls.
 - Provide Sewer connections to the site
 - Electrify and issue Compliance certificate.

- ***The Grandstands:***

- Refurbishment of structural steel spectator grandstand with a seating capacity of ±210 spectators

- ***The Soccer & Rugby Pitch and Athletic Track:***

- Design, manufacture, supply, deliver, and install a grassed rugby and soccer Field in accordance with the relevant rules of the sport and an 8-lane athletics track.

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Witness:

- **The Perimeter fencing:**
 - Supply and install perimeter fencing where existing fence have been vandalized with a 2.1m high Concrete Palisade with minimum strength of 30MPa at 28 Days.
- **The Water connection:**
 - Refurbish and equip the existing borehole for irrigation
 - Refurbish the existing water tanks and install the pipe connections for irrigation and potable water
 - Supply booster pump for irrigation
- **Site reticulation**
 - Reinstatement of existing Eskom connection and internal network to the pavilion structure
- **The Electrical connection:**
 - Supply and install all electrical connections, including high mast lights and building wiring.
- **Floodlights**
 - Install new floodlights and switchgear to the existing 4x light masts
- **Multi-Courts**
 - Refurbishment of existing x 2 multi-courts.

• **Drawings**

The reduced scale drawings that form part of the tender documents shall be used only for tender purposes. Only "Approved for Construction" drawings may be used for the execution of the Contract. It must be noted that certain specifications which may appear on the drawings are not necessarily repeated in the Project Specifications. Where applicable certain items in the Schedule of Quantities refer to the drawings.

CIVIL DRAWINGS	
Drawing number	Description
3089-2/C/D/L001	DRAWING LIST
3089-2/C/L/L/001	LOCALITY PLAN
3089-2/C/M/L/001	SITE LAYOUT
3089-2/C/F/L/001	SEWER LAYOUT
3089-2/C/F/D/001	SEWER DETAILS 1
3089-2/C/F/D/002	SEWER DETAILS 2
3089-2/C/W/L/001	WATER LAYOUT

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Initial: Gamagara Local Municipality _____
Witness: _____

CIVIL DRAWINGS	
Drawing number	Description
3089-2/C/W/D/001	WATER DETAILS 1
3089-2/C/W/D/002	WATER DETAILS 2
3089-2/C/W/D/003	WATER DETAILS 3
3089-2/C/R/L/001	STORMWATER LAYOUT 1
3089-2/C/G/D/001	GENERAL DETAILS 1
3089-2/C/G/D/002	GENERAL DETAILS 2
3089-2/C/G/D/003	GENERAL DETAILS 3
3089-2/C/G/D/004	GENERAL DETAILS 4
3089-2/C/G/D/005	SECURITY FENCE LAYOUT: SECTION AND DETAILS 1
3089-2/C/G/D/006	SECURITY FENCE LAYOUT: SECTION AND DETAILS 2

ELECTRICAL DRAWINGS	
Drawing number	Description
3089-002/K/D/L/001	DRAWING LIST
3089-002/K/MN/L/001	SITE PLAN CABLE RETICULATION
3089-002/K/G/G/001	PAVILION LIGHTS AND SMALL POWER LAYOUT
3089-002/K/G/G/002	CLUB HOUSE LIGHTS AND SMALL POWER LAYOUT
3089-002/K/G/SLD/001	SINGLE LINE DIAGRAM
3089-002/K/G/D/001	PROJECT SPECIFICATION SHEET 1

STRUCTURAL DRAWINGS	
Drawing number	Description
3089-2/S/D/L/001	DRAWING LIST
3089-2/A/B/L/001	TICKET OFFICE AND CLUBHOUSE ARCHITECT LAYOUT
3089-2/A/B/L/002	PAVILION ARCHITECT LAYOUT

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STRUCTURAL DRAWINGS	
Drawing number	Description
3089-2/A/W/L/001	CLUBHOUSE WATER AND SEWERAGE LAYOUT
3089-2/A/W/L/002	PAVILION WATER AND SEWERAGE LAYOUT
3089-2/S/D/L/001	DRAWING LIST
3089-2/A/B/L/001	TICKET OFFICE AND CLUBHOUSE ARCHITECT LAYOUT
3089-2/A/B/L/002	PAVILION ARCHITECT LAYOUT
3089-2/A/W/L/001	CLUBHOUSE WATER AND SEWERAGE LAYOUT
3089-2/A/W/L/002	PAVILION WATER AND SEWERAGE LAYOUT
3089-2/S/E/L/001	TICKET OFFICE AND CLUBHOUSE ELEVATION LAYOUT
3089-2/S/E/L/001	PAVILION ELEVATION LAYOUT
3089-2/S/C/L/001	TICKET OFFICE ROOF LAYOUT AND PAVILION BRICKWORK AND FOUNDATION LAYOUT
3089-2/S/C/L/002	PUMPHOUSE LAYOUT, ELEVATION, SECTION AND DETAILS
3089-2/S/S/L/001	PAVILION ROOF LAYOUT AND SECTIONS
3089-2/S/C/D/001	GENERAL DETAILS

C5.3.3.LOCATION OF THE WORKS

The project is located within Gamagara Local Municipality, Ward 2 (Dibeng); the project coordinates are as follows.

GIS reference:

DESCRIPTION	LONGITUDE	LATITUDE
Dibeng Sport field	22°53'30.0	27°35'34.7

C5.3.4.OTHER GENERAL REQUIREMENTS

C5.3.5.1 PROGRAMME ALLOWANCENS

The Contractor's programme shall take the following into consideration:

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- i) expected normal climatic weather conditions;
- ii) special non-working days as stipulated in the Contract Data;
- iii) expected value of the work performed for each activity;
- iv) stipulate any other information required by the engineer.

C5.3.5.2 PROCEDURES DURING CONSTRUCTION

The Contractor to supply, keep up to date and keep the following documents on-site on a daily basis:

- I. A full set of the latest construction drawings to be on-site permanently for use by the Engineer and others;
- II. The Contractor to supply and keep on-site an A4 triplicate site instruction book, which must be presented to the engineer at all site meetings and site inspections;
- III. The Contractor is to supply an A4 duplicate diary on-site to be signed off by the Engineers representative. The Contractor to keep a daily diary, with at least the following information:
 - Weather condition
 - Record of any accidents and detail
 - Record of construction activities of the day with associated units measures of progress for each activity.
 - Record of resources (labour, materials, plant, etc.) utilized daily.
 - Information of any strikes
 - Any other relevant information

C5.3.5.3 SITE FACILITIES AVAILABLE

C5.3.5.1 Source of Water Supply

The Contractor is to make his own arrangements with the local authorities to supply water for construction purposes.

C5.3.5.2 Source of Power Supply

The Contractor is to make his own arrangements with the local authorities for the supply of electricity from a metered point on the existing electrical network at the current electricity rates as stipulated by the Municipality.

C5.3.5.3 Location of Camp and Depot

The Contractor is responsible for his own secure campsite, and should make arrangements with the local authority. The Contractor shall make his own arrangements for the accommodation of labour.

C5.3.5.4 Spoil Sites

No indiscriminate spoiling of material will be allowed. All unsuitable surplus material shall be removed from the site to a designated area as identified by the Client.

Infrastructure that are removed and replaced such as palisade fencing, old valves, water meters and pipe sections must be deposited at the municipal yard in Dibeng.

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C5.3.5.5 Borrow pit for gravel and bedding material

Bedding and blanket material can be obtained from the municipal borrow pits. If not suitable, material must be imported.

C5.3.5.4 TIME-RELATED ITEMS

An approved extension of time (other than an extension of time granted in terms of Clause 5.12 of the Conditions of Contract) will entitle the Contractor to submit a claim for additional payment. Any such approved additional payment will be made for proven additional costs for each relevant time-related item but will be limited to a maximum amount determined from the sum tendered for such item and from the designated operation, the period stated for the completion of the item or the tendered contract period, as applicable.

C5.3.5.5 PROJECT NAME BOARD

The Contractor must make provision for two (2) project name boards as per the drawings bound in the document, and the position of the name boards must be communicated with the Employer.

C5.3.5.6 PROTECTION FROM STORMS AND FLOODS

The sum allowed for in the Bills of Quantities shall be deemed to be full compensation for any damage to the Works due to storms, rain, floods, stormwater or subsurface water.

Under no circumstances shall the Contractor be entitled to any additional payment in this regard. The Contractor shall accept full responsibility and costs to handle water from any source on the Site. The preceding shall imply that the Contractor shall also be responsible for the necessary arrangements with regard to the provision of Special Risk Insurance to address any such of the abovementioned occurrences, and the sum allowed for in the Schedule of Quantities shall be deemed to be full compensation for maintaining any such insurance during the full period of the contract.

C5.3.5.7 EXISTING SERVICES

It shall be the full responsibility of the Contractor to obtain Way Leaves from the Local Authorities or any other Service Provider Institutions (Eskom, Telkom, etc) regarding any existing services that will have an impact on the Works or the execution thereof. The Contractor shall make further investigations to determine the exact locality, size and depth of existing connections and/or pipelines before commencing with construction to ensure that no damage is done to any existing pipes or fittings.

The Contractor shall take all reasonable precautions to protect existing pipelines/services during construction and during relocation of such services. Way-leave arrangements to be made with Telkom, Eskom, Provincial roads and Municipality on the identification of existing services.

Any pipe, cable, conduit or other services of any nature whatsoever indicated to the Contractor and subsequently damaged as a result of the Contractor's operations shall be repaired and reinstated forthwith by the Contractor or by the authority concerned, all at the expense of the Contractor and to the satisfaction of the Engineer. Whenever services are encountered which interfere with the execution of the Works and which require removing and relocating, the Contractor shall advise the Engineer, who will determine the extent of the work, if any, to be undertaken by the Contractor in removing, relocating, and reinstating such services.

Any work required to be undertaken by the Contractor in the moving and relocation of services for which no provision is made in the contract documents or for which no applicable tender rates exist will be classed and paid for as "Daywork" as prescribed in the General Conditions of Contract.

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The Contractor shall work in close co-operation with personnel of the Municipality controlling services that must be protected, removed or relocated. No undertaking can be given as to the exact time of commencement or of completion of the relocation, removal or protection of services, which have to be carried out by the Board or controlling authorities themselves. The Contractor is to make an allowance in his programme for this contingency.

Where services have to be removed or relocated, or protected, the Engineer will, at the request of the Contractor, notify or negotiate with the Municipality or authorities controlling those services, but the Employer does not accept liability for any costs resulting from delays in the relocation, removal or protection of any service, or delays as a result of delays in negotiations. The sum allowed for in the Schedule of Quantities shall be deemed to be full compensation for the location and protection of existing services.

C5.3.5.8 ACCOMMODATION OF TRAFFIC AND PUBLIC ACCESS

During all his operations and when using his machinery, plant and equipment, the Contractor shall at all times take the necessary care to protect the public and to facilitate the traffic flow. The Contractor must make provision under the designated tariff in the Preliminary and General cost to allow for the following:

- I. To create temporary access for both vehicles and pedestrians
- II. To provide detours where necessary
- III. To provide, install and maintain traffic- and warning signs as required

C5.3.5.9 SETTING OUT OF WORKS

All setting out required to carry out the work shall be undertaken by the Contractor. Setting out of the Works to be priced for in the item provided. The Contractor shall provide for two (2) surveyor assistants to be made available to the Engineer or his representative during the works. The survey equipment must be available on-site for the full duration of the works.

C5.3.5.10 TEMPORARY OFFICE AND COMMUNICATION FACILITIES

No office shall be specifically required for the Engineer or his representative, but the site office of the contractor must be made available and so equipped that the Engineer, his representative or the Community Liaison Officer can perform their work undisturbed at any time during the works. The Contractor shall make provision at his own cost for efficient communication between his site office and the office of the Engineer for the duration of the contract as provided for in the Preliminary and General cost items.

C5.3.5.11 SAFEGUARDING OF MATERIAL, EQUIPMENT AND PROPERTY

The contractor is responsible for providing the necessary precautionary measures to ensure the safety and protect the Works against any losses and vandalism that can occur. The Contractor shall make provision at his own cost for precautionary safeguarding measures for the duration of the contract as provided for in the Preliminary and General cost items.

C5.3.5.12 SANITARY CONDITIONS

The Contractor shall ensure that, during the period of construction, sanitary conditions prevail on the site and surrounding areas. Unhygienic behaviour that may cause contamination of the works or the surrounding area is strictly prohibited, and the Contractor shall bear full responsibility for providing sanitary facilities in accordance with the regulations of Local Authorities and Specifications within the contract.

C5.3.5.13 DEALING WITH WATER

The occurrence of rainwater and/or seepage in pipe trenches and excavated ponds after abnormal rainfall shall be removed, and treatment of water shall be executed by the Contractor at his own cost. The extension

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Witness:

of time granted for abnormal rainfall conditions shall be taken as sufficient compensation for the removal of rainwater or seepage and/or for the treatment of water in trenches and ponds as a result of seepage or rainwater accumulation after the occurrence of abnormal rainfall.

C5.3.5.14 CONSTRUCTION IN CONFINED AREAS

It may be necessary for the Contractor to work within confined areas, and no additional payment will be made for work done in restricted areas. The method of construction in these confined areas will depend largely on the Contractor's construction plant. However, the Contractor shall note that measurement and payment will be only in accordance with the specified cross-sections and dimensions and that the tendered rates and amounts shall include full compensation for all special equipment and construction methods and for all difficulties encountered during working in confined areas and narrow widths, and at or around obstructions, and that no extra payment will be made nor will any claim for additional payment be considered in such cases.

C5.3.5.15 DENSITY TESTS / CONCRETE CUBES

The Contractor shall carry out his own density tests on each compacted layer, and these tests shall be submitted to the Engineer for scrutiny and approval before commencing with the construction of the following item and/or stage. The sum allowed for in the Schedule of Quantities shall be deemed to be full compensation for the full-time instalment of the required testing equipment and for the cost of all required testing procedures to be carried out on-site for the duration of the works.

The Contractor also needs to do his own concrete cube tests, which are to be handed to the Engineer for scrutiny and approval. The Engineer may order that further control tests are to be taken.

The Engineer may order that control tests be taken by his own or another independent laboratory. A provisional sum is provided in the Bills of Quantities to allow for the cost of control tests.

The sum allowed shall, however, be under the control of the Engineers, and payment shall only be made to the Contractor on receipt of proof of expenses incurred by the contractor for the tests, i.e. payments to be made to an independent laboratory.

Should these control tests indicate failure to obtain the required standards, the cost of the tests shall be for the Contractor's account. The required Cube tests and Density tests carried out by the Contractor in the normal course of his work shall not be covered by this Sum and shall be carried out at his own expense. The tendered rates in the Bills of Quantities shall be deemed full compensation for the testing of materials.

C5.3.5.16 COMMUNITY LIAISON OFFICER (CLO)

The CLO official shall be identified by the Employer to act as a liaison person between the Contractor and the persons to be employed. The liaison officer must be appointed by the process of appointment, and the job description is available from the Employer or the employer's Agent, which must be communicated to him/her after the appointment. The remuneration of the CLO must be in line with the rates of the area and is fixed at a minimum of **R10,000.00 per month**.

C5.3.5.17 LABOUR INTENSIVE ACTIVITIES

The normal rules and regulations in terms of the Labour Act must be adhered to. Minimum wages for the region must be paid to the labourers, and formal Labour-contract documentation must be in place during the construction period. The minimum labour wage of R38.50 per hour will be applicable for this contract. The appointment of Local Labour shall adhere as far as possible to the requirements stipulated by the WSIG Project Requirements for the full duration of the works. The contractor shall be responsible for submitting, together with his monthly performance claims, a complete detailed record of all labour on-site to the Engineer for the processing of monthly payment certificates, and failure to do so will result in a breach of contractual compliance and nor the Employer nor his agent will be held liable for late payments to the Contractor.

The following activities must be executed with local labour:

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Witness:

- General labour
- Pipe handling and laying.
- Bedding and blanket material
- Backfilling of trenches
- Building of manholes
- Repair / Installation of fencing
- Final site clearance
- Hand excavation close to existing services
- Planting of grass

C5.3.5.18 CLASSES OF EXCAVATION

Estimated quantities of expected soft and hard rock excavations are provided in the Schedule of Quantities, and materials shall only be classified as soft or hard rock material for the purpose of this contract and shall be classified as such by the Engineer on site.

All material encountered in any excavations for any purpose, including restricted excavation, will be classified as follows:

I. Hard rock excavation

Hard rock excavation shall be excavation in material (including boulders exceeding 0.15 cubic metres in individual volume) that cannot be efficiently removed without blasting, wedging, splitting or a mechanical hammer. Construction takes place close to structures, and it is highly likely that mechanical hammers will be required.

II. Intermediate excavation

No provision shall be made for the classification of Intermediate material for the purpose of this contract.

III. Soft excavation

Soft excavation shall be all material not falling into the category of hard rock or intermediate excavation.

C5.3.5.19 QUALITY CONTROL BY THE ENGINEER

Except for the quality control measures that must be implied by the Contractor, the Engineer can arrange and execute his own quality control inspections. Invoices will be forwarded to the Contractor for payment and to claim with a 10 % markup. However, in the case where the Contractor fails to comply with the required quality control measures during the execution of the works, the Contractor shall be liable for all costs resulting from quality control tests and/or inspections carried out by the Engineer.

C5.3.5.20 LOCAL CONTENT AND EXPENDITURE

30 % of the construction amount should be spend locally within the Gamagara LM project area. The cost of local labour, local sub-contractors and local suppliers will form part of the 30%.

It will be expected of the contractor to track and report to the Employer the actual monthly expenditure on local content.

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Witness:

C5.4. PART B: AMENDMENTS TO THE STANDARD SPECIFICATIONS

In certain clauses the *Standard Specifications* allow a choice to be specified in the Project Specifications between alternative materials or methods of construction and for additional requirements to be specified to suit a particular contract. Details of such alternative or additional requirements applicable to this Contract are contained in this part of the Project Specification. It also contains additional specifications required for this particular contract.

The number of each clause and each payment item in this part of the Project Specifications consists of the prefix PS followed by a number corresponding to the number of the relevant clause or payment item in the *Standard Specifications* and which is included here, is also prefixed by PS, but followed by a new number which follows on the last clause or item number used in the relevant section of the *Standard Specifications*.

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Witness: _____

C5.4.1.SANS 1200 A: GENERAL

A 3 MATERIALS

PS A 3.1 QUALITY

Substitute the second sentence of the first paragraph of A 3.1 with the following:

Materials shall bear the official SABS/SANS mark of the appropriate standard.

Substitute the second paragraph with the following:

Samples on which laboratory testing is required, shall be delivered free of charge to an approved laboratory. The Contractor is responsible for the cost of all testing to ascertain that the materials do comply with the specified minimum requirements of the relative materials and no additional payment will be made for such testing.

The Contractor shall inform the Engineer of any control testing to be done at least 48 hours before such tests are required and must allow in his programme for the time necessary for the tests and the processing of the results thereof.

A 5 CONSTRUCTION

A 5.1 SURVEY

PS A 5.1.1 Setting out of the Works

Substitute the first paragraph in A 5.1.1 with the following:

Setting out of the works is the sole responsibility of the Contractor and shall be done from benchmarks as indicated on the drawings. The Contractor shall, within 2 (two) weeks after the site has been handed over to him, ascertain himself of the correctness of all pegs and benchmarks. Any discrepancy shall immediately be reported in writing to the Engineer. Any costs or subsequent costs arising from discrepancies, which had not been reported to the Engineer within the aforementioned period, shall be the sole responsibility of the Contractor.

PS A 5.4 PROTECTION OF OVERHEAD AND UNDERGROUND SERVICES

Add the following to A 5.4:

The Contractor shall, as soon as possible after handing over of the site, commence with the detection of existing services, continue with it without interruption and finalise it at least 7 days before excavation starts at that particular section.

PS A 5.7 HEALTH AND SAFETY

Substitute A 5.7 with the following:

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Witness:

The maintenance of safe work practice at all times and in all sections of the execution of the works is embedded in the day to day site activities of all the Contractor's management, staff and workforce on the contract.

However, the introduction of the *Construction Regulations* in 2003 requires from the Employer to ensure that the Contractor has made adequate provision for the execution of the works within the specifications of said regulations. The following list of items have been identified as critical towards ensuring the minimum standards of safe working practice and needs to be priced in as part of the fixed charge and time related items provided for in the bill.

It must be noted that the list below is not exhaustive and that many items have been traditionally priced by the Contractor as an integral part of the Preliminary and General items or as part of the overhead costs of other items. The tender document, although not detailed with regards to the *Construction Regulations*, requires that the Contractor ensures adherence to the *Occupational Health and Safety Act (Act 85 of 1993)* and the *Construction Regulations, 2014*.

List of Items:

- Obtain current letter of Good Standing (*Compensation for Occupational Injuries and Diseases*);
- Commitment to comply with *Occupational Health and Safety Act and Regulations (Act 85 of 1993) as amended*;
- Proof of competence (Company Profile, CVs of all Health and Safety related appointments, list of previous projects, skills, experience, resources, registration with Master Builders Association);
- Compilation of Safe Work Method Statements/Safe Work Procedures (This must include written statements of how the work will be undertaken, the nature of the potential dangers connected with that work and safety precautions to be taken.);
- Project specific exercise to determine hazards and to assess the risk involved;
- Compilation of an applicable project specific Health and Safety Plan;
- Provision of project specific Health and Safety Plan compliance documentation (This refers to the safety file.);
- Compilation of a project specific Occupational Health and Safety management structure / organogram (to include a matrix/list of persons appointed with specific Occupational Health Safety responsibilities.);
- Provision of a project specific induction training program;
- Provision of induction training prior to construction commencing;
- Provision of trained First-Aid officials (at least level 1);
- Provision of applicable First-Aid equipment and supplies (as per *General Safety Regulation 3a*);

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Witness:

- Provision of applicable Personal Protective Equipment for each person exposed to work related hazards as and when needed / required (Personal Protective Equipment must address needs determined by the *HIRA*);
- Provision of sufficient copies of the latest version of the *Occupational Health and Safety Act* and all regulations, Safety Standards and *SANS* Standards as depicted by the *Act*;
- Provision of an Electrical Certificate of Compliance for sites established;
- Process for evaluation of worker fitness to operate construction vehicles (medical certificate of fitness and physiological fitness);
- Provision for a competent person to oversee excavations as specified by *Construction Regulation 11(1)*;
- Provision for a competent person to inspect excavations as specified by *Construction Regulation 1(3)h*;
- Evaluate the stability of ground/soil prior to excavation by competent person (professional engineer/technologist educated in excavation science);
- Provide for sufficient steps to prevent any person from being buried/trapped by a fall or dislodgement of material in an excavation;
- Provide for adequate shoring and bracing strong enough to support the sides of all excavations;
- Provision of precautionary measures to ensure that no load, material, plant or equipment is placed or moved near the edge of excavations;
- Provide for safe and convenient means of access for persons needing to go in and out of excavations;
- Determine the location and nature of electricity, water, gas and other similar services which may be affected by construction activities;
- Provide for measures to make safe areas where services are located prior to the excavation;
- Provide for excavation inspections by a competent person;
 - Daily, prior to each shift;
 - After every blasting operation;
 - After an unexpected fall of ground;
 - After damage to excavation supports;
 - After rain;
- Provide for adequate excavation protection – barricading (danger tape will not be deemed barricading.);
- Provide adequate warning illuminants for any other clearly visible boundary indicators;

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Witness:

- Provide for warning signs to be posted next to excavations;
- Provide for a full time competent Health and Safety Officer;
- Implementation of the approved Health and Safety plan;
- Provide for formal agreements with sub-contractors regarding *Section 37(2) of the Occupational Health and Safety Act*;
- Provide for internal Health and Safety audits to be conducted by a competent Health and Safety Officer;
- Compilation of formal audit reports:
- Provide for formal Occupational Health Safety reporting /communication/liaison by management, supervision and the workforce;
- Ensure that all relevant persons and parties are fully conversant with project Health and Safety requirements;
- Ensure that all conditions imposed on his sub-contractors in terms of the *Act* and the *Construction Regulations* are complied with;
- From time to time evaluate the relevance of the Health and Safety Plan and revise the same as required;
- Ensure that all direct appointments in connection with this project include provisions for the compliance of his sub-contractors, suppliers and designers, et cetera, with the relevant provision of the *Occupation Health and Safety Act (Act 85 of 1993)* and its Regulations, in particular the *Construction Regulations 2014 No. R 1010 promulgated 7 February 2014*.

PS A 5.9

ENVIRONMENTAL MANAGEMENT PLAN

The Environmental Management Plan will address the environmental impact during the design, construction and operational phases of a project. Due regard must be given to environmental protection during the entire project. In order to achieve this a number of environmental specifications / recommendations must be made. These are aimed at ensuring that the contractor maintains adequate control over the project in order to:

- Guide and control construction activities to minimise negative environmental impacts during construction.
- Guide and control operational and management activities to minimise negative environmental impacts and risks
- Provide a working Management Plan for enhancement and management of the ecological functioning of the property.

The contractor must be made aware of the environmental obligations that are stipulated in the document, and declares himself/herself to be conversant of all relevant environmental legislation. The contractor should also be aware that the Environmental Control Officer shall monitor the implementation of the procedures.

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Witness: _____

PS A 5.10 SUPERVISION & CO-OPERATION WITH SUB-CONTRACTORS

Tendered Amount for the supervision and co-operation that can reasonably be expected by the Engineer from the Contractor to Sub-Contractors to execute the work to his satisfaction. Also included herewith is supervision, co-ordination and negotiations with the Sub-Contractors by the Contractor. Should no co-operation be required by the Engineer, this item or part of this item shall be omitted completely.

A 7 TESTING

PS A 7.4 STATISTICAL ANALYSIS OF CONTROL TESTS

Substitute A 7.4 with the following:

Test results shall not be evaluated by statistical methods. All results shall comply with the specified minimum requirements of the materials concerned.

A 8 MEASUREMENT AND PAYMENT

A 8.3 SCHEDULED FIXED-CHARGE AND VALUE-RELATED ITEMS

A 8.3.2 ESTABLISHMENT OF FACILITIES ON SITE

PS A 8.3.2.1 Facilities for Engineer

Substitute A 8.3.2.1 (a) & (c) with the following:

- a) Furnished offices (Ref to SABS PS AB 3.2) Unit: Sum**
- c) Name boards (Ref to SABS PS AB 5.1) Unit: No**

A 8.3.3 OTHER FIXED-CHARGE OBLIGATIONS

PS A 8.3.3(a) Provision to Comply with Environmental Management

Plan Unit: Sum
The tendered sum shall cover all costs for the tenderer to comply with the EMP compiled by the Engineer.

PS A 8.3.3(b) Health and Safety Specifications according to the Occupational Health and Safety Act (Act 85 of 1993) and the Construction Regulations, 2014 Unit: Sum

The sum tendered shall cover the costs, overheads, profits and charges incurred in complying with the *Occupational Health & Safety Act (Act 85 of 1993)* and the *Construction Regulations, 2014 (Refer to SABS 1200 PS A 5.7)*

PS A 8.3.3(c) Supervision & Co-operation with Contractors Unit: Sum

The sum tendered shall cover the costs, overheads, profits and charges incurred in the supervision and co-operation that can reasonably be expected by the Engineer from the Contractor.

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A 8.4.5. Other time-related obligations..... Unit: Sum

PS A 8.4.5 (a) Appointment of Environmental Control Officer (ECO) Unit: Months

The sum tendered shall cover the costs, overheads, profits and charges incurred in appointment of the ECO.

This position of ECO has been created to ensure that the mitigation measures and other requirements set forth in the Environmental Management Plan (EMP) are adhered to.

The following guidelines apply to functions of the ECO:

- The ECO should have the ability to understand the contents of the Environmental Management Plan (EMP) and explain it to the contractor, the site staff, the supervisors and any other relevant personnel.
- The ECO would have to be on site on a regular basis – preferably daily to supervise environmental actions associated with construction activities.
- The ECO should be able to understand, interpret, monitor, audit and implement the EMP. This is the most important function.
- The ECO must then give feedback of the monthly audits to the Employer, Engineer and the Contractor. This must be in the form of a written report.
- The ECO must ensure that the contractor understands what is to be done to rectify and address any problems that have arisen from the audit.

PS A 8.4.5 (b) Compliance with the Occupational Health and Safety Act (Act 85 of 1993) and the Construction Regulations, 2014.....Unit: Months

The sum tendered shall cover the costs, overheads, profits and charges incurred in the appointment of a health and safety officer to ensure compliance with the Occupational Health and Safety Act (Act 85 of 1993) and the Construction Regulations (2014) for the duration of the contract.

A 8.5 SUMS STATED PROVISIONALLY BY THE ENGINEER

Add the following additional sub-items as supplement to the existing sub-clauses:

(c) Additional Testing

i. Additional tests ordered by the Engineer..... Unit: Provisional Sum

ii. Overheads and charges on (1) Unit: Percentage %

(d) Confirmatory surveys commissioned by the Engineer Unit: Provisional Sum

The stated provisional sum shall be employed to cover the cost of the Land Surveyor for carrying out the surveys as instructed by the Engineer.

(e) Provisional sum for payment of the Community Liaison Officer (CLO) Unit: Provisional Sum

The Contractor will appoint a Community Liaison Officer (CLO) from the community from names submitted by the ward councillors and ward

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Initial:

Gamagara Local Municipality

Witness:

members for the period of the contract. The CLO will receive a **monthly** remuneration according to the contract. The CLO **must** be literate (able to read and write and do calculations). The CLO **must** be a person of good standing in the community and will not be intimidated by the local community. Should it become apparent that the appointed CLO fails to fulfil his duties, he may be relieved of his duties and replaced by a new CLO to be appointed by the Steering Committee.

The duty of the CLO will be to act as liaison officer between the community and the Contractor, and the labour force and the Contractor. **All** appointments and retrenchments of the labourers from the community will be through consultation with the CLO.

The CLO will be nominated by the community leaders and appointed by the Contractor. A separate item is provided in the Bill of Quantities for the remuneration of the CLO. It will be assumed that the Tendered amount makes provision for **all** costs to comply with the above conditions. **No** additional remuneration will be paid.

(f) Accredited training

- i. Accredited training Unit: Provisional Sum**
- ii. Overheads and charges on (b)(i) Unit: Percentage %**

The rate shall cover the cost in supplying in all resources for accredited training as follows:

- (a) Administration (1 adult male and 1 adult female = 2 training days).
- (b) Technical (3 adult males, 3 adult females, 3 youth males, 2 youth females and 1 disabled female = 18 training days).
- (c) Life skills (2 adult males, 2 adult females, 2 youth males, 2 youth females and 2 disabled females = 10 training days).

(g) Non-accredited training

- i. Non-accredited training Unit: Provisional Sum**
- ii. Overheads and charges on (g)(i) Unit: Percentage %**

The rate shall cover the cost in supplying in all resources for non-accredited training as follows:

- (a) Administration (1 youth female = 1 training days).
- (b) Technical (1 adult male and 1 adult female = 4 training days).

(h) Health & Safety Auditor

- i. Provisional sum for payment of the Health & Safety Auditor..... Unit: Provisional Sum**
- ii. Overheads and charges on (i) Unit: Percentage %**

The Engineer will appoint a Health & Safety Auditor for the duration of the project. Monthly payment will be made to the Health & Safety Auditor by the Contractor upon instruction by the Engineer.

TENDERER:		CLIENT	
Initial: Authorized Signatory/ies:	1 _____	Initial:	Gamagara Local Municipality _____
	2 _____	Witness:	_____

A 8.8 Temporary Works

PS A 8.8.2 Accommodation of Traffic Unit: Sum

The rate shall cover all costs pertaining to the provision, erection, moving, re-erection and maintenance of all temporary barricades, road signs, lights, flagmen, et cetera as required, for the guarding and protection of the works, for the construction, gravelling and maintenance of access roads and detours to the site of the works, borrow pits, spoil sites, as well as the later removal or the cleaning and *tidying* up thereof, for making the necessary traffic arrangements and arrangements with regard to the moving and/or re-erection of existing traffic signs as well as all other costs to accommodate the traffic during construction.

PS A 8.8.7 Setting out of the Works..... Unit: Sum

The sum shall include full compensation to confirm the details of the existing site information and shall cover the cost of all labour, plant and material required for the setting out of the works and locating of surveyors beacons that are necessary for the completion of this contract. All setting out shall be done by a registered land surveyor.

PS A 8.8.8 Water Connection Unit: Sum

Supply and install a water meter at an existing supply point on site for use by the Contractor.

The tendered sum shall cover the cost of providing a water meter, all other material, labour, plant and incidentals to provide and maintain a metered water connection as specified in *Clause PS-8.1*

PS A 8.8.9 Electrical Connection Unit: Sum

Supply and install a metered connection and lockable distribution board inclusive of all cabling to existing supply point on site for the use of the Contractor.

The tendered sum shall cover the cost of providing a lockable distribution board with a meter. The sum shall further provide for all costs regarding the installation and connection of such board to the existing permanent electrical supply, the maintenance and subsequent removal thereof.

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

C5.4.2. SABS 1200 AB: ENGINEER'S OFFICE

AB 3 MATERIALS

PS AB 3.1 NAME BOARDS

The layout of the required name board shall be as detailed on the Drawing A1 : Name Board bound under Figures and Drawings.

PS AB 3.2 OFFICE BUILDING

No buildings are required by the Engineer. A fax machine shall, however, be provided on site as part of the Contractor's own establishment to be available to the Engineer for incoming and outgoing communications at any time during the Contract.

PS AB 4 PLANT

PS AB 4.2 SURVEY EQUIPMENT (ADDITIONAL CLAUSE)

The Contractor shall provide the following survey equipment on site for the full duration of the Contract:

- a) one tacheometer capable of reading to 20 seconds of arc;
- b) one tacheometer staff graduated metrically;
- c) one precision automatic level and levelling staff;
- d) one steel tape of length 30 m;
- e) one three (3) meter and one four (4) meter straight edge.

All equipment may be shared by arrangement between the Contractor and the Engineer's representative. The Contractor shall insure the equipment against any loss, damage or theft and he shall indemnify the Engineer against any claims in this regard.

The Contractor shall maintain the equipment in good working order and keep it clean throughout the contract period.

No additional payment shall be made for the use of survey equipment and all costs shall be deemed to be covered by the rates tendered for the contractor's facilities.

AB 5 CONSTRUCTION

PS AB 5.1 NAME BOARDS

Substitute AB 5.1 with the following:

The name boards shall be erected within one month after receipt of the letter of acceptance and shall be placed at the position indicated by the Engineer, and kept in good condition for the duration of the contract and the defects liability period.

TENDERER:

Initial: Authorized Signatory/ies:

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CLIENT

Initial:

Gamagara Local Municipality

Witness:

Any damage to these boards shall be repaired within fourteen days of a written instruction issued by the Engineer. No payment shall be made in terms of the contract prior to the erection of the name boards for details of name boards refer to *Volume 4, Drawing A1*.

PS AB 5.5

SURVEY ASSISTANTS

Substitute "two or more suitably educated survey labourers" in the first sentence of AB 5.5 with "two semi-skilled labourers."

PS AB 5.6

SURVEY EQUIPMENT

The Contractor shall ensure that the necessary survey equipment, measuring bars, measuring tapes, pegs, etc. (as listed below) are available for use by the Engineer. Equipment shall be kept in working order at all times. Survey equipment shall, should it be required by the Engineer, be tested by an independent Engineer approved instance and the test certificate shall be presented to the Engineer. No additional payment for the above tests shall be made by the Client to the Contractor.

The Contractor shall keep the equipment continuously insured against any loss, damage or breakage, and he shall indemnify the Engineer and the Employer against any claims in this regard.

The Contractor shall maintain the equipment in good working order and keep it clean throughout the contract period.

- Automatic surveyor's **level** complete with tripod and leather carry case such as Zeiss N1-2 or equivalent. – **1 of**
- 20-second tachometer with optical plumbob complete with tripod and leather carry case as Sokkisha TM20C or equivalent – **1 of**
- Nylon-coated steel surveyor's tape 100m long and 10mm wide – **1 of**
- 5m long steel tape – **1 of**
- 5m long three-piece telescopic survey staves (metric double-face) complete with angle bracket level – **2 of**
- Survey books: Level – **3 of**
- 2kg hammer with rubber handle – **1 of**
- Steel pegs, 300mm long and 12 diameter – **120 of**
- Aluminium tags, 100mm long, 15mm wide and 2 mm thick – **120 of**
- Reverse polar notation pocket calculator (Hp32SII or similar) – **1 of**
- Change point – **2 of**
- Measuring wheel – **1 of**
- Tripod holders for ranging rods (heavy duty) – **2 of**
- Optical square (Sokkisha or Wild), complete with telescopic aluminium rod and bubble – **1 of**
- "Rebone" steel tape 10 meters long an 13 mm wide – **1 of**

TENDERER:

CLIENT

Initial: Authorized Signatory/ies:

1 _____
2 _____

Initial: Gamagara Local Municipality

Witness:

- Triangular change plate with chain – **2 of**
- 100m long 50kg strength fish line – **1 of**
- One meter long spirit level – **1 of**
- Three metre aluminium straight edge – **1 of**

AB 8 MEASUREMENT AND PAYMENT

AB 8.2 PAYMENT

PS AB 8.2.2 Telephone, Survey Assistants and Survey Equipment

No payment shall be made for the telephone, survey assistants or survey equipment and all costs shall be deemed to be covered by the rates tendered for the Contractor's facilities.

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

C5.4.3. SABS 1200 C: SITE CLEARANCE

C 1 SCOPE

Add the following to C.1.1:

Part of this section covers the eradication of declared and undesirable vegetation, as well as the chemical control of vegetation growth through the application of herbicide.

C 4 PLANT

PS C 4.2 Eradication of Vegetation

Vegetation shall be eradicated using knapsacks or portable weed spray machines.

It is important that the equipment be in good working condition. The equipment shall distribute the herbicide evenly without spilling. The nozzle shall be able to move close to the ground in order to prevent mist spray blowing away and killing plants which have to be maintained. The equipment shall also be safe for the workers, as well as the travelling public.

C 5 CONSTRUCTION

PS C 5.1 AREAS TO BE CLEARED AND GRUBBED

Substitute the first sentence of C 5.1 with the following:

Unless otherwise indicated by the Engineer, clearing and grubbing are limited to 1m wider in excavation width for pipelines not in street reserves and if requested by the Engineer the spoil areas. The Contractor may proceed with clearing and grubbing after the handing over of the site. Measurement and payment for clearing and grubbing shall only occur for areas as required in writing by the Engineer.

Substitute the last paragraph with the following:

The Contractor shall programme his work in such a manner that re-clearing will not be necessary. The cost of re-clearing shall be borne by the Contractor.

C 5.2 CUTTING OF TREES

C 5.2.3 Preservation of Trees

PS C 5.2.3.2 Individual trees

Add the following to C 5.2.3.2:

Trees outside street, channel and pipeline routes must be left standing and undamaged, except where otherwise ordered, in writing, by the Engineer.

TENDERER:

Initial: Authorized Signatory/ies:

1

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CLIENT

Initial: Gamagara Local Municipality

Witness:

A penalty of R 1,000.00 per tree for trees damaged and/or removed will be charged.

PS C 5.9 SITE FENCING

The fence inside and around the site must not be removed and must be repaired immediately after damage to it has occurred.

C 6 TOLERANCES

PS C 6.1 Eradication of Undesired Vegetation

Substitute C 6.1 with the following:

Eradication of undesired vegetation shall be carried out as specified and to the satisfaction of the Engineer. Areas shall be left neat and tidy and all vegetation cuttings removed where instructed.

C 8 MEASUREMENT AND PAYMENT

C 8.2 SCHEDULED ITEMS

PS C 8.2.1 Clear and Grub Unit: m²

Add the following to C 8.2.1:

Payment for clearing of pipe trenches, where necessary, shall take place and for only 1,000 m wider than excavation width.

Site clearance for pipe trenches will not be measured where such trenches lie within the carriageway of any road.

The rate tendered for clearing and grubbing shall cover the **cost of disposal** of the material to a dumping site provided by the Contractor.

PS C 8.2.11 Remove existing concrete kerbing Unit m

The rate shall cover the cost of excavating around existing kerbing (if necessary), loading and carting away all usable kerbs to the municipal workshops for storage and all other broken kerbing shall be disposed of at the municipal dumping site.

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

C5.4.4. SABS 1200 D: EARTHWORKS

D5 CONSTRUCTION

PS D 5.1.2 EXISTING SERVICES

PS D 5.1.2.2 Detection, location and exposure

Add the following to D 5.1.2.2:

If existing services are not shown on the drawings but the existence thereof can be reasonably expected, the Contractor shall, in conjunction with all relevant authorities, determine the exact depth and location of such services before the commencement of construction.

After locating the exact position of services, whether indicated on the drawings or not, such services shall be deemed to be known services and the Contractor shall be liable for all costs and subsequent costs arising from the damage thereof as a result of the Contractor's activities. These services must also be indicated on the "As Built" drawings.

PS D 5.1.4 PRECAUTIONS

PS D 5.1.4 Nuisance

PS D 5.1.4 Dust Nuisance

Add the following to D 5.1.4.1

The contractor is responsible for dust control and is liable for all claims that may result from dust nuisance on the filling of the erven part of the site from start of filling the erven to the completion and final shaping of the erven to the new levels as given on the drawings. No payment regarding the above-mentioned will be made and all costs shall be deemed to be covered by the tender rate.

PS D 5.1.6 Road Traffic Control

- Add the following to D 5.1.6.2
- a) Sufficient road signs must be erected in such a way that motorists will be warned in time of works, e.g. at the closing of a street sufficient signs to direct traffic must be erected at the preceding intersection.
 - b) Bypasses and/or road signs shall be provided and/or erected at all locations where the free flow of traffic is obstructed and shall be approved by the Engineer before the commencement of construction. Where main roads are crossed, detours and temporary traffic signs must be provided as shown on the attached drawings.
 - c) Where a trench crosses a street or any place where a trench crosses the direction of traffic flow, drums must be placed in the street and not just along the sides of the street with danger tape in between.
 - d) Danger tape must be put up between drums and tied around the drums.

TENDERER:	CLIENT
Initial: Authorized Signatory/ies: 1 _____	Initial: Gamagara Local Municipality _____
2 _____	Witness: _____

- 3089-02**

C5.4.5. SANS 1200 DA: EARTHWORKS (SMALL WORKS)

DA 5.2 METHODS AND PROCEDURES

PS DA 5.2.3 Placing

PS DA 5.2.3.1 Embankments

Substitute the following in DA 5.2.3.1

The material of each embankment shall, unless otherwise approved, be deposited in layers of thickness, before compaction, not exceeding 300 mm.

With

The material of each embankment shall, unless otherwise approved, be deposited in layers of thickness, before compaction, not exceeding 150 mm.

DA 8 MEASUREMENT AND PAYMENT

DA 8.3 SCHEDULED ITEMS

DA 8.3.2 Restricted Excavation

PS DA 8.3.2 (a) Excavation in all material and use for embankments or backfilling or disposal, as ordered Unit: m³

Add the following to DA 8.3.2 (a):

The rate shall include the placing, spreading and compaction to 95% MOD AASTHO, of the excess material around the structure.

PS DA 8.3.2 (c) Trimming of excavations Unit: m²

Trimming of excavations to specific levels and dimensions before placing of concrete.

PS DA 8.3.2 (d) Importing of Materials

Extra-over for importation of materials from commercial sources or from borrow pits Unit: m³

Importation from different sources will be scheduled separately for each designated source of supply and for each different area of use. The rate for importing from commercial sources and borrow pits selected by the Contractor shall cover the cost, additional to D 8.3.2 or D 8.3.3, of royalties if applicable, and acquiring suitable material, including the applicable, of forming access, removal of overburden, loading, transportation (see 5.2.5.1), off loading at point of placing, removal of access and replacing of overburden.

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

C5.4.6. SANS 1200 DB: EARTHWORKS (PIPE TRENCHES)

DB 3 MATERIALS

- a) Substitute "from trenches" in DB 3.5(a) with "from trenches, channel or street excavations".

Add the following to DB 3.5 (b)

- c) All pipe trenches in street reserves shall be classified as areas subject to loads from road traffic.

DB 3.6 MATERIALS FOR REINSTATEMENTS OF ROADS AND PAVED AREAS

PS DB 3.6.1 Sub base and Base

Substitute DB 3.6.1 with the following:

Where trenches cross or run adjacent to surfaced roads and paved areas of which the surfaces are scheduled to be reinstated, the material excavated from the existing base and/or sub base pavement layer(s) shall be set aside and used in the re-construction of the sub base layer. Where applicable new material complying with the requirements of SANS 1200 MF shall be used in the reconstruction of the base layer. Any shortfall in material for the reconstruction of the sub base layer shall be made up by the use of material complying with the requirements of SANS 1200 ME.

DB 4 PLANT

PS DB 4.1 EXCAVATION EQUIPMENT

Add the following to DB 4.1:

All excavations exceeding the specified widths, shall be backfilled with approved selected material. No payment shall be made for this and all relevant costs shall be deemed to be included in the tendered rates.

PS DB 4.4 DEWATERING EQUIPMENT

One set of dewatering equipment shall consist of pumps, pipes, well points and other equipment necessary for keeping the trenches sufficiently free from water for dewatering of excavations up to 4 m depth and a trench length of 45 m for either sides or 70 m on one side.

PS DB 5.1.3 TRAFFIC CONTROL AND ACCESS TO PROPERTIES

Add the following to DB 5.1.3:

TENDERER:

Initial: Authorized Signatory/ies:

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CLIENT

Initial: Gamagara Local Municipality

Witness:

Detours and Traffic Signs must be in accordance with "CSRA –CUTA: Road Traffic Signs Sub-committee: Road Signs note no 13" and the "South African Guide for Traffic Signs" or any amendment to either end must be approved by the Engineer before construction commences.

Where drums are used for barricading, they must be filled with gravel or sand. Stones may not be used or placed on top of drums. Drums must be painted white and danger tape fixed between and around drums.

PS DB 5.4 EXCAVATION

Add the following to DB 5.4:

Excavation and backfilling of pipe trenches on sidewalks in the residential area shall be done in such a way as to ensure the least possible disruption to the public and entrances to properties. No additional payment shall be made for this and all relevant costs shall be deemed to be included in the tendered rates. Electric cable trenches shall be dug in lengths as requested by the electrical contractor.

The provisions of PS 5.5.5.4 shall apply mutatis mutandis for hand excavation.

DB 5.6 BACKFILLING

PS DB 5.6.2 Material for Backfilling

Add the following to DB 5.6.2:

Material free of stones larger than 100 mm diameter and free of organic material will be used as main back-fill. The Engineer must approve material before commencing with back filling. Main back-fill is usually the material obtained from the excavation. It is entirely up to the Engineer to decide whether material obtained from excavations may be used as main back-fill. It will be expected of the Contractor to separate "soil" from excavations and "rock" from excavations to re-use in backfilling as main filling. Material must be compacted in layers not exceeding 300 mm and in such a way that the following densities are ensured in the last 300 mm of the back-fill.

95% Mod. AASHTO underneath areas exposed to traffic and 93% Mod. AASHTO elsewhere.

PS DB 5.6.3 Disposal of Soft Excavation Material

Add the following to DB 5.6.3:

All surplus and unsuitable material as described in DB 5.6.3 shall be disposed of at the spoil site provided by the contractor and levelled.

PS DB 5.6.9 Subsidence

Any subsidence of back-fill or any deviation from prescribed heights must be repaired as soon as possible to the satisfaction of the Engineer, for the duration of the Contract, as well as the maintenance period, by the Contractor and at his own expense. Any subsidence occurring in trenches, footpaths, roads, pavements, the

TENDERER:	CLIENT
Initial: Authorized Signatory/ies: 1 _____	Initial: Gamagara Local Municipality _____
2 _____	Witness: _____

Contractor at his own expense must repair private or public property, arising from the works. Should accidents occur as the result of subsidence, the Contractor will indemnify the Client from any claims that may arise.

Should any serious subsidence occur and the Contractor does not start with repair work within 4 (four) hours of notification, the Engineer reserves the right to allow the subsidence to collapse and be compacted at the Contractor's expense. This does not indemnify the Contractor of his responsibility to the Works.

DB 5.7 COMPACTION

PS DB 5.7.2 Areas Subject to Traffic Loads

Add the following to DB 5.7.2:

All pipe trenches that fall in the street reserves will be regarded as areas subject to traffic loads.

PS DB 5.9.4 Bitumen Roads: Sub Base and Base

Add the following to DB 5.9.4:

Any additional imported material required for the reinstatement of selected layers, sub base or base shall comply with the requirements of the relevant standardised and/or project specifications.

PS DB 5.9.5.1 Bitumen Roads: Surfacing

Add the following to DB 5.9.5.1:

The thickness of the asphalt shall be 30 mm for all streets except if specified otherwise.

DB 8 MEASUREMENT AND PAYMENT

DB 8.2 COMPUTATION OF QUANTITIES

PS DB 8.2.4 Shoring

Add the following to DB 8.2.4:

Shoring will only be measured and paid for if written approval is given by the Engineer before it is installed.

DB 8.3 SCHEDULED ITEMS

PS DB 8.3.2 Excavation

Substitute DB 8.3.2 with the following:

TENDERER:

Initial: Authorized Signatory/ies:

1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality

Witness:

Excavations for manholes shall be paid for inside dimensions + 500 mm as shown on drawings. The applicable inside dimension is **not** the inside dimension of the foundation of the manhole.

Payment for manhole excavation is only for the section **not** paid under excavations of pipes.

DB 8.3.5 Existing Services

Substitute DB 8.3.5 with the following:

PS DB 8.3.5 a) Detection of services..... Unit: No

Refer to PS D 5.1.2.2

Included in the tendered price provision must be made to detect and protect existing services against damage as shown on drawings, or as pointed out by the Engineer. Tendered amount must make provision for all costs, irrespective the type of service.

PS DB 8.3.5 b) Moving of Existing Services..... Unit: No

Only services that the Engineer has given written instruction to be moved shall be compensated for under this item. Tendered amount must make provision for all costs incurred, irrespective the extent or type of service.

PS DB 8.3.5 c) Repairing of Damaged Services..... Unit: No or m

Tendered amount must make provision for all costs incurred, irrespective the extent, the size or type of service damaged.

DB 8.3.6 Finishing

PS DB 8.3.6.1 Reinstatement of Road Layers

Add the following to DB 8.3.6.1:

The rate shall include for the selective excavation of existing sub base and base material where this material is going to be re-used.

TENDERER:		CLIENT	
Initial: Authorized Signatory/ies:	1 _____	Initial:	Gamagara Local Municipality _____
	2 _____	Witness:	_____

C5.4.7. SANS 1200 DK: GABIONS AND PITCHING

DK 3 MATERIALS

DK 3.1 GABIONS

PS DK 3.1.4 Geo-textile

Substitute DK 3.1.4 with the following:

a) Composition and Manufacture

The geo-textile shall be manufactured from a synthetic polymer processed into a permeable, homogeneous sheet. Due to the temperature and moisture susceptibility of polyamide, this synthetic product is not considered acceptable.

b) Classification

The geo-textile for subsurface drainage shall comply to grade 2 or grade 3 as specified in the schedule of quantities or shown on the drawings. Only non-woven geo-textiles complying to the requirements of grade 1 and with a minimum mass of 320 gram per square metre, as determined in accordance with test method 3.4 of SANS 0221, shall be considered for river protection works or filter backing for the protection of earthworks against erosion. The standard atmosphere for testing and the preconditioning atmosphere for all geo-textile tests (SANS tests and others) shall have a relative humidity in the range of 0 to 80 per cent and a temperature in the range of 15 °C to 35 °C.

c) Penetration load

The penetration load at rupture shall be measured in accordance with test method 3.5 of SANS 0221. The penetration load of the geo-textile at rupture shall comply with the following specification:

GRADE	PENETRATION MINIMUM
1	3 800 N
2	2 400 N
3	1 600 N

d) Puncture resistance

The resistance of a geo-textile to puncture is the average diameter of the hole formed when a 45° cone with a mass of 1 kg is dropped through 500 mm onto the geo-textile fixed in the holding device and shall be determined in accordance with the test method given in the CPA: Roads and Traffic Administration Branch's March 1990 edition of Standard Project Specification, Volume 4, Section 8100. A copy of the test method for scrutiny is also available at the Engineer's office. The puncture resistance of the geo-textile shall comply with the following specification:

GRADE	PUNCTURE RESISTANCE MAXIMUM
1	14 mm
2	26 mm
3	32 mm

TENDERER:

Initial: Authorized Signatory/ies:

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CLIENT

Initial: Gamagara Local Municipality

Witness:

e) **Water percolation**

The water percolation shall be measured in accordance with the permeability test method 3.7 of SANS 0221. The water percolation of the geo-textile shall comply with the following specification:

GRADE	WATER PERCOLATION MINIMUM
1	20 ℓ / m ² /s
2	20 ℓ / m ² /s
3	20 ℓ / m ² /s

f) **Durability**

The geo-textile is required to comply with the following specification:

i) **Resistance to chemical attack**

The geo-textile shall withstand the level of aggressiveness of the soil and ground water given below without any significant loss of its strength and hydraulic properties during its design life of 25 years.

Soil and ground water with a pH in the range of 4 to 12 (pH to be determined by method A20, TMH1, 1990).

Soil (as paste) and ground water containing salts with a conductance of up to 1.0 S/m (conductivity to be determined by method A21T, TMH1, 1990).

ii) **Resistance to ultra violet light**

The geo-textile shall maintain at least 80 % of its original strength after direct exposure of 1 500 hours of sunlight.

iii) **Resistance to rot**

The geo-textile shall be totally rot-proof and shall not support the growth of algae.

g) **Functional evaluation**

Functional evaluation of a geo-textile which complies with the classification specification shall be done on the basis of the permeability test in accordance with the test method given in CPA: Roads and Traffic Administration Branch's March 1990 edition of Standard Project Specification, Volume 4, clause B 8117. A copy of the test method for scrutiny is also available at the Engineer's office. The test is conducted on the geo-textile in combination with the soil sample obtained from the site where the geo-textile is required. The permeability coefficient K₄₀₀ of the geo-textile-soil system shall be classified according to the following specification:

Soil	P (%)	P ≤ 1.0	1.0 < P ≤ 7.0	7.0 < P ≤ 50	P > 50
	D ₁₀ (mm)	D ₁₀ ≥ 0.150	0.095 ≤ D ₁₀ < 0.150	0.007 ≤ D ₁₀ < 0.095	D ₁₀ < 0.007
K ₄₀₀	HIGH	K ₄₀₀ ≥ 46	K ₄₀₀ ≥ 19	K ₄₀₀ ≥ 9	K ₄₀₀ ≥ 6
	MEDIUM	15 ≤ K ₄₀₀ < 46	6 ≤ K ₄₀₀ < 19	3 ≤ K ₄₀₀ < 9	2 ≤ K ₄₀₀ < 6

K₄₀₀ = permeability coefficient after 400 hours of testing expressed as a percentage of the permeability coefficient at the start of the test.

P = percentage passing through the 0.075 mm sieve.

D₁₀ = the diameter of the grain size, such that 10 per cent by mass is smaller.

TENDERER:

Initial: Authorized Signatory/ies:

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CLIENT

Initial: Gamagara Local Municipality

Witness:

The geo-textile-soil system shall fall in either the medium or high range of K_{400} . In general, the geo-textile with the highest value of K_{400} will be specified for use with the particular geo-textile-soil combination. However, if more than one geo-textile-soil combination falls in the high range of K_{400} , then the cheaper geo-textile shall be specified unless actual performance in the field indicates otherwise.

(NOTE: Transportation must also be included in the cost, if applicable.)

In the case where several geo-textiles fall in the medium or high ranges and no one geo-textile has the highest value of K_{400} for all the geo-textile-soil combinations tested for the particular site or group of sites, then it may be expedient to use one geo-textile for all or most of the sites. In the latter case the cheapest geo-textile shall be selected which meets all the specified requirements unless actual performance in the field indicates otherwise.

In addition to the above specification, the following requirement to prevent excessive piping shall also apply: discolouration of the water shall not be visually discernible for longer than eight hours after the start of the test.

All test results shall be submitted to the engineer for final approval of the geo-textile or geo-textiles selected for a site or several sites.

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

C5.4.8. SANS 1200 GE: PRECAST CONCRETE (STRUCTURAL)

GE 3 MATERIALS

GE 3.1 GENERAL

In addition to complying with the requirements of 3.2 and 3.3, materials shall comply with the relevant requirements of Clause 3 of SANS 1200 G.

GE 3.2 CONCRETE

The concrete mix shall be of Grade 30 unless another grade is scheduled, shown on the drawings, or specified in the project specification.

GE 3.3 STORAGE CAPACITY AND DETERIORATED MATERIAL.

The storage capacity provided shall be adequate and shall comply with the requirements of Subclause 3.7 of SARS 1200 G. Material that has deteriorated or that has been contaminated or damaged shall not be used. Such material shall be removed from the Site without delay.

GE 5 CONSTRUCTIONS

GE 5.1 GENERAL

In addition to complying with the requirements of 5.2-5.6, the Contractor shall comply with the relevant requirements of Clause 5 of SANS 1200 G except that, should any requirement of Clause 5 of SANS 1200 G conflict with any requirement of this specification, the requirement of this specification shall prevail.

GE 5.2 ROYALTIES

The Contractor shall indemnify the Employer against all claims for or on account of infringement of patent rights, design, or trademark in respect of any precast system used in connection with the Works and the Contractor shall pay any royalties due or that may become due as a result of the use of such a system.

GE 5.3 PLACING AND VIBRATING OF CONCRETE

Concrete shall be so placed in moulds and vibrated that concrete surfaces are smooth and even and all arises are true and clean.

GE 5.4 UNITS HAVING ARCHITECTUHAL FINISHES

GE 5.4.1 Samples

Where precast concrete units having architectural finishes are required, the Contractor shall ensure that duplicate samples are submitted to and approved by the Engineer with regard to both colour and quality before full scale production is commenced. One sample will be retained by the Engineer and the other shall be retained by the Contractor at the place of manufacturer. The Contractor shall not commence manufacture until acceptable samples have been lodged.

TENDERER:

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2 _____

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Witness: _____

GE 5.4.2 Construction/Manufacture

GE 5.4.2.1 In the case of a unit that is to have an architectural finish, particular care shall be taken to ensure that the facing is thick enough to comply with the architectural requirements but is not so thick as to moderate the strength of the unit. Care shall also be taken to ensure complete homogeneity between the finished facing and the concrete backing.

GE 5.4.2.2 Where all exposed aggregate finish is scheduled or required in terms of the drawings, care shall be taken to ensure that the retarder used does not weaken the bond between the exposed stone and the concrete backing. The concrete cover over reinforcement, measured from the bottom of each depression on the finished face to the nearest reinforcement., shall comply with the requirements of SANS 1200 G.

GE 5.4.2.3 Where a mosaic finish is scheduled or required in terms of the drawings, before the sheets of mosaic are laid and backing concrete is poured into the moulds, the Contractor shall ensure that the bottom of each mould in which the concrete is to be cast is clear of foreign matter such as stones or pebbles that may create irregularities in the finished face. He shall also ensure that the concrete is so placed that the mosaic is fully bonded to the concrete backing.

GE 5.4.2.4 Where an artificial stone or other off-form finish is scheduled or required in terms of the drawings, the Contractor shall include with the samples referred to in 5.4.1, samples of the aggregate(s) or cement, or both, as applicable, to be used where changes in source may affect the finished colour.

GE 5.4.3 Erection

In the case of units having architectural finishes, the Contractor shall

- a) ensure that the design and shape of each unit Atid the facilities cast in for fixing the unit are such that the unit is held firmly and permanently in its intended position, and where a problem arises in the achievement of a completely safe fixture, he shall, before he commences casting the relevant unit, obtain an instruction in this regard from the Engineer;
- b) take particular care not to chip corners or edges or to otherwise damage the exposed faces of units while erecting and fixing them.

The Contractor shall remove and replace damaged units at his own expense except that, where he demonstrates to the satisfaction of the Engineer that he is capable of so repairing damaged units by means of properly bonded patches of matching colour and texture that the patches will not, after curing and drying, be or become apparent, he may repair damaged units.

GE 5.5 REINFORCEMENT

GE 5.5.1 Preformed Cages

Where practicable, reinforcement shall be preformed into rigid cages. For this purpose, spot welding of mild steel reinforcement and high tensile reinforcement shall be carried out only by skilled and experienced welders.

GE 5.5.2 Concrete Cover

The Contractor shall ensure that reinforcement including stirrups, links, and tying wire does not encroach into the specified cover. The cover of concrete over reinforcement shall comply with the applicable requirements of SANS 1200 G.

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Witness:

GE 5.6 CURING

GE 5.6.1 Curing at Ambient Temperature

Except as allowed in 5.6.2 and except that the curing period for curing at ambient temperature shall be

- a) at least 7 d for concrete made with portland cement, and
- b) at least 10 d for concrete made with PBFC or OPC/slag, precast concrete shall be cured in accordance with the requirements of SANS 1200 G. Curing at ambient temperature shall start not earlier than 6 h after the concrete has been placed.

GE 5.6.2 Steam Curin

Provided that the curing temperature does not exceed 60 °C and that the rate of increase or decrease of the curing temperature does not exceed 20 °C/h, precast concrete may be steam cured at atmospheric pressure or curing may be accelerated by casting the concrete in heated moulds.

GE 5.7 DEMOULDING

Moulds shall be removed without any shock or vibration that might damage the concrete or have any other detrimental effect on the units. Precast concrete units shall not be moved from casting beds until the concrete from which they have been made has gained sufficient strength to ensure that the units are capable of resisting, without permanent damage, all stresses induced during such movement.

GE 5.8 HANDLING AND ERECTION OF PRECAST CONCRETE UNIT'S

GE 5.8.1 Handling and Transportation

GE 5.8.1.1 The Contractor shall ensure that lugs, slots, holes, etc., provided for handling units and moving them from the point of manufacture to the place where they are erected, are adequate and are so arranged that excessive stresses do not occur in any unit during handling, movement, or erection.

GE 5.8.1.2 Without the Contractor's responsibility in terms of 5.4.3 being limited in any respect, the position of lifting and supporting points, the need of lifting, and the type of equipment and transport used shall be subject to approval by the Engineer.

GE 5.8.1.3 The Contractor shall place indelible identity, location, and orientation marks on each unit, as and where necessary.

GE 5.8.1.4 Packing pieces shall be such that they do not discolour or otherwise permanently damage the units. Units shall be so stacked that

- a) the accumulation of trapped water and dirt is prevented, and
- b) in the case of small units, deformation is minimized during the curing process, and
- c) large units such as bridge beams (particularly prestressed beams) have complete freedom of movement during the curing process.

GE 5.8.2 Assembly and Erection.

TENDERER:

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Initial:

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Witness:

The method of assembly and erection agreed to with the Engineer shall be adhered to on the Site. Immediately after a unit is in position and before the lifting equipment is removed, temporary supports or temporary connections between units shall be provided as necessary. The final structural connections shall be completed as soon as is practicable. NOTE: See 5.4.3(b) for Particular precautions required in the case of units having architectural finishes.

GE 5.8.3

Temporary Supports during Construction.

Temporary supports shall be so designed and arranged by the Contractor that account is taken of

- a. all construction loads (including wind loads) likely to be encountered during the completion of joints between any combination of precast and cast-in-situ concrete structural units;
- b. when appropriate, movements, including those due to shrinkage of concrete and any post-tensioning;
- c. the need to prevent any local collapse from becoming progressive if a unit breaks accidentally and strikes against another during erection: and
- d. proper finishing and curing of any cast-in-situ concrete, mortar, or grout. Temporary supports shall not be removed or released until the specified strength is attained in the cast-in-situ portion of a construction and until structural integrity is achieved.

GE 5.8.4

Forming Structural Connections.

The Contractor shall

- a) inspect each precast unit to ensure that the structural connection complies with the design requirements set out in the project specification;
- b) ensure that each precast unit is free from irregularities of such size and shape as to lead to stress concentrations that could be damaging;
- c) ensure that the contact surfaces of each precast unit have been suitably prepared to provide the specified bond between the unit and cast-in-situ concrete or that the specified frictional resistance can be developed at a bearing;
- d) pay particular attention to
 - 1) checking that the location of reinforcement and structural steel sections in the ends of precast units is accurate, and
 - 2) the introduction of any additional reinforcement needed to complete a connection:
- e) carry out the packing of joints in accordance with the assembly instructions;
- f) when joints between units, particularly the horizontal joints between successive vertical lifts, are load-bearing and are to be packed with mortar or concrete, carry out tests to prove that the material is suitable for the purpose and that the proposed method of filling will result in a solid joint; and
- g) take care to ensure that
 - 1) the composition and water/cement ratio of cast-in-situ concrete or mortar used in any connection is as specified, and
 - 2) cast-in-situ material is thoroughly compacted. (NOTE: The use of an expanding agent for this purpose may be approved.)

TENDERER:

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Witness: _____

GE 6 TOLERANCES

GE 6.1 GENERAL

The dimensions of finished precast concrete units shall, subject to the tolerances specified in 6.2 and in Clause 6 of SANS 1200 G or to any other tolerances shown on the drawings or required in terms of the project specification, conform to the specified dimensions. NOTE: Where precast units are to fit on or between cast-in-situ concrete units the tolerances applicable to the cast-in-situ concrete shall be compatible with the tolerances applicable to the precast units.

GE 6.2 PRECAST BEAMS

The following tolerances shall apply to precast beams:

- a) Straightness or bow: The deviation from the intended line measured on a part of or on the overall length of the beam shall not exceed the following:
- 1) Length up to 3 m..... 3mm deviation**
- 2) For each additional metre in length an additional deviation of 1mm will be allowed up to a maximum of 10mm. In addition to (1) and (2) above, the rate of deviation from the intended line shall not exceed 1:300.
- b) Camber: In the case of beams for a bridge deck, the soffits of adjacent beams placed side by side on the bridge deck shall not exhibit a difference in level of more than 10 mm at any point.
- c) Length of precast beams before stressing: $\pm 0,1\%$ of the total length subject to a minimum of 5mm and a maximum of 20 mm.

GE 8 MEASUREMENT AND PAYMENT

GE 8.1 MEASUREMENT

GE 8.1.1 General

Except as otherwise required in terms of 8.1.1, 8.1.2, and 8.2, the terms of Clause 8 of SANS 1200 G shall be applicable to precast concrete.

GE 8.1.2 Precast Concrete Units

Where units are measured by volume, reinforcement and fixtures will be scheduled and no deduction will be made for small openings and holes (see SANS 1200 G).

Generally, reinforcement and fixtures will not be measured separately where units are measured by number or where the measurement of a unit is by area or by length (of a uniform section).

GE 8.1.3 Other Items

Where other items are scheduled separately, they will be measured and paid for in terms of 8.2.

GE 8.2 SCHEDULED ITEMS

GE 8.2.1 Provide Structural Precast Units Unit: m³, No, m² or m

TENDERER:

CLIENT

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1 _____
2 _____

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Witness:

The rate shall cover the cost of all labour, equipment, moulds, and material, including facings, reinforcement, and fixtures (except where reinforcement and fixtures are measured separately), mixing, placing, compacting, and floating-off of concrete, and the cost of temporary stacking, curing, and delivering the units to and stacking on the Site.

The rate shall cover the cost of supplying and constructing or building in each bearing, joint, etc., as applicable.

Witness:

GE 8.2.7

Load Testing of Units

a) Non-destructive tests Unit: No. or Sum

Separate items will be scheduled for different shapes or sizes or types of units.

The rate shall cover the cost of all equipment, measuring devices, and labour required for carrying out the test given in 7.2.2.

b) Destructive tests Unit: Sum

The rate shall cover the cost of all equipment, materials, and labour required for performing the test specified in the project specification, and for replacing the unit destroyed during the test.

c) Special Tests (Provisional) Unit: Day labour or Sum

Except where the requirements are fully specified in the project specification, the rate shall cover the cost of the operations agreed between the Contractor and the Engineer before the relevant units are cast.

TENDERER:

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Witness: _____

C5.4.9. SANS 1200 HA: STRUCTURAL STEELWORK (SUNDRY ITEMS)

HA	SCOPE
PS HA 1.1	"Replace the first paragraph with": This specification covers sundry items for structural steelwork such as prefabricated ladders, catwalks, open grid floors, handrails, steel poles, fencing, ect., that are usually fabricated form commercial quality steel.
HA 5.2	Fabrication and Assembly
PS H 5.2.11	Steel Poles and Wire fencing The steel poles and wire fencing shall be of the type given in the project specifications, shown on the drawings and indicated in the schedule fo quantities. The contractor shall ensure, by making in-situ measurements before manufacturing is started, that the poles and fencing suit the situation in which they are to be installed. Poles and fencing shall be supplied with all the tie wires and 4 horizontal wires and fittings, etc., required for installation.
HA 8.3	Scheduled Items
PS HA 8.3.7	Top Rails..... Unit: m The rate shall cover the cost of supplying in all material, labour and plant for supplying and fixing of top rails as specified.
PS HA 8.3.8	Removal of fence (Existing fence) Unit: m The rate shall cover the cost of supplying in all material, labour and plant for removal for removal, storing, disposing and/or re-installing of existing fence. Also inclusive all repair work on existing fence (straining wiring included) there instructed by Engineer.
PS HA 8.3.9	New fence..... Unit: m The rate shall cover the cost of supplying in all material, labour and plant for supplying and fixing of new fence (a straining wiring included). a) Fence description and Height Unit: m
PS HA 8.3.10	Repair Fence..... Unit: m The rate shall cover the cost of supplying in all material, labour and plant for repairing an existing fence (a straining wiring included). a) Fence description and Height Unit: m
PS HA 8.3.11	Replace Poles Unit: No The rate shall cover the cost of supplying in all material, labour and plant for removing of existing and installing of new poles where instructed by Engineer.
PS HA 8.3.12	New Poles..... Unit: No Separate items will be scheduled, inclusive of full description, finish and length of poles. The rate shall cover the cost of supplying in all material, labour and plant for the supplying and fixing of poles as specified.

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Witness:

C5.4.10. SANS 1200 L: MEDIUM-PRESSURE PIPELINES

L 8 MEASUREMENT AND PAYMENT

L 8.2 SCHEDULED ITEMS

PS L 8.2.16 Connection to existing Network..... Unit: No

The rate shall cover the cost of supplying all material, labour and plant, complete with couplings to connect to the existing water network.

TENDERER:

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Witness: _____

C5.4.11. SANS 1200 LB: BEDDING (PIPES)

LB 3 MATERIALS

PS LB 3.1 SELECTED GRANULAR MATERIALS

Substitute LB 3.1 with the following:

Selected granular material shall be an aggregate, sand or granular material, all of a non-cohesive nature and free from any organic material, of which the grading analysis shows 100% passing a 13.2 mm sieve and not more than 5% passing a 0.075 mm sieve.

In very wet conditions and if so ordered by the Engineer, a non plastic crushed material with the specification as stated underneath should be used for bedding cradle.

Grading

Sieve size (mm)	% going through
19.0	100
13.2	84 – 100
9.5	70 – 84
4.75	45 – 65
2.36	29 – 47
1.18	19 – 33
0.600	13 – 25
0.300	10 – 18
0.150	6 – 13
0.075	4 – 10

PS LB 3.2 SELECTED FILL MATERIAL

Substitute LB 3.2 with the following:

The requirements of *PS LB 3.1* shall apply mutatis mutandis.

PS LB 3.3 BEDDING

Add the following to LB 3.3:

All pipes shall be classified as flexible pipes and shall be laid according to detail for flexible pipes.

LB 8 MEASUREMENT AND PAYMENT

LB 8.1 PRINCIPLES

PS LB 8.1.1 Supply of Bedding Materials Measured Separately

Add the following to LB 8.1.1:

Payment for bedding material and selected fill material is only made if the selected trench excavation material cannot be used in the same position as bedding material but has to be obtained from another part of the site of works or designated borrow pits, or from commercial sources.

PS LB 8.1.4 Separate Items for Cradle and Blanket

TENDERER:

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Witness:

Substitute LB 8.1.4 with the following:
No distinction shall be made as regards material for the bedding cradle and selected fill blanket, and the material shall comply with the requirements for material for bedding cradle.

PS LB 8.1.5 Disposal of Displaced Material

Add the following to LB 8.1.5:

Surplus displaced material shall be dumped and levelled at the spoil site.

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	2 _____	Witness:	_____

C5.4.12. SANS 1200 LE: STORMWATER DRAINAGE

LE 3 MATERIALS

LE 3.1 CULVERT UNITS AND PIPES

PS LE 3.1 d) Skewed Ends

Substitute LE 3.1(d) with the following:

Where pipe culverts are to be constructed with a skew angle of more than 20°, the skew ends shall be cut on site.

LE 3.4 MANHOLES, CATCHPITS AND ACCESSORIES

PS LE 3.4.3 Manhole Covers, Grid Inlets, Etc.

Substitute the last sentence in LE 3.4.3 with the following:

Covers and frames for manholes and grid inlets shall comply with the requirements of SANS 558 for Type 2A and Type 9D, respectively.

LE 5 CONSTRUCTION

LE 5.1 TRENCH BOTTOM

PS LE 5.1.3 Unsuitable Founding Conditions

Substitute "90 % of MAASHTO maximum density" in LE 5.1.3 with "90 % of MAASHTO maximum density (100 % for sand)".

LE 5.2 BEDDING AND LAYING

PS LE 5.2.2 Pipe Culverts

Add the following to LE 5.2.2:

All pipes shall be laid on a Class D bedding, as specified in SANS 1200 LB.

PS LE 5.4 BACKFILLING OF PREFABRICATED CULVERT UNITS

PS LE 5.4.2 Portal and Rectangular Sections

Add the following to LE 5.4.2:

Backfilling on the sides of portal and rectangular sections can, if indicated on the drawings and requested in writing by the Engineer, be done with a 1:3:6 mix concrete.

LE 5.5 CATCHPITS, MANHOLES, INLETS, AND OUTLET STRUCTURES

PS LE 5.5.3 Plaster

Add the following to LE 5.5.3:

No plaster is required for manholes or inlets except where otherwise shown on the drawings or ordered in writing by the Engineer.

PS LE 5.5.5 Precast Manholes

Substitute LE 5.5.5 with the following:

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Witness:

Manholes and inlet and outlet structures shall be constructed in accordance with the details as shown on the drawings.

PS LE 5.5.7 Precast Inlet And Outlet Structures

Substitute LE 5.5.7 with the following:

Manholes and inlet and outlet structures shall be constructed in accordance with the details as shown on the drawings

LE 8 MEASUREMENT AND PAYMENT

LE 8.2 SCHEDULED ITEMS

PS LE 8.2.1 Supply and Lay Concrete Pipe Culverts Unit: m
Add the following to LE 8.2.1:

The provisions of LE 8.2.1 shall apply mutatis mutandis to uPVC pipes.

**PS LE 8.2.4 Extra-over Items LE 8.2.1 and LE 8.2.2 for Cutting
and Units for Culverts on Site Unit: No**

Add the following to LE 8.2.4:

Payment shall be made only for skew cuts greater than 20° at manholes, kerb inlets and inlet and outlet structures.

PS LE 8.2.8 Supply and Install Manholes, Catchpits and the like Unit: No

Substitute LE 8.2.8 with the following:

The unit of measurement shall be the number of each, in the depth increments as scheduled, fully installed in accordance with the details shown on the drawings.

The rate shall cover the cost of excavating and backfilling with approved selected material from site borrow pits, stockpile or commercial sources, compacted to 93 % of MAASHTO density (100 % for sand), supplying and installing of all material and accessories, the inlet kerbs and the channel adjacent thereto as well as for the removal and spoil of all surplus material. The rate shall also include the connection of pipes to manholes, catchpits, etc. and of building pipes into the walls of such structures, but not for the cutting of skewed ends.

PS LE 8.2.14 In Situ Concrete Invert Slabs For Portal Culverts Unit: m

The rate covers the supply, delivery and placement of all material as indicated on the drawing, including all required formwork, as well as the wood-floated finishing thereof.

PS LE 8.2.15 Concrete Lined Channels Unit: m

Channels of different shapes and sizes will be scheduled separately.

The rate shall cover the cost of the supply and construction of all materials as specified on the drawings, including excavation, formwork, wood-floated finishing, steel reinforcement, weep-holes and filter materials wrapped in geo-textile below and alongside the channels and compaction and preparation of the channel bed to 93 % of MAASHTO density, all as specified on the drawings.

PS LE 8.2.16 Expansion Joints Unit: m

<u>TENDERER:</u>		<u>CLIENT</u>	
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	2 _____	Witness:	_____

Expansion joints for the different channels will be scheduled separately. The length shall be measured on the surface of the completed expansion joints. The item shall be *extra-over PS LE 8.2.15* and the rate shall cover all costs of the construction of the joint, complete as specified on the drawings.

TENDERER:

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Initial: Gamagara Local Municipality _____
Witness: _____

C5.4.13. PARTICULAR SPECIFICATION L: LANDSCAPING

PS L-1. SCOPE

This specification covers landscaping, including aspects such as the establishment of vegetation for functional and aesthetic purposes on cut and fill slopes, de-vegetated areas, dam walls, landscaped areas and such other areas as may require treatment. It also covers general conservation measures.

PS L-2. INTERPRETATIONS

PS L-2.1 SUPPORTING SPECIFICATIONS

Where this specification is required for a project, the following specifications shall, inter alia, form part of the Contract Document:

- (a) Project Specifications.
- (b) SANS 1200 A as applicable.
- (c) SANS 1200 C as applicable.
- (d) SANS 1200 D or SANS 1200 DA as applicable.
- (e) Specification DWS 2210 as applicable.

PS L-2.2 APPLICATION

This specification contains clauses that are generally applicable to landscaping and site restoration work coinciding with, or subject to, civil engineering construction. Interpretations and variations of this specification are set out in the Project Specification.

PS L-2.3 DEFINITIONS

PS L-2.3.1. ACCEPTABLE COVER

An acceptable cover shall mean that not less than 75% of the area planted or hydroseeded shall be covered with grass and that there shall be no bare patches of more than 500 mm in maximum dimension. In the case of sodding, acceptable cover shall mean that the full area shall be covered with live grass at the end of any period not less than 3 months after sodding.

PS L-2.3.2. CONTAINER PLANTS

Container plants include all vegetation which are bought or supplied in acceptable containers from nurseries or vegetation lifted out of their natural position and placed in containers.

PS L-2.3.3. ESTABLISHMENT OF GRASS

All procedures necessary to produce an acceptable cover of grass on an area.

PS L-2.3.4. ESTABLISHMENT PERIOD

The Establishment Period is defined as the period beginning from the actual planting or placing of vegetation until three months thereafter, unless otherwise specified or unless grass cover is unacceptable or unless plants have not taken.

PS L-2.3.5. HYDROSEEDING

To apply seed in a slurry with water (plus other materials to enhance growth) by means of a spraying device.

PS L-2.3.6. PERIOD OF MAINTAINING

The Period of Maintaining is defined as the period following directly after the Establishment Period until the end of the Period of Maintenance for the whole Contract as defined in Clause 49 of the General Conditions of Contract, unless otherwise specified.

TENDERER:

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Initial: Gamagara Local Municipality

Witness: _____

PS L-2.3.7. NATURAL VEGETATION.

Natural vegetation includes all trees, shrubs, creepers, grasses and other plants growing on site, whether indigenous or not.

PS L-2.3.8. NURSERY CONDITIONS

These are the necessary conditions to maintain healthy growth of container plants. This includes protection of container plants against wind, frost, direct sunlight, pests, diseases and drought. It also includes the provision of suitable water, fertilizer and any other measures required to maintain the container plants.

PS L-2.3.9. SCARIFYING

To roughen the surface of soil as a preparation for seeding.

PS L-2.3.10. TRIMMING

To neatly round off the levels of existing or previously shaped earthworks to blend in with the levels of other earthworks, constructed works, or natural landforms.

PS L-2.3.11. WAITING PERIOD FOR FERTILIZERS

This will be the period after applying fertilizers such as superphosphate, and before any grassing or planting is commenced. In general a waiting period of 6-8 weeks is necessary before any planting can be done.

PS L-3. MATERIALS

PS L-3.1 FERTILIZER

Fertilizer will be any man-made substance added to soil to improve its value as growing medium. The type of fertilizer to be used shall be one or more of the following listed below and/or any other fertilizer as deemed necessary after analysis of soil samples. (All fertilizers shall comply with the Fertilizers, Farm Seeds, Agricultural Remedies and Stock Remedies Act 1947 - Act 36 of 1947).

For each fertilizer type the minimum quantity required shall not be less than the following, except where indicated to the contrary:

- (a) agricultural lime - 2 tons/ha
- (b) superphosphate - 750 kg/ha
- (c) limestone ammonium nitrate (LAN) - 250 kg/ha
- (d) general fertilizers containing nitrogen, phosphorus and potassium in the amounts indicated by the following ratios: 2:3:2, 3:2:1, 4:1:6, etc. - 250 kg/ha

All fertilizers shall be safely stored in plastic bags on Site and shall not be exposed to weather conditions such as harsh sun, rain, wind, hail, etc. These fertilizers shall be dry, free-flowing and free from lumps and shall be supplied by the Contractor in plastic bags, labelled to indicate weight and content of each, including the proportion of each constituent.

PS L-3.2 GRASS RUNNERS

Grass runners shall be fresh runners of a specified or approved type with at least three healthy nodes and sufficient root material to ensure good growth.

PS L-3.3 GRASS SEED

PS L-3.3.1. PURCHASED GRASS SEED

Only good quality fresh seed with a guaranteed germination percentage and free of any other seeds or harmful materials shall be used. Grass seed shall be purchased from a registered seed merchant.

PS L-3.3.2. HARVESTED GRASS SEED

TENDERER:

Initial: Authorized Signatory/ies:

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CLIENT

Initial: Gamagara Local Municipality

Witness:

Seed harvested from approved natural veld grass areas shall be free from any other seeds or harmful material.

PS L-3.4

GRASS SODS

Grass sods shall be either nursery-grown or veld sods as accepted by the Engineer. Both types shall be harvested, delivered and planted within 24 hours unless otherwise authorised by the Engineer.

Grass sods shall be well-rooted and well-matted, free from noxious weeds and diseases and shall contain a minimum of 30 mm soil in the case of nursery grown sods and 50 mm in the case of veld sods. The sods shall be at least 0,1 m² in area, of uniform thickness and have a healthy green colour with no dead patches.

Nursery grown sods shall be grown especially for sod purposes, mown regularly and maintained to provide an approved quality of uniformity. Veld sods may be obtained from approved areas that are of suitable type, density of grass and type of soil.

PS L-3.5

REVEGETATION CYLINDERS

These are cylinders which contain plant seeds and a medium in which they will germinate and grow. After growth begins the plants will send out roots from the cylinder into the surrounding soil and thereby anchor themselves to the place where they have been positioned.

PS L-3.6

TREES, SHRUBS AND INDIVIDUAL PLANTS

Plants shall be the variety and size shown on the Drawings or stated in the Project Specifications.

All container plants delivered on Site shall be selected from registered nurseries. These plants shall be healthy, undamaged and free from pests, diseases, insects and weeds. No pot-bound plants shall be accepted.

PS L-3.7

TOPSOIL

Topsoil shall be the uppermost layer of soil and shall consist of fertile loamy soil with a minimum of 2% organic material, selected from areas showing a good coverage of natural vegetation, preferably grasses. It shall be free from deleterious matter such as large roots, stones, refuse, heavy clays, noxious weeds, etc. which would adversely affect its suitability for planting vegetation.

PS L-3.8

MANURE

Manure shall, unless another type is approved by the Engineer, be pure kraal manure free from soil, weed seeds or other objectionable material. It shall not contain particles that will not pass a 50 mm size screen and shall be approved by the Engineer before being delivered to the Site.

PS L-3.9

COMPOST

Compost shall be well-decayed, friable, free from weed seeds, dust, and other objectionable materials. The pH reading of the compost shall not exceed 7,0. A sample shall be submitted to the Engineer for approval before it will be accepted on Site. If the compost is delivered on Site in bulk, the Contractor shall take all appropriate measures to protect it against all weather conditions such as harsh sun or heavy rains.

PS L-3.10

MULCH

Mulch will be any organic material applied to the surface or worked into the soil in areas where vegetation is to be established for the purpose of erosion protection and to add organic matter to the soil.

Mulch may be applied by hand or hydroseeded and shall be as follows:

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- (a) Mulch material for hand spreading shall be natural sun-dried fibres of various lengths between 50 mm and 300 mm. All mulch shall be subject to the approval of the Engineer prior to use. Examples of suitable mulch are hay, chaff and tall grass clippings. This mulch shall be delivered on Site in labelled plastic bags or bales.
- (b) Mulch for hydroseeding shall be a mixture consisting of cellulose pulp and natural sun-dried plant fibres processed in lengths between 5 mm and 25 mm. This mulch material shall be capable of dispersing rapidly when mixed in water and, when applied, shall be capable of forming an absorptive mat allowing moisture to penetrate into the underlying soil. This mulch shall contain no growth or germination inhibiting substances, shall be dry and free of weeds or any other foreign materials and shall be supplied by the Contractor in labelled plastic bags with an indication of its weight.

PS L-4.

PLANT

The Contractor shall supply all the equipment required to perform the specified work.

PS L-5.

CONSTRUCTION

PS L-5.1

GENERAL

PS L-5.1.1.

ENVIRONMENTAL MANAGEMENT

The Contractor shall make every effort to preserve the natural assets, to minimise environmental disturbance and to inform his employees on the Site as to the ecological sensitivity of the area in which the Site is situated. The Contractor shall be responsible for any avoidable damages to the environment resulting from the actions of any of his employees. The Engineer reserves the right to order the permanent removal from the Site of any person not complying with the requirements set out in this specification or any other specification in the Contract Documents.

In his effort to minimize environmental disturbance the Contractor shall take the following into consideration:

a. Construction workers and the Site

The Contractor shall be responsible for his construction workers insofar as they shall be made aware of the seriousness of disregarding orders which relate to:

- shooting, trapping or disturbing of game/small mammals.
- damaging of natural flora.
- littering on the construction site.
- the use of supplied toilet facilities.
- the use of the areas provided for eating.

Furthermore no exotic plant material or domestic animal of any kind will be allowed on the Site.

The Contractor shall also be responsible for the Site which shall be free of erosion, pollution and/or any other unwanted materials. Nontoxic materials may be dumped and buried in the spoil dumps at acceptable depths. All other unwanted materials shall be collected and disposed of in a satisfactory manner. The Contractor shall also keep all watercourses and adjoining properties free from pollution and erosion by revegetation, control of storm-water runoff by silt traps and/or any other approved method.

All imported construction material shall also be checked for the importation of exotic seeds and/or any other foreign matter through these materials.

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b. Marker fences

The Contractor shall fence all those areas in which movement of his construction equipment and personnel will take place during, and for the purpose of, construction. The purpose of placing marker fencing around these areas is to limit the movement of equipment and personnel. These marker fences shall comply with requirements as set out in Specification DWS 2210. The marker fences shall be erected prior to the commencement of any construction activity planned to take place within the limits of the particular area.

All activities by the Contractor shall be contained within the fenced areas. The Contractor shall be liable for any damages which may result from trespassing outside these areas.

c. Dust control

The Contractor shall take precautions to the satisfaction of the Engineer to limit the production of dust and damage caused by dust. The minimum requirement in this regard is regular watering. The methods employed by the Contractor shall be acceptable to the Engineer and comply to the Specifications as set out in sub-clause 5.1.4.1 of SANS 1200 D.

d. Surface water management

The Contractor shall submit as part of the Technical Report, submitted with a tender, a Surface Water Management Plan by which any surface water, be it from rain, excavations or any other source, is controlled and led through settling and treatment ponds where necessary. Before any water is permitted to enter natural streambeds the quality of the water shall comply with the Standard Requirements for Effluent and Waste Water, as set out in Government Notice 991 published in Government Gazette 9225 of 18 May 1984 in terms of the Water Act (Act 54 of 1956). The Contractor shall obtain approval from the Engineer for his design and the implementation of the Water Management Plan. Refer also to SANS 1200 A sub-clauses 5.5 and 5.6.

e. Earthworks

All earthworks shall comply with SANS 1200 D or 1200 DA as applicable but shall be rounded off to stable forms, sympathetic to the natural surrounding landscape.

PS L-5.1.2. TIME OF PLANTING

All planting shall be carried out as far as is practicable during the period most likely to produce beneficial results but as soon as possible after completion of a section of earthworks. The seasonal period is from the beginning of September to the end of February or as specified.

PS L-5.1.3. EROSION CONTROL

During construction, the Contractor shall protect all areas susceptible to erosion by installing all necessary temporary and permanent drainage works and by taking such other measures as may be necessary to prevent the concentration of surface water and scouring of slopes, banks and other areas. All erosion, such as runnels, channels or sheet erosion, that develops during the Construction Period, Establishment Period or Period of Maintaining shall be backfilled and consolidated and the areas restored to their proper condition at the Contractor's expense. The Contractor shall not allow erosion to develop on a large scale before effecting repairs and all erosion damage shall be repaired as soon as possible and in any case not later than two months before

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the termination of the Period of Maintaining. All topsoil or other material accumulated in side drains shall be removed at the same time. Topsoil washed away shall be replaced.

PS L-5.1.4. RESPONSIBILITY FOR ESTABLISHING AN ACCEPTABLE COVER

Notwithstanding the fact that the Engineer will determine or approve the method of grassing and that the type of seed or grass used and the rate of application of seed may be specified or agreed to by the Engineer, the Contractor shall be solely responsible for establishing an acceptable grass cover and for the cost of replanting or re-hydroseeding when an acceptable cover is not obtained. However, where in the opinion of the Contractor, it is doubtful from the outset that it will be possible to establish an acceptable cover he shall inform the Engineer of his reasons, and the Engineer shall, if he agrees, either adopt another method of grassing or agree to accept whatever cover can be obtained provided that all reasonable efforts are made to establish a good cover using the method proposed. Any such agreement shall only be valid if given in writing by the Engineer.

PS L-5.1.5. MAINTENANCE OF STOCKPILES AND WORK AREAS

The Contractor shall be held responsible for any damage to areas due to erosion and runoff from the stockpiles and work areas. The Contractor shall repair all damages at his own expense to the satisfaction of the Engineer.

PS L-5.1.6. CLEARING

Any rubbish, concrete slabs, old foundations, unused grass sods and cuttings, steel remnants, etc. shall be removed before ripping, shaping and trimming takes place.

If these unwanted items are not removed immediately, the Contractor shall store them in heaps in an area approved by the Engineer until such time as they can be removed. The Contractor shall be held responsible for keeping these heaps in a condition to the satisfaction of the Engineer, considering the stipulations in sub-clause 5.1.5.

PS L-5.1.7. FIRE CONTROL

The Contractor shall take adequate precautions to prevent and control veld fires to the satisfaction of the Engineer.

The Contractor shall take all steps to ensure that the fire hazard on and near the Site is reduced to a minimum. The Contractor shall be held responsible for any damage to property adjoining the Site as a result of any fire caused by one of his employees.

The Contractor shall take immediate steps to extinguish any fire which breaks out on the Site, and shall comply with all statutory provisions which may be in force from time to time in relation to fire danger or to restrictions on the lighting of fires in the open. The Contractor shall have a supply of beaters to use in the extinguishing of bush fires to which this area is susceptible.

Firebreaks shall be established and maintained around the Sites if and when ordered by the Engineer.

PS L-5.2 GRASSING OF AREAS

PS L-5.2.1. TOPSOIL

Topsoil shall be handled under the relevant clauses in SANS 1200 D or SANS 1200 DA as applicable. The following measures shall be relevant for, and part of, the handling of topsoil:

- (a) Topsoil borrow areas

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Suitable topsoil shall be obtained within the limits of the area to be cleared. The Engineer may indicate to the Contractor the areas from which topsoil may be selected. If the Contractor fails to conserve topsoil as instructed he shall obtain suitable substitute material from other sources at no extra cost to the Employer. It may also be specified that the Contractor shall procure and furnish topsoil from his own sources outside the Site. The suitability of these substitute materials shall be decided on by means of soil analysis.

(b) Storage of topsoil

Topsoil shall be stockpiled in separate loose heaps as tipped from trucks and shall not be stockpiled higher than 3,0 m. Care shall be exercised during stockpiling to prevent compaction of topsoil and the mixing of topsoil with sub-soil and/or any other material. If stockpiled for a period longer than 8 months, the Engineer may instruct for the stockpiles to be seeded with an approved seed mixture. This seedbed shall be kept moist by the Contractor so as to achieve an acceptable cover.

PS L-5.2.2. SHAPING

Areas requiring shaping involving bulk earthworks shall be excavated, filled, compacted when required, and shaped to the correct contours to within a tolerance of plus or minus 150 mm. Shaping will be to roughly round off cuts and fills and any other earthworks to stable forms, sympathetic to the natural surrounding landscape. Such work shall be considered as earthworks and measurement and payment shall be made under the relevant clauses in SANS 1200 D or 1200 DA as applicable or as specified.

PS L-5.2.3. TRIMMING

Trimming shall consist of bringing the existing or previously shaped ground to an even surface with the final levels generally following the original surface. Where machine operations are not practicable trimming shall be done using hand tools. Trimming shall be done where instructed by the Engineer but trimming of rock outcrops and 'koppies' will not be required. Areas previously shaped shall be trimmed to within a tolerance of plus or minus 100 mm with all undulations following a smooth curve. This tolerance shall apply only to areas where the final contours are shown on the drawings.

Trimmed surfaces shall be left slightly rough to facilitate binding with topsoil or the natural establishment of vegetation. During trimming all stones with any dimension in excess of 30 mm in areas to be mowed by machine, all stones with dimensions in excess of 150 mm in other areas and all other excess material shall be removed to selected dumping sites. Trimming of any areas requiring grassing shall be done in such a way that, after application of any topsoil and cultivation, the finished surface of the area shall be approximately 25 mm below the top of adjacent kerbing, channelling or pavement. No separate measurement and payment shall be made for trimming. These costs shall be included in the various rates in SANS 1200 D or 1200 DA as applicable, and in the various rates in this Specification.

PS L-5.2.4. Preparation of areas for grassing

The various areas to be grassed shall be prepared as follows:

- (a) Where the area to be grassed consists of suitable material it shall be scarified to a minimum depth of 75 mm with furrows spaced at 250-300 mm centres. Scarifying along slopes shall run parallel to the contours, forming horizontal terraces. All loose stones and other excess material shall be removed during trimming (sub-clause 5.2.3).
- (b) Where areas to be grassed consist of unsuitable material which, in the opinion of the Engineer, cannot be improved sufficiently to support good plant growth by the addition of soil amendments, topsoil shall be placed.

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Approved topsoil shall be placed on slopes flatter than 1:1,5. Only in certain circumstances will topsoil be specified on fill slopes steeper than 1:1,5.

Where topsoil is required the surface shall be left slightly rough during trimming to ensure a proper bond between the topsoil and the subsoil. Topsoil shall be placed on the prepared surfaces and trimmed to the uniform thickness required. Unless otherwise specified a 75 mm layer of topsoil shall be placed. The topsoil shall be scarified as described in (a). The soil shall be moist to a depth of at least 300 mm while being worked, prior to fertilizing and seeding.

- (c) Large steeply sloping areas, such as embankment dams, with a high erosion potential shall be prepared as specified in (a) above, unless otherwise stated.

PS L-5.2.5. Fertilizing

The Contractor shall have the top 150 mm of the prepared surfaces (as described in sub-clause 5.2.4) tested and submitted to the Engineer to determine the amount and type of fertilizer required for establishing proper growth conditions for grass. The choice of the type of fertilizer to be used and the application thereof shall be the responsibility of the Contractor, but shall be approved by the Engineer before application.

Fertilizer shall be evenly applied over all surfaces where grass is to be planted and shall be worked into the soil within 12 hours after application to prevent losses by wind or water. The Contractor shall take into account in his planting programme any required waiting periods for fertilizing. No delays shall be considered as a result of these waiting periods.

PS L-5.2.6. Mulching

The decision to use mulch rests with the Contractor, but should be discussed with the Engineer. Proper mulching (+ 70% coverage) is an erosion prohibiting measure and should therefore always be considered. Mulching may be done by hand or, if hydroseeding is to be carried out, by hydroseeder.

PS L-5.2.7. Methods of Grassing

The method of establishing grass shall depend on the circumstances relating to each case. The Engineer shall decide which method is to be used where not specified. The types and mixtures of seeds, runners or sods shall be specified or shall be agreed upon between the Engineer and the Contractor before any seeds, runners or sods are ordered.

After establishing runners, sods, a seedbed or revegetation cylinders by one of the methods described below the Contractor shall water the established area immediately after planting or placing and keep these areas sufficiently wet for establishment and proper maintenance. He shall also protect the established area against erosion as described in sub-clause 5.1.3. The Contractor shall be solely responsible for establishing an acceptable grass cover and any approval by the Engineer of seed or seed mixtures proposed by him for use shall not relieve him of his responsibility.

Provision is made in this Specification for the following methods of grassing:

- (a) Planting of grass runners

The areas to be planted shall, unless wet, be thoroughly watered before planting to ensure that the soil is uniformly wet to a depth of at least 300 mm when planting takes place. Approved grass runners, as described in sub-clause 3.2, shall be evenly planted by hand or mechanical means at a rate of at least 40 grain bags of runners per hectare. Only fresh runners shall be used and no grass runners that have been allowed to dry out shall be used. After planting, runners shall be given copious watering and, when sufficiently dry, shall be rolled with a light agricultural roller and rewatered.

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(b) Sodding

Sods will generally only be placed on slopes varying between 1:1,5 and 1:1. Where specifically required, sods may be placed on flatter areas.

Areas to be grassed by sodding shall be trimmed to the required level, raked or spiked to give a loose surface for a depth of at least 40 mm and covered with a layer of approved topsoil not more than 75 mm thick. Topsoil may be omitted if and when the Engineer decides the subsoil is suitable for grassing. The necessary soil amendments as indicated by soil tests shall be added to and worked into the topsoil or subsoil. The areas to be sodded shall be thoroughly watered beforehand so that it is wet to a depth of at least 150 mm when sodding is done. The surface shall be made slightly rough to ensure a good penetration of roots into the soil. Sods shall be protected against drying out and kept moist from the time of harvesting until finally placed.

The first row of sods shall, where it is possible, be laid in a straight line and, if on a slope, starting at the bottom of the slope. The sods shall be butted tightly against each other, care being taken not to stretch or overlap sods. Where a good fit cannot be obtained the intervening spaces shall be filled with parts of sods or topsoil. The next row shall be placed in the same way tightly against the bottom row with the joints staggered, until the full area is covered with sods. On steep slopes the sods shall be held in position by sufficient timber stakes of at least 300 mm in length. The Contractor shall water the sods directly after placing to prevent drying out of the sods.

(c) Hydroseeding

Irrespective of the method used (A, B or C), the seedbed shall be kept moist after hydroseeding to ensure good germination. The various methods of hydroseeding are described below.

Method A

The specified seed mix and necessary fertilizer shall be added to the required amount of water and applied using an approved hydroseeding machine. Unless otherwise specified the rate of application of slurry shall not be less than 30 cubic metres per hectare and shall be applied in such a manner as to have even distribution of seed and fertilizer.

Method B

Method A shall be used but additional components shall be included in the slurry. These additional components may be mulch (suitable for use in the hydroseeder), cellulose pulp, organic fibre, chemical binder or any other material required to assist in the application of the slurry or to enhance the germination and growth of the seeds. Additional water may be needed to make the slurry workable but the required mass of seed and the necessary fertilizer and other components per hectare shall nevertheless be applied. It may also be specified that the Contractor will design a suitable mix using additional components.

Method C

Mulch shall firstly be applied by hand to the area to be hydroseeded. The surface shall then be hydroseeded as described under Method A.

(d) Handseeding

The area to be seeded shall be wet to a depth of at least 300 mm before any seeding takes place. The seed mixture and fertilizer, if any, shall be

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mixed, halved and applied evenly in two successive applications - the second application following immediately after the first. Immediately thereafter the seeded area shall be rolled, or compacted by an approved method, to the satisfaction of the Engineer. Seeds shall not be covered by more than two millimetres of soil. The seeded area should be well watered.

(e) Revegetation cylinders

The revegetation cylinders shall be placed end to end in rows along the contour lines of the slope as directed by the Engineer. The spacing of rows shall be as shown on the Drawings or as specified in the Project Specification or as ordered by the Engineer. The cylinder ends shall be staggered in alternate rows. Revegetation cylinders shall be secured at their ends and in the middle to barbed wire stays running down the slope using special wire ties supplied by the manufacturer and tied with a suitable tying tool. The stay wires shall be secured to the slope by means of steel stakes and pulled taut. The slope face shall preferably not be smooth but kept slightly rough in order to facilitate the retention of topsoil.

After the revegetation cylinders have been placed and secured in position the space between rows shall be filled with an approved topsoil and the upper surface of the topsoil finished flush with the top of the revegetation cylinders or slightly below it if mulch is to be applied. Care shall be taken during construction not to compact the topsoil excessively or to damage the cylinders when moving topsoil down the slope. All topsoiling shall start from the top of the slope.

PS L-5.2.8. Soiling and Seeding to follow Earthworks

The Contractor shall undertake all soiling, seeding and grass establishment, as described in sub-clauses 5.2.1 to 5.2.7, at the specified times, taking into account the climatic conditions prevalent in order to maximise growth of vegetation and therefore reduce erosion.

PS L-5.2.9. Watering

All grassed areas shall be maintained during the Establishment Period by adequate watering at frequent and regular intervals in order to ensure proper germination of seeds and growth of grass until an acceptable grass cover has been established (as defined in sub-clause 2.3) and as per the following conditions:

(a) New Grassed Areas

The number and frequency of watering shall be at the discretion of the Engineer but shall be a minimum weekly rate of 20 mm which shall be in applications of 8 – 12 mm/hr. Watering shall commence and continue immediately following establishment of grass.

(b) Rehabilitation of Existing Grassed Areas

The number and frequency of watering shall be at the discretion of the Engineer but shall be a minimum weekly rate of 40 mm which shall be in applications of 8 – 12 mm/hr. Watering shall commence immediately following conclusion of previous phase in the rehabilitation process as set out in PS L 5.5, and continue for the duration specified in the schedule of quantities.

PS L-5.2.10. Weeding

Weeds shall be controlled by means of extraction, cutting or other specified means.

PS L-5.2.11. Mowing

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The Contractor shall mow or cut all grassed areas to promote adequate coverage, until the end of the Period of Maintaining. All grass cuttings shall be collected and disposed of if so directed by the Engineer. Mowing shall be undertaken with an approved power mower. All established grass cover shall be cut to a height of 25 mm above ground level. Mowing of planted areas, as opposed to sodded areas, shall be undertaken initially with the mower set to cut 50 mm above ground level, the height of cut being reduced to 25 mm when adequate cover has been achieved. In cases where mechanical mowing is impossible, an approved method of cutting the grass by hand (e.g. by means of a scythe) shall be used.

PS L-5.2.12. Re-planting

Any bare patches where the grass has not taken or where it has been damaged or dried out, shall be recultivated, planted, sodded or hydroseeded at the Contractor's own expense. All grassed areas shall have an acceptable cover at the end of both the Establishment Period and the Period of Maintaining.

PS L-5.3 TREES, SHRUBS AND INDIVIDUAL PLANTS

PS L-5.3.1. Storage of Plants

Any plants not immediately replanted are the responsibility of the Contractor and shall be kept under approved nursery conditions in an area approved by the Engineer. All plants shall be maintained by regular watering and fertilizer applications, as well as by providing protection against wind, frost and direct sunlight until such time as they are to be replanted. The cost of providing a nursery shall be held to be included in the tendered rates for Site Establishment.

Plants that are kept on Site for a period of more than one year, shall be replanted into bigger containers if root development makes it necessary. The Contractor shall replace all broken containers of plants stored on Site. A topsoil and compost mixture, as specified below, shall be used to refill any containers if and when required to prevent the roots from drying out or for replanting.

Container mixture: 2 parts approved topsoil
1 part approved compost

PS L-5.3.2. Plants furnished by the Employer

In the case of plants that are to be supplied and delivered to the Site by the Employer, the Contractor shall give at least six weeks advance notice of his requirements to the Employer.

Upon receipt of the plants the Contractor shall ensure that the plants are in good condition and free from obvious diseases and pests. No damaged or deformed plants shall be stored or planted on the Site and shall immediately be removed and replaced by the Contractor. The plants shall be fully maintained from the date of receipt until the end of the Period of Maintaining, including watering, weeding, fertilizing, etc. Any losses of plants due to the lack of maintenance, including diseases developed during the Contract Period and Period of Maintaining, shall be replaced at the Contractor's expense.

PS L-5.3.3. Plants furnished by the Contractor

Plants furnished by the Contractor shall be handled and packed in the approved manner for the specified species or variety and all necessary precautions shall be taken to ensure that the plants arrive at the Site in a proper condition for successful growth. Plants shall be healthy, shapely, well rooted, free from insects, pests and diseases and be acceptable to the Engineer. Roots shall show no evidence of having been restricted or deformed at any time. As described in sub-clause 5.3.2, unacceptable plants shall be removed from Site immediately and replaced.

PS L-5.3.4. Position of trees, shrubs and individual plants

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Trees, shrubs and individual plants shall be planted in positions as indicated on the Drawings, in the Project Specifications or by the Engineer.

PS L-5.3.5. Preparation of plant holes

Unless otherwise directed by the Engineer, all plant holes shall be square and prepared as follows:

Hole size: 5 times as wide as the container
1,5 times as deep as the container

Minimum hole sizes: 600 mm square x 900 mm deep for trees
500 mm square x 600 mm deep for shrubs

If impenetrable shale, solid rock or clay layers are present just below the soil surface, making it impossible to make the appropriate hole size to accommodate the container plant without entering the impenetrable layers, or if a high water table causes problems the Contractor shall request the Engineer immediately to give the necessary guidance.

Planting holes shall be refilled with selected and approved topsoil, thoroughly mixed with manure or compost (one heaped spadeful added to every plant hole) and, depending upon the soil tests, the required amount and type of fertilizer. Holes shall be thoroughly watered and an approved ant and termite killer shall be added to each hole before planting. Where local soil has poor drainage broken rock shall be placed to a depth of 150 mm at the bottom of the planting hole before filling it with soil and planting the plant.

PS L-5.3.6. Transplanting Natural Vegetation

Natural vegetation such as trees, shrubs, cycads, ferns, groundcovers, grass sods, grass runners and perennials on the Site which will be identified by the Engineer shall be transplanted. Only trees with a maximum height of 1,5 m shall be transplanted unless otherwise specified. Transplanting shall take place in late winter before new leaves appear.

Method

- (a) The trees to be transplanted shall be carefully removed from the soil so as to leave a large clump of soil affixed to the roots, and the roots undisturbed. The larger the tree, the larger root ball shall be left. For trees of 1 to 1,5 m high, dig at least 0,4 m away from the trunk.
- (b) The root ball shall be wrapped in a hessian or plastic cover to retain the soil.
- (c) To replant the plant in its new position, a square hole shall be dug, before removing the plant from its original position, wide and deep enough to take the root ball and allow room for some fresh soil to be packed around the sides. The hole shall be thoroughly watered before planting.
- (d) The plant shall be lowered into the hole and the plastic cover carefully removed. If the cover is of hessian it need not be removed although the cord holding the hessian shall be loosened before the hole is filled with soil.
- (e) The plant shall be staked and tied before filling the hole completely with soil. The stakes shall be driven in alongside (not through) the root ball and secured to the stem as indicated in sub-clause 5.3.8. Hereafter the plant hole can be filled with soil.
- (f) The soil shall be firmly pressed down. The previous planting depth shall not be exceeded.

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- (g) A raised basin having a depth of at least 200 mm deep shall be made around the plant for watering purposes. This basin shall be filled with water after planting.
- (h) If the tree cannot be transplanted in the new position immediately, it shall be planted in a container (as described in (j) below) and stored (as described in sub-clause 5.3.1) until such time as it can be replanted (as described in sub-clause 5.3.7).
- (j) The container shall be slightly larger than the root ball. The space in the container around the root ball shall be filled with the container mixture as specified in sub-clause 5.3.1.

PS L-5.3.7. Planting of Container Plants

Plants shall be watered well with at least 1 litre of water for small plants and 4 litres of water for large plants such as trees before they are removed from their containers for planting. As much of the soil from the container as possible shall be retained around the roots of the plant during planting. The plant shall be planted in the specified size plant hole. The approved soil, compost and fertilizer mix used to refill the plant hole shall cover all roots and shall be firmed down well to be at the same level as the surrounding in situ material. Directly after planting each plant shall be watered well to establish the plant firmly in the soil.

After the soil has set, additional soil shall be added where necessary to bring the hole backfill to within 50 mm of the ground level. A raised basin having a depth of at least 200 mm shall be made around the plant to ensure that sufficient water can be retained. All trees shall be anchored as described in sub-clause 5.2.8. After planting the soil around the plant shall be covered with mulch.

PS L-5.3.8. Anchoring of Plants

All trees shall be tied to three weather resistant wooden or steel stakes anchored firmly in the ground. Two stakes shall be located on the windward side of the plant. A piece of wire, covered with a 20 mm diameter plastic PVC pipe, shall be tied tightly to the stakes half to two thirds the height of the tree above ground and looped around the trunk of the tree. The stakes shall be placed at least 500 mm apart and away from the trunk and roots of the tree so as not to damage the roots. This distance will depend on the size of the tree, and shall be approved by the Engineer before the stakes are firmly anchored in the ground.

PS L-5.4 Maintaining of Planted Areas

During the Establishment Period and the Period of Maintaining the Contractor shall be responsible for watering the plants and keeping the area immediately around them free from weeds and pests. The Contractor shall check all plants for pests and diseases at least once every two weeks and treat the plants if necessary. Every plant that, in the opinion of the Engineer, is not healthy or shows unsatisfactory growth shall be replaced at the expense of the Contractor with the same species as specified, or replaced by another species as approved by the Engineer in writing.

From the date of commencement of grassing (whether by hydroseeding, sodding, handseeding, planting of runners or any other method) and/or planting of trees, shrubs and other individual plants the Contractor shall be responsible for maintaining all grassed areas and planted plants. Maintaining these areas and plants shall be such that the grass coverage and growth of individual plants is enhanced. This shall be such that a minimum grass cover of 75% is achieved and that individual plants are strong and healthy growers at the end of the Period of Maintaining.

PS L-5.5 Rehabilitation of Existing Grass

Rehabilitation shall be executed by means of the stated method, with strict adherence to order of process, stated rates and ratios and durations.

Method

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(a) Aeration

Shall be executed by means of stated type of process to required depths and rates for aeration:

i. Hollow tine:

Shall be executed to a depth of 100 mm below turf surface, either by hand or by means of self-propelled walk-behind or tractor drawn aerator. Holes shall be 25 mm Ø and a ratio of no less than 50 holes per m² (matrix of 143 mm x 143 mm c/c) and shall be maintained. All cores shall be raked and disposed of by contractor following completion of timing process.

ii. Spiker

Shall be executed to a depth of 25 mm below turf surface, either by hand or by means of self-propelled walk-behind or tractor drawn aerator. Holes shall be 10 mm Ø and a ratio of no less than 600 holes per m² (matrix of 40 mm x 40 mm c/c) and shall be maintained.

(b) Weeding as set out in PS L 5.2.10

(c) Spreading of specified grass seed by specified means.

(d) Fertilizing as set out in PS L 5.2.5

(e) Apply topsoil topdressing to specified thickness.

(f) Watering as set out in PS L 5.2.9(b) for specified duration.

PS L-6.

TOLERANCES

The tolerances acceptable shall be as specified in the respective clauses or in the Project Specification.

PS L-7.

TESTING

The Contractor shall take representative soil samples to be tested of all soils on which vegetation is to be established with the guidance of the Engineer. These samples shall consist of at least 1 kg of soil. The sample shall be placed directly in a plastic bag and labelled with a location number or description from which the exact position can be established after testing.

The Contractor shall submit the results, together with the method used in the analysis, to the Engineer. These results shall include the following and/or other components as specified:

- (i) Phosphate (Bray I or Bray II method)
- (ii) Potassium, Calcium, Magnesium and Sodium
- (iii) pH (Water)
- (vi) Soil fraction or particles and texture class.

PS L-8.

MEASUREMENT AND PAYMENT

PS L-8.1

BASIC PRINCIPLES

The rates shall depend on the nature of the landscape work. The areas to be grassed, as given in the Schedule of Quantities, are provisional.

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Witness:

PS L-8.2 SCHEDULED ITEMS

PS L-8.2.1. Preparation of Areas for Grassing

PS L-8.2.1.1 Topsoiling (thickness specified)..... Unit: m²

The unit of measurement shall be the area of topsoil measured in square metres applied to the thickness indicated.

The tendered rate shall cover the total inclusive costs of all the following items:

- (a) Loading onto transport.
- (b) Transportation (regardless of distance).
- (c) Off-loading.
- (d) Roughening the area to be topsoiled.
- (e) Placing.
- (f) Spreading to required thickness.
- (g) Levelling to a smooth surface.
- (h) Removal of stones and other foreign material.
- (i) Removal of unsuitable material or excess suitable material to spoil dumps.
- (j) All other incidental activities necessary to ensure proper placing of topsoil.

PS L-8.2.1.2 Preparation of surfaces Unit: m²

The unit of measurement shall be the prepared area measured in square metres.

The tendered rate shall cover the total inclusive costs of all the following items:

- (a) Trimming after topsoiling.
- (b) Scarifying.
- (c) Removing stones to suitable dumping areas.
- (d) Smoothing-off of the surface.
- (e) Fertilizing.
- (f) Mulching.
- (g) Sampling and testing of prepared surface.
- (h) All other incidental activities necessary to ensure that the surface is prepared properly.

PS L-8.2.2. Grassing

The tendered rate shall include full compensation for furnishing runners, sods, seeds and/or revegetation cylinders for planting or placing, for watering, fertilizing, weeding, replanting if necessary and all other incidentals that may be required to establish an acceptable cover. The tendered rate shall also cover all activities, plant, labour and any other incidentals required to perform the activities specified in this Specification. The costs of supplying of seed and fertilizer shall be included in the applicable items.

PS L-8.2.2.1 Planting of grass runners (type indicated)..... Unit: m²

The unit of measurement shall be the area of grass runners planted measured in square metres.

The tendered rate shall include for the total inclusive costs of all the following items:

- (a) Obtaining and delivering grass runners.
- (b) Planting.
- (c) Fertilizing.
- (d) Mulching.
- (e) Watering.

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- (f) Rolling.
- (g) All other incidental activities necessary to ensure that an acceptable cover will be obtained.

PS L-8.2.2.2 Sodding (type indicated)..... Unit: m²

The unit of measurement shall be the area of sodding carried out measured in square metres.

The tendered rate shall include for the total inclusive costs of all the following items:

- (a) Obtaining and delivering sods.
- (b) Placing.
- (c) Fertilizing.
- (d) Watering.
- (e) Supply and placing of timber stakes.
- (f) In case of veld sods, levelling and trimming of areas from which sods are taken.
- (g) All other incidental activities necessary to ensure that an acceptable cover will be obtained.

PS L-8.2.2.3 Hydroseeding (method indicated)..... Unit: m²

The unit of measurement shall be the area of hydroseeding carried out measured in square metres.

The tendered rate shall include for the total inclusive costs of all the following items:

- (a) Obtaining and delivering seeds for use in the hydroseeder and other components (eg. mulch) of hydroseeding.
- (b) Applying mulch by hand where applicable.
- (c) Mixing seed, fertilizer, mulch and other contents.
- (d) Spraying mix.
- (e) All other incidental activities necessary to ensure that an acceptable cover will be obtained.

PS L-8.2.2.4 Handseeding Unit: m²

The unit of measurement shall be the area of handseeding carried out measured in square metres.

The tendered rate shall include for the total inclusive costs of all the following items:

- (a) Obtaining and delivering the seeds (The type of seeds required will be stipulated in the Project Specification.)
- (b) Sowing (in two applications).
- (c) Fertilizing.
- (d) Mulching.
- (e) Watering.
- (f) Rolling.
- (g) All other incidental activities necessary to ensure that an acceptable cover will be obtained.

PS L-8.2.2.5 Revegetation cylinders..... Unit: m²

The unit of measurement shall be the area covered with revegetation cylinders measured in square metres (Placed end to end in rows. Distance between rows will be indicated.)

The tendered rate shall include for the total inclusive costs of all the following items:

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- (a) Obtaining and delivering revegetation cylinders.
- (b) Placing.
- (c) Fertilizing.
- (d) Watering.
- (e) Supply and placing of netting, wire ties or other means of securing revegetation cylinders.
- (f) All other incidental activities, including royalties, necessary to ensure that an acceptable cover will be obtained.

PS L-8.2.3. Trees, Shrubs And Individual Plants

PS L-8.2.3.1 Lifting of natural vegetation..... Unit: No.

The unit of measurement shall be the number of plants lifted from their natural position irrespective of type.

The tendered rate shall include for the total inclusive costs of all the following items:

- (a) Actual digging out of the plants.
- (b) Watering.
- (c) Hessian, plastic and/or other material to cover roots.
- (d) All other incidental activities necessary to ensure that the plants are well lifted as described in sub-clause 5.3.6(a) and (b).

PS L-8.2.3.2 Planting and establishment of natural vegetation in containers Unit: No.

The unit of measurement shall be the number of plants planted and established in containers.

The tendered rate shall include for the total inclusive costs of all the following items:

- (a) Providing an approved container.
- (b) Providing proper potting soil.
- (c) Placing and planting the plant in the container.
- (d) Fertilizing.
- (e) Mulching.
- (f) Watering.
- (g) Transporting plant and container to the nursery.
- (h) All other incidental activities necessary to ensure that the plants are well established.

Any payment made for a plant which later dies shall be deducted unless the plant is replaced by the Contractor.

PS L-8.2.3.3 Storage of the container plants in the nursery Unit: No/Month

The unit of measurement shall be the number of plants stored and maintained per month.

The tendered rate shall include for the total inclusive costs of all the following items:

- (a) Watering
- (b) Weeding
- (c) Fertilizing
- (d) Control of insects, pests and diseases
- (e) Protection against wind, frost and direct sunlight
- (f) Substituting plants that become diseased or that die
- (g) All other incidental activities necessary to ensure healthy, strong plants.

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PS L-8.2.3.4 Providing, planting and establishment of trees, shrubs and individual plants (Types indicated) Unit: No.

The unit of measurement shall be the number of each type planted and established in its final position.

The tendered rate shall include for the total inclusive costs of all the following items:

- (a) Obtaining and delivering plants to the position of planting.
- (b) Placing
- (c) Excavating the hole to the specified dimensions.
- (d) Furnishing soil mixture for filling the hole
- (e) Backfilling
- (f) Mulching
- (g) Fertilizing
- (h) Watering
- (j) Anchorage
- (k) All other incidental activities necessary to ensure that the providing, planting and establishing of plants comply with measures according to sub-clause 5.3.

PS L-8.3 MAINTAINING OF PLANTED AREAS

PS L-8.3.1. Maintaining of grassed areas Unit: m²/month

The unit of measurement shall be for the square metres of grassed area satisfactorily maintained multiplied by the number of months during which it is maintained.

The tendered rate shall include for the total inclusive costs of all the following items:

- (a) Watering
- (b) Weeding
- (c) Mowing
- (d) Fertilizing
- (e) Erosion control
- (f) Replanting and re-establishment of areas which have not achieved an acceptable grass coverage.
- (g) All other incidental activities necessary in order to establish an acceptable grass cover.

PS L-8.3.2. Maintaining of planted plants..... Unit: No/Month

The unit of measurement shall be the number of plants satisfactorily maintained multiplied by the number of months during which it is maintained.

The tendered rate shall include for the total inclusive costs of all the following items:

- (a) Watering
- (b) Weeding
- (c) Pruning
- (d) Fertilizing
- (e) Erosion control
- (f) Replanting and re-establishment of plants, shrubs and trees which are not healthy or show unsatisfactory growth.
- (g) All other incidental activities necessary in order to establish strong healthy individual plants.

PS L-8.4 REHABILITATION OF GRASSED AREAS

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Witness:

The unit of measurement shall be the area of grass to be rehabilitated, measured in square meter for the following.

PS L-8.4.1. Aeration Unit: m²

The type of, number of processes and required depth shall be stated. The tendered rate shall include for the raking together and removal to a suitable dumping site of all cores, plugs and other waste that may be reasonably generated as a result of aeration process.

PS L-8.4.2. Weeding Unit: m²

Individual types of processes/applications shall be scheduled separately.
The number of processes/applications shall be stated.

PS L-8.4.3. Fertilizing Unit: m²

Individual types of applications shall be scheduled separately.
The number of applications shall be stated.

PS L-8.4.4. Over-seeding.....Unit: m²

Individual types of seeds and types of applications shall be scheduled separately.

PS L-8.4.5. Top Dressing Unit: m²

Thickness of application shall be stated.

PS L-8.4.6. Watering Unit: Days

The tendered rate shall include for the application of water to the specified area in accordance with the minimum rates as set out in PS L 5.2.9(b).
The area to be watered shall be stated, measured in square metres.

PS L-8.5 DETECTION OF IRRIGATION

PS L-8.5.1. Detection of irrigation Unit: Sum

Contractor to provide for the detection, marking and protection against damage of all existing irrigation pipes and sprinklers during all phases of the contract for the duration of the contract.

Any repair to existing irrigation due to damage as a result of normal construction and maintenance operations shall be for the contractors account. Duration of contract shall be stated measured in months.

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C5.4.14. SANS 1200 LD: SEWERS

LD 3 MATERIALS

LD 3.5 MANHOLES, CHAMBERS, ETC.

PS LD 3.5.2 Precast Concrete Sections

Add the following to LD 3.5.2:

Precast concrete sections with an inside diameter of 1,000 or 1,250 mm shall be used for manholes.

PS LD 3.5.7 HDPe Steps

Substitute LD 3.5.7 with the following:

Step shall be installed in all manholes deeper than 1.2 m. The installation of the step shall be in accordance with the specification of the manufacturer.

LD 4 PLANT

PS LD 4.2 Setting Out

Substitute LD 4.2 with the following:

Provision to be made for a land surveyor to peg manhole co-ordinates according to layout drawings.

LD 5 CONSTRUCTION

LD 5.6 MANHOLES, INSPECTION CHAMBERS, ETC.

PS LD 5.6.1 General

Substitute LD 5.6.1(a) with the following:

Manholes shall be of HDPe (8 KN/m² ring) sections and shall be constructed as shown on drawings, unless otherwise indicated on the drawings.

1. Final cover levels of manholes in streets and paved areas shall be to the same level as the street or paved area.
2. On sidewalks, lawns and garden areas the cover level shall be 20 mm above the final ground level.
3. In the veld 100 mm above natural ground level.

If a manhole is positioned at a low point or in a hollow where storm water infiltration may occur, the manhole cover level must be raised to a level to avoid the danger of infiltration, or to a level as agreed with the Engineer.

PS LD 5.6.3 HDPe Steps

Add the following to LD 5.6.3:

Step irons shall only be installed in manholes deeper than 1.2 m.

PS LD 5.11 Connection to existing services

Wherever a new sewerage system joins up with an existing network, the Contractor shall timeously notify the Engineer as to when he intends to construct the

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connection and he may carry out this work only with the written permission of the Engineer and only under the supervision of the Local Authority.

Where connecting to an existing network is done at an existing manhole, payment for the connection will be made in item C49 in BoQ.

LD 7 TESTS

PS LD 7.1 GENERAL

Add the following to LD 7.1.5:

All tests shall be repeated after the completion of backfilling of pipe trenches.

LD 8 MEASUREMENT AND PAYMENT

LD 8.2 SCHEDULED ITEMS

PS LD 8.2.1(a) Camera Investigation

The unit of investigation shall be the length of the pipe under investigation..... Unit: No

A camera investigation by means of a Lisy CCTV camera or similar approved, to be utilised to inspect pipe sections as and when so instructed by the engineers. Any pipe, special or fitting, found to be defective or which could result in a potential pipe blockage, shall be removed and replaced at the expense of the Contractor and such replacement material shall, after installation, be inspected / investigated at the expense of the Contractor.

PS LD 8.2.3 Manholes Unit: m

Substitute item LD 8.2.3 with the following:

The price tendered and paid is per linear metre depth of manhole shaft as specified in the Schedule of Quantities. Depth measured from the **bottom** of cover slab to **top** of manhole benching.

Should the Engineer require so, but in all events at sewer mains, all manholes will be tested for water tightness after completion.

The Contractor must make provision for this in his tender amount for the manhole sections to be made waterproof according to SANS. No additional payment will be made for the testing of manholes. Cost must include all material, apparatus, labour, etc.

PS LD 8.2.11 Connection to Existing Sewers Unit: No

Substitute item LD 8.2.11 with the following:

The tendered rate shall include full compensation for the supply of all labour, plant and materials, for carrying out the necessary excavations, for breaking into existing manhole for new connection, for fitting new pipes into the newly formed access, for sealing around the pipes and making them watertight, for breaking out the existing benching and channelling where required and the reconstruction thereof complete with granolithic concrete rendering to suit the new pipe arrangement, for disposal of all debris to a dumping site and for backfilling around the manhole with selected material.

The tendered rate shall also include for dealing with the sewage flow in the existing manholes during construction and for any additional costs should the work have to be carried out at night or during non-working days.

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- PS LD 8.2.13

Construction of Benching for Manholes..... Unit: No

The unit of measurement shall be the number of manholes to be constructed.

Benching (*SANS 1200 LD 5.6.2*) complete with all channels, bends, connections will be constructed as per detail. Payment shall be made according to unit prices in the document.
- PS LD 8.2.14

Concrete Unit: m³

The unit of measurement shall be the cubic metre of material placed.

All concrete work, where so instructed by the Engineer, shall be measured in accordance with the nett dimensions as indicated on the drawings and according to the various classifications of concrete.

NO additional payment shall be made for measuring off, finishing, testing, curing, and protecting of concrete, but shall be regarded as included in the unit price for concrete work.
- PS LD 8.2.15

Density Tests Unit: No

The unit of measurement shall be the number of tests instructed in writing by the Engineer.

Provision is made for the execution of density tests on compacted fill. The tender amount must include all material, labour, equipment, etc. and the Contractor shall claim no additional payment of any kind.

Density tests shall be done on places and at times as requested by the Engineer in writing. When the Engineer rejects a compacted fill, the Contractor must repair and retest the fill to the Engineer’s approval and without any additional payment.
- PS LD 8.2.16

Setting out of Works Unit: No

The unit of measurement shall be the number of manholes to be constructed in a particular phase or project.

Provision is to be made for setting out by a professional land surveyor. The tender amount must include all material, labour, equipment, etc. necessary for setting out the works to an accuracy level of 0.05 m.

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C5.4.15. SANS 1200 MJ: SEGMENTED PAVING

MJ 3	MATERIAL
MJ 3.1	UNITS
PS MJ 3.1.2	Class, Strength and Type
	Add the following to MJ 3.1.2:
	Apron shall consist of: 50 mm thick; Type S-C; Class 25 Mpa; herringbone pattern A; Shape W; Grey; precast rectangular concrete blocks.
PS MJ 3.3	SAND BEDDING AND JOINTING
	Samples of the bedding sand and jointing sand shall be submitted to the Engineer for approval before any material is ordered from the specific supplier or is used in the construction of the works.
MJ 4	PLANT
PS MJ 4.2	ROLLER
	A heavy steel roller may not be used on paving as it may result in broken blocks.
MJ 5	CONSTRUCTION
PS MJ 5.1.1	NEW WORK
PS MJ 5.1.1.2	Depressions
	Shallow depressions may require scabbling of the subbase in order to ensure a minimum of 50 mm filling depth. The entire subbase shall be so prepared as to ensure adequate drainage and protection against rainfall and ground water by means of piped or channelled storm water and a sub soil drainage.
PS MJ 5.6	COMPACTION OF UNITS
PS MJ 5.6.1	GENERAL
	A temporary restraint must be installed against the free edge before compaction.
PS MJ 5.7	JOINT FILLING
	Joint filling shall be done with a 1:3 cement-sand mix.
MJ 6	TOLERANCES
PS MJ 6.2	PERMISSIBLE DEVIATIONS
	Add the following to MJ 6.2:
	The degree of accuracy shall be degree I.
MJ 8	MEASUREMENT AND PAYMENT
MJ 8.2	SCHEDULED ITEMS
PS MJ 8.2.2	Construction Of Paving Complete Unit: m²
	Add the following to MJ 8.2.2:

The rate shall also cover the cost of the cement-sand mix as specified in PS MJ .

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C5.4.16. SANS 1200 MK: KERBING AND CHANNELLING

MK 3 MATERIALS

MK 3.2 PRECAST KERBING AND CHANNELLING

PS MK 3.2.3 Strength

Substitute MK 3.2.3 with the following:

Precast kerbs, edging and channels shall be of grade 25 MPa/19 mm concrete.

PS MK 3.9 BEDDING MATERIAL

Substitute MK 3.9 with the following:

The material on which concrete kerbs, channels and edging are bedded, shall be in accordance with the dimensions shown on the drawings and shall consist of a 1:3:6 concrete mix with a 6.7 mm single size coarse aggregate.

MK 5 CONSTRUCTION

PS MK 5.1 EXCAVATION AND BEDDING

Substitute "90 %" in MK 5.1 with "93 %".

PS MK 5.2 PRECAST CONCRETE KERBING AND CHANNELLING

Substitute the first sentence of MK 5.2 with the following:

Precast concrete kerbing and channelling shall be laid and bedded on concrete bedding complying with the requirements of PS MK 3.9 and to the dimensions shown on the drawings.

MK 8 MEASUREMENT AND PAYMENT

PS MK 8.1 BASIC PRINCIPLES

Substitute the second sentence of MK 8.1.1 with the following:

Deductions will be made for catchpits, etc.

Add the following to MK 8.1.1:

Payment shall include the provision of expansion joints as specified.

MK 8.2 SCHEDULED ITEMS

PS MK 8.2.14 Street Name and Transition Kerbs Unit: No

The provisions of MK 8.2.1(b) shall apply mutatis mutandis.

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Witness: _____

C5.5. PARTICULAR SPECIFICATIONS

C5.5.1. PARTICULAR SPECIFICATIONS: "F": FENCING

PS F-1. SCOPE

PS F-1.1 THE SPECIFICATION COVERS:

PS F-1.1.1. The manufacture of the following prefabricated pre-stressed concrete components for use in palisade fences:

- (a) Posts (3.0m)
- (b) Pales (2.4m)
- (c) Rails (1.98m)

PS F-1.1.2. The installation of the palisade fence.

PS F-1.1.3. The testing of materials and elements used in the system.

PS F-2. TYPES OF FENCES

Prestressed Concrete Palisade Fencing

PS F-3. MATERIALS

PS F-3.1 Cement: The cement used shall comply with the requirements of SABS 471, SABS 626 or SABS 831.

PS F-3.2 Aggregate: The aggregate shall consist of sand and stone that complies with the relevant requirements of SABS 1083.

PS F-3.3 Water: The water used in the mixing of the concrete shall be clean and free of any substance that could be impairing the strength or durability of the concrete.

PS F-3.4 Admixtures: Any admixture (s) used shall have no adverse effect on the strength or durability of the concrete.

PS F-3.5 The concrete used shall be such that its compressive strength at 28 days, determined in accordance with SABS Method 863, is as specified.

PS F-3.6 Pre-stressing Steel: All pre-stressed reinforcing wires shall be of the crimped variety and shall be of grade 1550/1700 MPa, stressed to 75% of UTS (Ultimate tensile strength). Ends of all pre-stressed wires shall be cut, ground level and covered with a two component, gray epoxy mortar. A minimum cover of 1mm shall be applied and all epoxy surfaces must be smoothed. The concrete cover to reinforcement shall be at least 20mm

PS F-3.7 Bolts: Fixing bolts, nuts and washers (25mm x 2mm) shall be electro-galvanised and passivated.

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PS F-4. PREFABRICATED CONCRETE ELEMENTS

PS F-4.1 WORKMANSHIP AND FINISH

All concrete elements shall be free from structural cracks or defects, complying with samples submitted. All elements shall have off-shutter finish on three sides, whereas the fourth side shall be wood floated finish.

PS F-4.2 CONCRETE

The strength of the concrete of all prefabricated items shall be a minimum of 35 MPa/19mm and it will be a bonus if the contractor can manufacture the components on site with local labour.

PS F-4.3 CURING

All concrete elements shall be cured in accordance with the recommendations given in SABS 0100, Part2.

PS F-4.4 PRESTRESSING

The pre-stressing shall be carried out with suitable hydraulic equipment, which are accurately calibrated by a recognized authority to ensure that the pre-stressing force is correctly and evenly applied.

Suitable approved grips shall be used to hold the wires at both ends to ensure the pre-stressing force is maintained on the wires at all times during casting and curing.

PS F-4.5 POST

The post shall be 3000 mm long and slotted to take two horizontal load-bearing rails. The width of the post shall be 140mm tapering to 80mm and the depth of the post shall be 225mm. The top of the post shall be angled at 45°. The post shall be pre-stressed with six 4mm wires grade 1550/1700 MPa stressed to 75% of U.T.S.

PS F-4.6 RAIL

The rail shall be 1980mm long 150mm wide and 75mm deep with 9 x 10mm holes to take 8mm carriage bolts. The rails shall be pre-stressed with four 4mm wires grade 1550/1700 MPa stressed to 75% of U.T.S.

PS F-4.7 PALE

The pale shall be 2400mm long with two 10mm holes to take 8mm carriage bolts. The width of the pale shall be 115mm tapering to 100mm and the depth of the pales shall be 60mm. The top and bottom of the pales shall be angled at 45°. The pale shall be pre-stressed with four 2,65mm wires grade 1550/1799 MPa stressed to 75% of U.T.S.

PS F-4.8 BLANKING PLATES

Blanking Plates shall be 850mm long, 40mm thick and 300mm in width, or alternatively 1500mm long, 40mm thick and 200mm in width.

Blanking plates shall be reinforced with two 3,5mm high tensile steel wires.

PS F-5. GENERAL REQUIREMENTS AND TOLERANCES

The completed fences shall be plumb, taut, true to line and to the ground contour, and with all posts, standards and stays firmly set.

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Anchoring of a fence to structures shall be done as shown on the Drawings. The Contractor shall, on completion of each section of fence, remove all cut-offs and other loose wire or mesh so as to leave the fence with a neat and finished appearance.

PS F-6.1 PREPARATION

PS F-6.2 FOUNDATION

The strength of the concrete for foundations shall be a minimum of 20 MPa./19.

Posts shall be spaced at 2000mm centres true to line over the entire length of the fence with the end of rails grouted into posts at a height of 150mm and 2100 mm above ground level.

Each pale shall be fixed to the rails with two 8mm bolts, securely tightened. The holes shall be grouted with a two component, grey epoxy mortar.

Gates shall be manufactured to the dimensions and specifications shown on the drawings or as directed by engineer.

Gateposts shall be erected in accordance with the requirements shown and specified on the drawings.

Gates shall be installed at the position indicated by the Engineer

PS F-7.1	LISTED ITEMS

PS F-7.1.1. CLEARING FENCE LINE Unit : metre (m)

CLIENT

Witness:

C5.5.2. PARTICULAR SPECIFICATION "SAT": SYNTHETIC ATHLETICS TRACK AND RUN-UPS

PS SAT-1

SCOPE

This Specification covers the construction of IAAF approved synthetic surfacing for new IAAF international standard athletics tracks.

The synthetic athletics track shall be maintenance free within the guarantee period and shall be guaranteed to be durable under the climatic conditions prevalent at the location where the track will be constructed with reference to resistance to ultraviolet radiation.

The surface shall provide adequate skid resistance during all weather conditions and the physical properties of the material shall not change with varying weather conditions. The surface shall be uniform in appearance and texture. The material shall adhere permanently to the top asphalt layer, concrete surfaces, kerbing or other mating surfaces.

PS SAT-2

MATERIALS

PS SAT-2.1

Bitumen Bound Supporting Layers

The synthetic athletics track surfacing shall be applied to a hard foundation base of asphaltic material or concrete.

The Tenderer shall list any requirements regarding the supporting layers in a covering letter submitted with his Tender.

PS SAT-2.2

Suitability of Synthetic Layer

For purposes of evaluating the proposed product, the Tenderer shall submit samples, properly marked with the product name of the synthetic layer(s) with his Tender. These samples shall conform in all respects to the proposed final product(s). All the physical properties related to each proposal shall be handed in with the Tenderers, as well as a detailed description of the construction method(s) proposed.

The synthetic layer shall be approved by the IAAF and ASA as acceptable for international events. Copies of IAAF certification shall be provided with the tender and samples.

Unless otherwise stated the general required quality of the finished product shall be in accordance with:

- (a) the recommendations of the relevant sections pertaining to synthetic layers of "DIN 18035 Teil6 Sportplatze Kunststoff-Flachen Anforderungen, Profung, Pflege" as published in April 1978, and;
- (b) the "IAAF Performance Specifications for Synthetic Surfaced Athletics Tracks (Outdoor) – latest edition".

PS SAT-2.3

Physical Properties of Synthetic Layer

PS SAT-2.3.1

Consistency

The Engineer may instruct the Contractor to prepare one sample to represent each day's work for Quality Control purposes. The minimum dimensions of the required sample shall be 250 mm x 250 mm. Each sample shall be numbered and the position on the track from which the samples were taken shall be noted.

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The surface consistency shall be uniform and any section which is found not to be in accordance with the Specification shall be removed and replaced by the Contractor at his own cost.

PS SAT-2.3.2

Composition and Construction

The synthetic layer shall be:

(a) In-situ Cast Elastomer (Two Part Solid Polyurethane and EPDM Matrix):

An ultraviolet-resistant, water-impermeable, full-depth two-part polyurethane and maximum of 26 % (by weight) of black (bottom layers only) or coloured EPDM granules for 13 mm and 20 mm synthetic layers, followed by a 3 to 4 mm minimum second layer of ultraviolet-resistant two-part polyurethane with ultraviolet-resistant coloured EPDM granules as a final texture coating. The top 4 mm may not contain any black rubber particles. The synthetic layer shall be of constant quality and thickness suitable for outdoor athletic use.

PS SAT-2.3.3

Materials

(a) Running Surface – In-situ Tracks:

Regardless of the type of construction, the running surface shall comprise EPDM granules partly embedded in a minimum of 4 mm dry thickness of a two-part liquid polyol and isocyanate polyurethane matrix. Encapsulation of the top surface of EPDM granules in the PU matrix will not be permitted. The surface shall be constructed by loose sprinkling of the final layers and not by pre-mixing. The only exception shall be when the bills of quantities call for a spray coat surface in which case the EPDM granules shall be premixed before spraying on the SBR underlay.

(b) Adhesives and Primers:

Only polyurethane adhesives or primers will be permitted. All adhesives or primers applied to the asphalt layer shall be guaranteed by the supplier of the synthetic surface to be compatible with the system. A separate original written guarantee of the bond between the adhesive or primer and both the asphalt and the synthetic surface shall be provided specific to this project before such application may at the discretion of the Engineer be considered. Under no circumstances will the application of an acrylic or bituminous seal coat be permitted.

(c) Intermediate Coating for Level Correction of Asphalt Surface:

Any material applied to the asphalt layer to adjust the level tolerances shall be guaranteed by the supplier of the synthetic surface to be compatible with the system. A separate original written guarantee of the bond between the intermediate coat and both the asphalt and the synthetic surface shall be provided specific to this particular project before such application may at the discretion of the Engineer be considered. Only polyurethane matrix layers may be considered, and under no circumstance will acrylic or bituminous products be permitted.

PS SAT-2.4

Coring

The Engineer or his representative may require that cores be taken. The Contractor shall take a 30 mm core of the layer and mark it clearly. The holes shall be neatly repaired by the Contractor and the costs related to such coring and repair work shall be deemed to be incorporated in the Contractor's price.

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Where the results of tests carried out by the Engineer on the cores show that the synthetic layer is not acceptable, it shall be replaced in accordance with this Specification or the end product specification submitted by the Contractor.

PS SAT-2.5

Thickness of Layer and Spike Length

Running track surfaces shall have a thickness of at least 12 mm. The length of gripping elements (spikes, claws and triangular elements) used on these surfaces may be more than 6 mm and products specified by all Tenderers shall allow for this.

The thickness shall not be determined to the top of the surface crumb or texture, but by the method of test given in the *IAAF Performance Specification*.

The surface thickness shall be 20 mm where this is indicated on the Drawings.

PS SAT-3

TESTING, TOLERANCES AND FINISH REQUIREMENTS

PS SAT-3.1

Evenness

The requirements of the IAAF for international athletics tracks for falls, steps, etc in any direction, shall be complied with. The procedure prescribed in *clause 3.1.2.2* of the IAAF Track and Field Facilities Manual for testing the flatness of the synthetic surface with both a 4 m and a 1 m straight edge, shall be used to ascertain the evenness of the surface.

The evenness is determined by the vertical gap below the straight edge and the length of the depression. When testing the surface flatness using the straight edges, the following maximum gap heights will be permitted:

Localised bumps or depressions in any position or direction shall not exceed:

- (a) Under 4 m straight edge: less than 6 mm
- (b) Under 1 m straight edge: less than 3 mm.

Steplike unevenness, which occurs at joints in the surface, shall not exceed 1 mm.

The straightedge shall be dragged over the entire synthetic surface in two perpendicular directions, both perpendicular to the kerbing and parallel to the kerbing as described in *clause 3.1.3.2* of the IAAF Track and Field Facilities Manual.

Regardless of the outcome of the straightedge test, the ponding of water of any significant depth or over any significant area as described in *clause 3.1.2.2(b)* of the IAAF Track and Field Facilities Manual shall be rectified at the discretion of the Engineer.

PS SAT-3.2

Level

The finished level for the main track shall not vary by more than plus 5 mm or minus 5 mm from the specified level provided it does not exceed the specified deviation of grade. In addition, the surface of the synthetic layer shall be flush with the surface of the outer kerb. The level shall be checked by means of precise levelling techniques by a registered land surveyor and the results given to the Engineer. The cost of the precise levelling survey shall be borne by the Contractor.

A floodwater test shall be carried out by the Contractor to ensure that puddles are not formed and that all water drains from the track surface to the channel provided on the inside of the track.

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The entire completed surface shall be tested for evenness and accuracy of length, width, height, slope, thickness and cross-section and should any section of the Works not comply with the requirements, it shall be reinstated by the Contractor at his own cost.

PS SAT-3.3

Thickness of the Synthetic Layer

The thickness of the synthetic surface may not fall by more than 15% of the specified thickness in any position on the track, take-offs or run-ups.

The total area of the track where the thickness falls by 10% may not exceed 10% of the surface area of the track, excluding for the purposes of this calculation, the reinforced take-off areas.

PS SAT-3.4

Width of the synthetic layer

The width of any section shall be within 10 mm of the specified width.

PS SAT-3.5

Force Reduction

The force reduction of the synthetic surface, compared to an inflexible substrate (concrete), shall be between 35 % and 50 %, at any temperature between 10°C and 40 °C. If, at the time of measurement, the temperature of the surface of the track is outside this range, it shall be permissible for the results obtained to be corrected for temperature by interpolation from a graph of force reduction against temperature for the precise surfacing system installed. The apparatus and method of testing shall be in accordance with the IAAF Performance Specification.

Due to the greater thickness of synthetic material at take-off areas and at the ends of runways, it is possible that results obtained in these areas may fall outside the above range.

PS SAT-3.6

Modified Vertical Deformation

When tested in accordance with the IAAF Performance Specification, the vertical deformation of the synthetic surface shall be between 0.6 mm and 2.2 mm, at any temperature between 10°C and 40 °C. If, at the time of measurement, the temperature of the surface of the track is outside this range, it shall be permissible for the results obtained to be corrected for temperature by interpolation from a graph of vertical deformation against temperature for the precise surfacing system installed.

Due to the greater thicknesses of synthetic material at take-off areas and at the ends of runways, it is possible that results obtained in these areas may fall outside the above range.

PS SAT-3.7

Friction

When measured using either the British Transport and Road Research Laboratory Portable Skid Resistance Tester or the apparatus and method described in the IAAF Performance Specification, the synthetic surface friction shall nowhere be less than 0.5 when wet. (DIN method)

NOTE: This corresponds to a scale reading of 47 on the TRRL method.

PS SAT-3.8

Tensile Properties

When determined using the method described in the IAAF Performance Specification, the synthetic surface shall have a minimum tensile strength of 0.5 N/mm² for non-porous surfaces.

For all surfaces, the elongation at break shall be a minimum of 40%.

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PS SAT-4 CONSTRUCTION

PS SAT-4.1 Mixing and laying

Where applicable the athletics track material shall be mixed, laid and cured in situ. To ensure that the specified levels and thicknesses are maintained, the material shall be capable of solidifying at ambient temperatures to a non-flowing, slump-resistant state.

The mixing, pouring, laying and levelling of the synthetic material shall be carried out by factory-trained personnel in strict accordance with the manufacturer's instructions and under direct supervision of a qualified representative of the manufacturer.

PS SAT-4.2 Tears and Cracks

Any area where there is a crack or tear shall be totally removed and replaced at the Contractor's own cost. The final surface shall be free from any discontinuity and obvious "patch work".

PS SAT-4.3 Finish to Layer

The finished surface shall be smooth and free from any trowelling marks.

The surface shall have a uniform colour and shall also be homogeneous as far as physical properties are concerned.

PS SAT-4.4 Protection and Maintenance

PS SAT-4.4.1 Protection against Water Damage and Dusty Conditions

The Contractor shall take all necessary precautionary measures to prevent damage due to rainwater. He shall have available, throughout the curing stage of the synthetic layer, sufficient plastic or other approved material so that the whole area may be covered or otherwise protected against the intrusion of water. The Contractor shall take precautionary measures to minimize dust during placement of synthetic material. Synthetic material may not be placed if dusty conditions prevail. The protection of this layer is entirely the Contractor's responsibility and no claim against the Employer for any reason whatsoever in this regard will be considered.

PS SAT-4.4.2 Protection of the Works

The Contractor shall protect the work against damage. He shall take all necessary precautions to eliminate the risk of damage to his work.

PS SAT-4.4.3 Maintenance

Full particulars regarding the maintenance proposals for the newly constructed and resurfaced surfaces shall be furnished to the Employer upon completion of the Works.

Any damage occurring to the completed base or surfacing, excepting fair wear and tear on surfacing during the maintenance period, or any defects which may develop due to faulty workmanship, shall be corrected by the Contractor at his own expense and to the satisfaction of the Engineer.

PS SAT-4.5 Marking of Track and Track Geometry

The track shall be set out and painted by the Contractor in accordance with the latest rules and requirements of the IAAF and ASA.

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The Contractor will be provided with the necessary details showing the relevant symbols for the track, lines and symbols. Permanent coloured engraved plate markings also form part of these works.

The Contractor shall employ an IAAF registered Land Surveyor to execute the setting out for the marking of the track. The Land Surveyor shall satisfy himself as to the accuracy of the data supplied and, upon completion of the Contract, submit to the Engineer a Certificate of approval for the painted lines, symbols, horizontal and vertical geometry and dimensions of the track, in accordance with the IAAF normal requirements and standards.

The type of paint to be used by the Contractor and the colours thereof shall be approved by the supplier of the synthetic material and the Engineer. Only polyurethane products will be considered unless specified by the supplier/manufacturer of the synthetic surface.

All painted lines and symbols shall be neat and have clean edges. Lines shall be uniform in width. No lines shall be more than 5 mm out of its designated position and, if measured over a length of 4 m, shall have a maximum variation from the designated form of 3 mm. If measured over 1 m, this variation shall not be greater than 1 mm.

There shall be no splash marks on the final product.

The symbols shall be painted with internationally accepted coloured coatings. These markings shall adhere well to the surface. The application shall be to the Engineer's satisfaction and shall not alter the resilience and skid-resistance properties of the surface. The coatings shall be resistant to ageing.

The application rate of the coatings shall be of such a nature that the surface water run-off is not impeded.

PS SAT-4.6 **Quality Assurance**

PS SAT-4.6.1 Provide a certificate of accuracy from a registered engineer or land surveyor that the track measures 400 meters in all lanes from start to finish.

PS SAT-4.6.2 Provide, as a part of the Warranty, documents stating that the materials applied conform to the manufacturer's specifications and that the material will not separate from the asphalt or concrete base, blister, bubble, fade, crack or wear excessively during the life of the warranty.

PS SAT-4.6.3 The materials will not foam, thus causing air bubbles and reduce the life expectancy of the surface.

PS SAT-4.6.4 The synthetic surfacing contractor and owner will annually walk and inspect the synthetic surface during the life of the warranty. Warranty issues will be repaired and for non-warranty items a method for correction will be presented.

PS SAT-4.6.5 The synthetic surfacing contractor shall maintain a clean and orderly job site. All excess materials shall be removed from the construction area and properly disposed of. Scrap shall be removed in the same manner.

PS SAT-5 **GENERAL**

PS SAT-5.1 **Warranty**

PS SAT-5.1.1 Provide a Five (5) Year Warranty against faulty workmanship and materials for the synthetic surface. The warranty period shall commence at final completion of the surfacing.

PS SAT-5.1.2 One (1) Year Warranty shall be provided for the line markings.

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PS SAT-5.2

Submittals

PS SAT-5.2.1

Submit three (3) sets of manufacturer's product data sheets including installation guidelines and maintenance instructions.

PS SAT-5.2.2

Submit three (3) representative track samples in the colour of surfacing to be installed.

PS SAT-5.2.3

Submit test reports that verify the manufacturers specifications (data) for the product to be installed.

PS SAT-5.2.4

Submit documentation that verifies that the synthetic surfacing material does not contain any toxic or hazardous substance, which exceeds limits set forth by the EPA.

PS SAT-5.2.5

Submit Material Safety Data Sheets (MSDS) for all individual components of the product being installed.

PS SAT-5.2.6

Provide a letter stating that the surfacing contractor has reviewed the asphalt specification and accepts the specification as correct. Furthermore, the surfacing contractor shall provide a letter after checking the asphalt accepting it for synthetic surface installation. Should areas be found that do not meet specifications they shall be repaired or replaced by the asphalt contractor prior to the synthetic surfacing contractor issuing its letter of acceptance.

PS SAT-5.2.7

The synthetic surfacing material manufacturer shall submit a letter stating that the surfacing contractor is qualified to install its synthetic surface system.

PS SAT-5.2.8

Submit three (3) copies of a detailed drawing showing location and colour of all lane lines, start, finishes and all related markings for the owner to review at least four weeks prior to their application.

PS SAT-6

MEASUREMENT AND PAYMENT

PS SAT-6.1

Construction of a New Resilient Synthetic Surface

(Quality and thickness to be specified) Unit: square metre (m²)

The unit of measurement shall be the square metre of new resilient synthetic surface constructed to the thickness specified measured to the inside of the outer kerb.

The rate shall also cover the cost of providing a synthetic key of 25 mm x 25 mm on the inside and outside kerb in the case of in situ placed synthetic layers.

The tendered rate shall cover the cost of the supply and importation of materials and/or technical expertise and/or equipment required for the construction of the synthetic surface in accordance with the general requirements, Specifications and Drawings and shall also allow for all charges involving foreign exchange transactions and any customs duties, taxes, levies etc. connected to the imported products at the time of tender.

The tendered rate shall also cover the cost of the local content of supply and laying of the proposed synthetic layer(s), the necessary preparatory work, quality control testing, insurance, special equipment, handwork and labour, special precautionary measures, supervision, delays due to weather conditions, tests relating to levels, thickness, evenness and workmanship, guarantees as well as all ancillary costs incurred by the Contractor.

Tenders shall be submitted in South African currency, i.e. the tendered rate for this item shall be in South African Rand. The exchange rate and currency used to

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calculate the import component shall be stated in the Schedule of Quantities. The imported components will not be subject to Contract Price Adjustment but will be dealt with as set out in *PS 10.1* and *PS 10.2* of the Conditions of Subcontract.

PS SAT-6.2 Painting of lines Unit: Sum

The unit of measurement for painting of lines shall be a lump sum.

The tendered rate shall cover the cost of the provision of the necessary approved paint in approved colours as well as all necessary equipment, supervision and labour to paint the lines.

PS SAT-6.3 Painting of symbols..... Unit: Sum

The unit of measurement for painting of symbols shall be a lump sum.

The tendered rate shall cover the cost of the provision of the necessary approved colours of paint, equipment, templates, labour and supervision to paint the symbols in accordance with the IAAF Specifications and shall also allow for the additional symbols for junior events required by the Employer.

PS SAT-6.4 Permanent coloured engraved plate markings Unit: No

The unit of measurement for permanent plate markings shall be the number of plate markings.

The tendered rate shall cover the cost of the supply, punching and installation of the aluminium or other approved type of plate markings adjacent to certain symbols and line markings and the rate shall also cover the cost of adhesive materials, special equipment, labour and supervision.

PS SAT-6.5 Land Surveyor's fee and certificates Unit: Sum

Payment shall be a lump sum of which 50 % shall be payable on completion of the setting out and 50 % on receipt of the specified certificate(s).

The tendered rate shall cover the cost of the necessary Land Surveyor's services related to the athletics track and shall include full compensation for setting out all various marks, painted lines, painted symbols, punching of permanent plate markings, certifying the horizontal and vertical geometry of track, certifying all the permanent paint markings and the issuing of a Certificate(s) in accordance with the Specification.

PS SAT-6.6 Masking of all Kerbing and Adjacent Surfaces Unit: metre (m)

The tendered rate shall cover the cost of masking of all kerbing where required prior to the laying of synthetic surface. Payment shall only be made for the length of kerbing actually masked.

PS SAT-6.7 Allowance for pre-award exchange rate fluctuation (refer to PS SAT 7 Unit: Provisional Sum

Payment under this item will only be made when approved by the Engineer.

PS SAT- 6.8 Supply and Install Shot Put Facility Complete. (In accordance with IAAF Standards) Unit: No

The tendered rate shall cover the cost of supplying the shot-put facility complete as per details on drawings and according to the specifications below (construction of earthworks are measured elsewhere):

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- Layout of the Facility (as per measurements on drawings)
The Shot Put facility includes a throwing circle, a stop-board and a landing sector.
- Throwing Circle for the Shot Put (as per measurements on drawings)
For the throwing circle, Section the layout as above shall apply in general with the following exception:

a. The inside diameter of the throwing circle is $2.135\text{m} \pm 0.005\text{m}$.

- Stop Board for the Shot Put (as per measurements on drawings)
The stop board shall be painted white and made of wood or other suitable material in the shape of an arc so that the inner edge coincides with the inner edge of the circle.

It shall be placed so that its centre coincides with the centre line of the landing sectors and shall be firmly fixed to the ground or the circle of concrete surrounding.

It shall be $1.21\text{m} \pm 0.01\text{m}$ long on the inside. The width at the narrowest point is $0.112\text{m} \pm 0.002\text{m}$ and the height is $0.10\text{m} \pm 0.002\text{m}$ measured above the adjoining surface of the circle when the stop board is firmly in position.

- Landing Sector for the Shot Put (as per measurements on drawings)
for the landing sector, the layout as above shall apply in general with the following exceptions:

The length of the sector is 25.00m. The angle of 34.92 degrees will be attained if the two sector lines, at a distance of 25.00m, are spaced 15m apart.

PS SAT- 6.9

Supply and Install Discus Throw Facility Complete. (In accordance with IAAF Standards) Unit: No

- Layout of the Facility for the Discus Throw (as per measurements on drawings).

The Discus Throw facility includes a throwing circle, a protective cage and a landing sector.

- Throwing Circle for the Discus Throw (as per measurements on drawings)

The throwing circle shall be made of band iron, steel or other suitable material, the top of which shall be flush with the ground outside or the synthetic surface or concrete surround. The interior of the circle shall be constructed of concrete and must not be slippery.

The surface of the interior shall be level and $0.02\text{m} \pm 0.006\text{m}$ lower than the upper edge of the rim of the circle. The inside diameter of the circle shall be $2.50\text{m} \pm 0.005\text{m}$.

The rim of the circle shall be at least 6mm thick, 70mm to 80mm deep and painted white.

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The centre of the circle through which all performances are measured shall be marked. (This is best done using a brass tube with a 4mm inside diameter laid flush with the surface of the circle).

In addition, at the edge of the throwing circle, three or more evenly distributed, non-corrodible drainage pipes (e.g. brass pipe with a 20mm diameter) should be laid flush with the surface of the circle and in such a way that they reach down to the water permeable substructure or can be connected to the drainage system.

The throwing circle should be fixed when the concrete slab is laid.

The circle rim must be radially braced so that the rim will not distort when the concrete is vibrated against it. The top surface of the concrete slab (= throwing area) must be finished with a smooth wood float for sufficient traction.

A white line 0.05m wide and 0.75m min. long shall be marked on either side of the circle. The rear edge of the white line shall form a prolongation of a theoretical line through the centre of the circle at right angles to the centre line of the landing sector.

- Safety Cage for the Discus Throw

The cage should be designed, manufactured and maintained to be capable of stopping a 2kg discus moving at speeds of up to 25.00m per second. This equates to a kinetic energy of 0.63kJ.

The netting which may be of suitable natural or synthetic fibre cord or of mild or high tensile steel wire should be arranged so that there is no danger of the discus ricocheting or rebounding or forcing its way through joints in the netting. It shall be at least 4.00m high. The end of the cage side particularly adjoining the track may be of greater height and/or length to the minimum dimensions specified so as to prevent a wayward discus landing on the track or beyond during a Discus Throw competition by going over the netting or past the end of the netting.

The maximum mesh size for wire netting shall be 0.050m, and, for cord netting, 0.044m. The minimum breaking strength of the cord or wire at any time shall be 40kg. Alternatively, the energy absorption of the mesh shall meet the dynamic test principles laid down in EN 1263-1:1996 such that the netting will withstand an object 15kg mass being dropped into the netting from a height of 7.00m.

The netting may be in sections or in continuous form hung from a well-supported and braced framework. It is desirable that the netting can be raised and lowered quickly. In any construction the minimum distance from the centre of the circle to any point on the cage shall be 3.00m. The netting shall be hung clear of the support posts or structure so that a thrown implement cannot strike these.

The supporting structure shall be rigid enough so that it does not deflect out of position unduly under the weight of the netting or the force of the wind. The width of the cage at the mouth, measured to the inner edges of the cage netting, should be 6.00m positioned 7.00m in front of the centre of the Discus circle.

This cage is not suitable for Hammer Throw.

- Landing Sector for the Discus Throw (as per measurements on drawings)
The landing sector must be laid from the middle of the circle with an angle of 34.92 degrees and shall be marked by 0.05m wide white lines, the inside

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edges of which form the boundary of the sector. The length of the sector shall be 80m. Its angle of 34.92 degrees will be attained if the two sector 80mnce of 80m are spaced 48m apart.

PS SAT- 6.10 Supply and Install Long Jump Facility Complete. (In accordance with IAAF Standards) Unit: No

- Layout of the Facility for the Long Jump (as per measurements on drawings)

The Long Jump facility includes a runway, a take-off board and a landing area.

- Runway for the Long Jump (as per measurements on drawings)
The length provided for the runway shall be 40m min. and is measured from the beginning of the runway to the take offline. The runway shall be 1.22m ± 0.01m wide. It shall be marked by white lines 0.05m wide or broken lines 0.05m wide, 0.10m long and 0.50m apart.
- Take-off Board for the Long Jump (as per measurements on drawings)
The take-off board shall be rectangular and shall measure 1.22m ± 0.01m long, 0.20m ± 0.002m wide and not more than 0.10m deep. It shall be coloured white.

The surface of the take-off board must be flush with the surface of the runway. In the case of a runway with a permanent surface, this requires a built-in installation tray made of corrosion-protected metal in which the take-off board can be correctly positioned. During sport-free periods, the take-off board can be removed. If it has a track surface on its reverse side, it can be turned over and used as part of the runway. This makes it possible to combine Long and Triple Jump with two or three take-off boards (which can be used on both sides) on a Triple Jump runway.

The take-off board shall be rectangular, made of wood or other suitable rigid material in which the spikes of an athlete’s shoe will grip and not skid, 1.22m ± 0.01m long, 0.20m ± 0.002m wide, not more than 0.10m deep and coloured white.

The take-off board must be enlarged to incorporate the indicator board as shown on drawings.

When in position, the take-off board shall be firm and unyielding.

The indicator board is 0.10m ± 0.002m wide and 1.22m ± 0.01m long made of wood, tough rubber or other suitable rigid material and shall be painted in a contrasting colour to the take-off board. Where possible, the plasticine should be a third contrasting colour. The surface of the board beneath the plasticine shall be of a material in which the spikes of an athlete’s shoe will grip and not skid.

The indicator board shall rise from the level of the take-off board to a height of 7mm ± 1mm. The edges shall either slant at an angle of 45° with the edge nearer to the runway covered with a plasticine along the length 1mm thick or shall be cut away so that the recess, when filled with plasticine, shall slant at an angle of 45°. The upper part of the indicator board shall also be covered for the first 10mm approximately and along its entire length, by a plasticine layer. When mounted in this recess, the whole assembly shall be sufficiently rigid to accept the full force of the athlete’s foot.

- Blanking Board

All take-off-positions not in use shall be filled by a solid, firmly fitting blanking board of metal or any other suitable material covered with synthetic material identical to the runway.

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It should fit firmly in the foundation tray and may be fitted with adjustable legs to ensure that, when in position, the surface is level with the surrounding runway.

If constructed of metal, the support legs or base of the tray should be coated with rubber, PVC or other sound absorbing material.

- Landing Area for the Long Jump (as per measurements on drawings)

The landing area should have a border not less than 0.05m wide and 0.30m high, rounded off towards the inside (e.g. wooden plank or concrete border with soft covering) and level with the ground.

The landing area must have a suitable drainage system with a connection to the nearest subsoil drainage point and be filled with sand to a depth of not less than 0.30m at the edges and slightly deeper at the centre.

The top edge of the border of the landing area, generally also dictates the level of the sand, which must be level with the take-off board. Tolerances: Landing area border level $\pm 0.02\text{m}$ compared with the highest part of the take-off board.

- Safety of the Facility for the Long Jump
For the safety of the athletes, the sand must (to avoid hardening as a result of moisture) consist of washed river sand or pure quartz sand, without organic components, maximum 2mm granules, of which not more than 5% in weight is less than 0.2mm.

It is also important to ensure that the top edge of the board of the landing area is designed using flexible material and rounded off.

Take-off boards installed permanently in synthetic runways are often the cause of accidents because the unevenness which necessarily occurs in the surface between them and the runway cannot be levelled out. This can be alleviated by using adjustable take-off boards placed in metal trays.

The area beyond end of the landing area should be level and obstacle-free to allow athletes to run through the landing area.

PS SAT- 6.11

Supply and Install Tripple & Long Jump Facility Combination Complete. (In accordance with IAAF Standards) Unit: No

- Layout of the Facility for the Tripple Jump & Long Jump Combination (as per measurements on drawings)
The Tripple Jump & Long Jump facility includes a runway, a take-off board and a landing area.
- Runway for the Tripple Jump & Long Jump (as per measurements on drawings)
The length provided for the runway shall be 40m min. and is measured from the beginning of the runway to the take-offline. The runway shall be 1.22m $\pm 0.01\text{m}$ wide. It shall be marked by white lines 0.05m wide or broken lines 0.05m wide, 0.10m long and 0.50m apart.
- Take-off Board for the Tripple Jump & Long Jump (as per measurements on drawings)
The take-off board shall removable and be of rectangular shape and shall measure 1.22m $\pm 0.01\text{m}$ long, 0.20m $\pm 0.002\text{m}$ wide and not more than 0.10m deep. It shall be coloured white.

The surface of the take-off board must be flush with the surface of the runway. In the case of a runway with a permanent surface, this requires a built-in installation tray made of corrosion-protected metal in which the take-off board can be correctly positioned. During sport-free periods, the take-off

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board can be removed. If it has a track surface on its reverse side, it can be turned over and used as part of the runway. This makes it possible to combine Long and Triple Jump with two or three take-off boards (which can be used on both sides) on a Triple Jump runway.

The take-off board shall be rectangular, made of wood or other suitable rigid material in which the spikes of an athlete's shoe will grip and not skid, 1.22m $\pm$ 0.01m long, 0.20m $\pm$ 0.002m wide, not more than 0.10m deep and coloured white.

The take-off board must be enlarged to incorporate the indicator board as shown on drawings.

When in position, the take-off board shall be firm and unyielding.

The indicator board is 0.10m $\pm$ 0.002m wide and 1.22m $\pm$ 0.01m long made of wood, tough rubber or other suitable rigid material and shall be painted in a contrasting colour to the take-off board. Where possible, the plasticine should be a third contrasting colour. The surface of the board beneath the plasticine shall be of a material in which the spikes of an athlete's shoe will grip and not skid.

The indicator board shall rise from the level of the take-off board to a height of 7mm $\pm$ 1mm. The edges shall either slant at an angle of 45° with the edge nearer to the runway covered with a plasticine along the length 1mm thick or shall be cut away so that the recess, when filled with plasticine, shall slant at an angle of 45°. The upper part of the indicator board shall also be covered for the first 10mm approximately and along its entire length, by a plasticine layer. When mounted in this recess, the whole assembly shall be sufficiently rigid to accept the full force of the athlete's foot.

- **Blanking Board**

All take-off-positions not in use shall be filled by a solid, firmly fitting blanking board of metal or any other suitable material covered with synthetic material identical to the runway.

It should fit firmly in the foundation tray and may be fitted with adjustable legs to ensure that, when in position, the surface is level with the surrounding runway.

If constructed of metal, the support legs or base of the tray should be coated with rubber, PVC or other sound absorbing material.

- **Landing Area for the Tripple Jump & Long Jump (as per measurements on drawings)**

The landing area should have a border not less than 0.05m wide and 0.30m high, rounded off towards the inside (e.g. wooden plank or concrete border with soft covering) and level with the ground.

The landing area must have a suitable drainage system with a connection to the nearest subsoil drainage point and be filled with sand to a depth of not less than 0.30m at the edges and slightly deeper at the centre.

The top edge of the border of the landing area, generally also dictates the level of the sand, which must be level with the take-off board. Tolerances: Landing area border level $\pm$ 0.02m compared with the highest part of the take-off board.

Safety of the Facility for the Tripple Jump & Long Jump

For the safety of the athletes, the sand must (to avoid hardening as a result of moisture) consist of washed river sand or pure quartz sand, without

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organic components, maximum 2mm granules, of which not more than 5% in weight is less than 0.2mm.

It is also important to ensure that the top edge of the board of the landing area is designed using flexible material and rounded off.

Take-off boards installed permanently in synthetic runways are often the cause of accidents because the unevenness which necessarily occurs in the surface between them and the runway cannot be levelled out. This can be alleviated by using adjustable take-off boards placed in metal trays.

The area beyond end of the landing area should be level and obstacle-free to allow athletes to run through the landing area.

PS SAT-7

FINANCIAL ARRANGEMENTS

PS SAT-7.1

Financial Arrangements for Importing Materials for Synthetic Surface

The Contractor shall be entirely responsible for the arrangement of the necessary financial requirements to import the synthetic surfacing, such as letters of credit, import duties, payment guarantees, etc. and the Employer will not provide any of these documents.

The Tenderer shall provide information to the Employer as to the financial arrangements he intends to put in place to ensure that no delays occur in the loading or shipping of the materials from overseas to the site due to insufficient payment guarantees provided to the overseas supplier.

The Contractor shall also be entirely responsible for the insurance of materials until such materials are delivered to the site, constructed and taken over by the Employer.

PS SAT-7.2

Arrangements for Exchange Rate Fluctuations

The Contractor shall provide a letter from an accepted banking institution to confirm the exchange rate (purchase rate on the day) used in compiling the tender. The Employer will obtain the buying rate on the day of close of tender and this will be the benchmark for adjustment up to the date of appointment. A provisional sum is allowed for the difference between the buying rate on the day of close of tender and the buying rate on the date of appointment of the Contract.

No other method of adjustment will be considered. Depending on the exchange rate the price may be adjusted up or down.

If the Tenderer chooses to fix the price at the time of the tender and clearly indicates so in his tender, no adjustment will be applicable to the tendered rate. If the tender is based on a future spot rate, the rate will be taken as fixed, no adjustment will be made, and no forward cover payment will be made.

A provisional sum is included for the cost of forward cover on the adjusted value of the imported material, as described above, from the date of award of the Contract for a three-month period. The Contractor shall affect forward cover on the agreed amount within fourteen days of Award of Contract, failing which the Employer will fix the amount payable for forward cover by obtaining quotes from a banking institution of the Employer's choice.

If the contractor fails for any reason to pay for the imported material within the three months allowed from the date of award of the Contract, the risk of exchange rate fluctuation and/or the cost of renewing the forward cover shall become the Contractor's alone and the Employer will not pay for any additional costs involved.

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C5.5.3. PARTICULAR SPECIFICATION "LSC": LANDSCAPING

PS LSC-1. **SCOPE**

This specification covers landscaping, including aspects such as the establishment of vegetation for functional and aesthetic purposes on cut and fill slopes, de-vegetated areas, dam walls, landscaped areas and such other areas as may require treatment. It also covers general conservation measures.

PS LSC-2. **INTERPRETATIONS**

PS LSC-2.1 **SUPPORTING SPECIFICATIONS**

Where this specification is required for a project, the following specifications shall, inter alia, form part of the Contract Document:

- (a) Project Specifications.
- (b) SANS 1200 A as applicable.
- (c) SANS 1200 C as applicable.
- (d) SANS 1200 D or SANS 1200 DA as applicable.
- (e) Specification DWS 2210 as applicable.

PS LSC-2.2 **APPLICATION**

This specification contains clauses that are generally applicable to landscaping and site restoration work coinciding with, or subject to, civil engineering construction. Interpretations and variations of this specification are set out in the Project Specification.

PS LSC-2.3 **DEFINITIONS**

PS LSC-2.3.1. **Acceptable Cover**

An acceptable cover shall mean that not less than 75% of the area planted or hydroseeded shall be covered with grass and that there shall be no bare patches of more than 500 mm in maximum dimension. In the case of sodding, acceptable cover shall mean that the full area shall be covered with live grass at the end of any period not less than 3 months after sodding.

PS LSC-2.3.2. **Container Plants**

Container plants include all vegetation which are bought or supplied in acceptable containers from nurseries or vegetation lifted out of their natural position and placed in containers.

PS LSC-2.3.3. **Establishment of Grass**

All procedures necessary to produce an acceptable cover of grass on an area.

PS LSC-2.3.4. **Establishment Period**

The Establishment Period is defined as the period beginning from the actual planting or placing of vegetation until three months thereafter, unless otherwise specified or unless grass cover is unacceptable or unless plants have not taken.

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PS LSC-2.3.5.

Hydroseeding

To apply seed in a slurry with water (plus other materials to enhance growth) by means of a spraying device.

PS LSC-2.3.6.

Period of Maintaining

The Period of Maintaining is defined as the period following directly after the Establishment Period until the end of the Period of Maintenance for the whole Contract as defined in Clause 49 of the General Conditions of Contract, unless otherwise specified.

PS LSC-2.3.7.

Natural Vegetation.

Natural vegetation includes all trees, shrubs, creepers, grasses and other plants growing on site, whether indigenous or not.

PS LSC-2.3.8.

Nursery Conditions

These are the necessary conditions to maintain healthy growth of container plants. This includes protection of container plants against wind, frost, direct sunlight, pests, diseases and drought. It also includes the provision of suitable water, fertilizer and any other measures required to maintain the container plants.

PS LSC-2.3.9.

Scarifying

To roughen the surface of soil as a preparation for seeding.

PS LSC-2.3.10.

Trimming

To neatly round off the levels of existing or previously shaped earthworks to blend in with the levels of other earthworks, constructed works, or natural landforms.

PS LSC-2.3.11.

Waiting Period for fertilizers

This will be the period after applying fertilizers such as superphosphate, and before any grassing or planting is commenced. In general a waiting period of 6-8 weeks is necessary before any planting can be done.

PS LSC-3.

MATERIALS

PS LSC-3.1

FERTILIZER

Fertilizer will be any man-made substance added to soil to improve its value as growing medium. The type of fertilizer to be used shall be one or more of the following listed below and/or any other fertilizer as deemed necessary after analysis of soil samples. (All fertilizers shall comply with the Fertilizers, Farm Seeds, Agricultural Remedies and Stock Remedies Act 1947 - Act 36 of 1947).

For each fertilizer type the minimum quantity required shall not be less than the following, except where indicated to the contrary:

- (a) agricultural lime - 2 tons/ha
- (b) superphosphate - 750 kg/ha
- (c) limestone ammonium nitrate (LAN) - 250 kg/ha
- (d) general fertilizers containing nitrogen, phosphorus and potassium in the amounts indicated by the following ratios: 2:3:2, 3:2:1, 4:1:6, etc. - 250 kg/ha

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All fertilizers shall be safely stored in plastic bags on Site and shall not be exposed to weather conditions such as harsh sun, rain, wind, hail, etc. These fertilizers shall be dry, free-flowing and free from lumps and shall be supplied by the Contractor in plastic bags, labelled to indicate weight and content of each, including the proportion of each constituent.

PS LSC-3.2 GRASS RUNNERS

Grass runners shall be fresh runners of a specified or approved type with at least three healthy nodes and sufficient root material to ensure good growth.

PS LSC-3.3 GRASS SEED

PS LSC-3.3.1. Purchased Grass Seed

Only good quality fresh seed with a guaranteed germination percentage and free of any other seeds or harmful materials shall be used. Grass seed shall be purchased from a registered seed merchant.

PS LSC-3.3.2. Harvested Grass Seed

Seed harvested from approved natural veld grass areas shall be free from any other seeds or harmful material.

PS LSC-3.4 GRASS SODS

Grass sods shall be either nursery-grown or veld sods as accepted by the Engineer. Both types shall be harvested, delivered and planted within 24 hours unless otherwise authorised by the Engineer.

Grass sods shall be well-rooted and well-matted, free from noxious weeds and diseases and shall contain a minimum of 30 mm soil in the case of nursery grown sods and 50 mm in the case of veld sods. The sods shall be at least 0,1 m² in area, of uniform thickness and have a healthy green colour with no dead patches.

Nursery grown sods shall be grown especially for sod purposes, mown regularly and maintained to provide an approved quality of uniformity. Veld sods may be obtained from approved areas that are of suitable type, density of grass and type of soil.

PS LSC-3.5 REVEGETATION CYLINDERS

These are cylinders which contain plant seeds and a medium in which they will germinate and grow. After growth begins the plants will send out roots from the cylinder into the surrounding soil and thereby anchor themselves to the place where they have been positioned.

PS LSC-3.6 TREES, SHRUBS AND INDIVIDUAL PLANTS

Plants shall be the variety and size shown on the Drawings or stated in the Project Specifications.

All container plants delivered on Site shall be selected from registered nurseries. These plants shall be healthy, undamaged and free from pests, diseases, insects and weeds. No pot-bound plants shall be accepted.

PS LSC-3.7 TOPSOIL

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Topsoil shall be the uppermost layer of soil and shall consist of fertile loamy soil with a minimum of 2% organic material, selected from areas showing a good coverage of natural vegetation, preferably grasses. It shall be free from deleterious matter such as large roots, stones, refuse, heavy clays, noxious weeds, etc. which would adversely affect its suitability for planting vegetation.

PS LSC-3.8 MANURE

Manure shall, unless another type is approved by the Engineer, be pure kraal manure free from soil, weed seeds or other objectionable material. It shall not contain particles that will not pass a 50 mm size screen and shall be approved by the Engineer before being delivered to the Site.

PS LSC-3.9 COMPOST

Compost shall be well-decayed, friable, free from weed seeds, dust, and other objectionable materials. The pH reading of the compost shall not exceed 7,0. A sample shall be submitted to the Engineer for approval before it will be accepted on Site. If the compost is delivered on Site in bulk, the Contractor shall take all appropriate measures to protect it against all weather conditions such as harsh sun or heavy rains.

PS LSC-3.10 MULCH

Mulch will be any organic material applied to the surface or worked into the soil in areas where vegetation is to be established for the purpose of erosion protection and to add organic matter to the soil.

Mulch may be applied by hand or hydroseeder and shall be as follows:

- (a) Mulch material for hand spreading shall be natural sun-dried fibres of various lengths between 50 mm and 300 mm. All mulch shall be subject to the approval of the Engineer prior to use. Examples of suitable mulch are hay, chaff and tall grass clippings. This mulch shall be delivered on Site in labelled plastic bags or bales.
- (b) Mulch for hydroseeding shall be a mixture consisting of cellulose pulp and natural sun-dried plant fibres processed in lengths between 5 mm and 25 mm. This mulch material shall be capable of dispersing rapidly when mixed in water and, when applied, shall be capable of forming an absorptive mat allowing moisture to penetrate into the underlying soil. This mulch shall contain no growth or germination inhibiting substances, shall be dry and free of weeds or any other foreign materials and shall be supplied by the Contractor in labelled plastic bags with an indication of its weight.

PS LSC-4. PLANT

The Contractor shall supply all the equipment required to perform the specified work.

PS LSC-5. CONSTRUCTION

PS LSC-5.1 GENERAL

PS LSC-5.1.1. Environmental Management

The Contractor shall make every effort to preserve the natural assets, to minimise environmental disturbance and to inform his employees on the Site as to the ecological sensitivity of the area in which the Site is situated. The Contractor shall be responsible for any avoidable damages to the environment resulting from the actions

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of any of his employees. The Engineer reserves the right to order the permanent removal from the Site of any person not complying with the requirements set out in this specification or any other specification in the Contract Documents.

In his effort to minimize environmental disturbance the Contractor shall take the following into consideration:

(a) Construction workers and the Site

The Contractor shall be responsible for his construction workers insofar as they shall be made aware of the seriousness of disregarding orders which relate to:

- shooting, trapping or disturbing of game/small mammals.
- damaging of natural flora.
- littering on the construction site.
- the use of supplied toilet facilities.
- the use of the areas provided for eating.

Furthermore no exotic plant material or domestic animal of any kind will be allowed on the Site.

The Contractor shall also be responsible for the Site which shall be free of erosion, pollution and/or any other unwanted materials. Nontoxic materials may be dumped and buried in the spoil dumps at acceptable depths. All other unwanted materials shall be collected and disposed of in a satisfactory manner. The Contractor shall also keep all watercourses and adjoining properties free from pollution and erosion by revegetation, control of storm-water runoff by silt traps and/or any other approved method.

All imported construction material shall also be checked for the importation of exotic seeds and/or any other foreign matter through these materials.

(b) Marker fences

The Contractor shall fence all those areas in which movement of his construction equipment and personnel will take place during, and for the purpose of, construction. The purpose of placing marker fencing around these areas is to limit the movement of equipment and personnel. These marker fences shall comply with requirements as set out in Specification DWS 2210. The marker fences shall be erected prior to the commencement of any construction activity planned to take place within the limits of the particular area.

All activities by the Contractor shall be contained within the fenced areas. The Contractor shall be liable for any damages which may result from trespassing outside these areas.

(c) Dust control

The Contractor shall take precautions to the satisfaction of the Engineer to limit the production of dust and damage caused by dust. The minimum requirement in this regard is regular watering. The methods employed by the Contractor shall be acceptable to the Engineer and comply to the Specifications as set out in sub-clause 5.1.4.1 of SANS 1200 D.

(d) Surface water management

The Contractor shall submit as part of the Technical Report, submitted with a tender, a Surface Water Management Plan by which any surface water, be it from rain, excavations or any other source, is controlled and led through settling and treatment ponds where necessary. Before any water is permitted to enter natural streambeds the quality of the water shall

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comply with the Standard Requirements for Effluent and Waste Water, as set out in Government Notice 991 published in Government Gazette 9225 of 18 May 1984 in terms of the Water Act (Act 54 of 1956). The Contractor shall obtain approval from the Engineer for his design and the implementation of the Water Management Plan. Refer also to SANS 1200 A sub-clauses 5.5 and 5.6.

(e) Earthworks

All earthworks shall comply with SANS 1200 D or 1200 DA as applicable but shall be rounded off to stable forms, sympathetic to the natural surrounding landscape.

PS LSC-5.1.2. Time of planting

All planting shall be carried out as far as is practicable during the period most likely to produce beneficial results but as soon as possible after completion of a section of earthworks. The seasonal period is from the beginning of September to the end of February or as specified.

PS LSC-5.1.3. Erosion Control

During construction, the Contractor shall protect all areas susceptible to erosion by installing all necessary temporary and permanent drainage works and by taking such other measures as may be necessary to prevent the concentration of surface water and scouring of slopes, banks and other areas. All erosion, such as runnels, channels or sheet erosion, that develops during the Construction Period, Establishment Period or Period of Maintaining shall be backfilled and consolidated and the areas restored to their proper condition at the Contractor's expense. The Contractor shall not allow erosion to develop on a large scale before effecting repairs and all erosion damage shall be repaired as soon as possible and in any case not later than two months before the termination of the Period of Maintaining. All topsoil or other material accumulated in side drains shall be removed at the same time. Topsoil washed away shall be replaced.

PS LSC-5.1.4. Responsibility for Establishing an Acceptable Cover

Notwithstanding the fact that the Engineer will determine or approve the method of grassing and that the type of seed or grass used and the rate of application of seed may be specified or agreed to by the Engineer, the Contractor shall be solely responsible for establishing an acceptable grass cover and for the cost of replanting or hydroseeding when an acceptable cover is not obtained. However, where in the opinion of the Contractor, it is doubtful from the outset that it will be possible to establish an acceptable cover he shall inform the Engineer of his reasons, and the Engineer shall, if he agrees, either adopt another method of grassing or agree to accept whatever cover can be obtained provided that all reasonable efforts are made to establish a good cover using the method proposed. Any such agreement shall only be valid if given in writing by the Engineer.

PS LSC-5.1.5. Maintenance of Stockpiles and Work Areas

The Contractor shall be held responsible for any damage to areas due to erosion and runoff from the stockpiles and work areas. The Contractor shall repair all damages at his own expense to the satisfaction of the Engineer.

PS LSC-5.1.6. Clearing

Any rubbish, concrete slabs, old foundations, unused grass sods and cuttings, steel remnants, etc. shall be removed before ripping, shaping and trimming takes place.

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If these unwanted items are not removed immediately, the Contractor shall store them in heaps in an area approved by the Engineer until such time as they can be removed. The Contractor shall be held responsible for keeping these heaps in a condition to the satisfaction of the Engineer, considering the stipulations in sub-clause 5.1.5.

PS LSC-5.1.7. Fire Control

The Contractor shall take adequate precautions to prevent and control veld fires to the satisfaction of the Engineer.

The Contractor shall take all steps to ensure that the fire hazard on and near the Site is reduced to a minimum. The Contractor shall be held responsible for any damage to property adjoining the Site as a result of any fire caused by one of his employees.

The Contractor shall take immediate steps to extinguish any fire which breaks out on the Site, and shall comply with all statutory provisions which may be in force from time to time in relation to fire danger or to restrictions on the lighting of fires in the open. The Contractor shall have a supply of beaters to use in the extinguishing of bush fires to which this area is susceptible.

Firebreaks shall be established and maintained around the Sites if and when ordered by the Engineer.

PS LSC-5.2 GRASSING OF AREAS

PS LSC-5.2.1. Topsoil

Topsoil shall be handled under the relevant clauses in SANS 1200 D or SANS 1200 DA as applicable. The following measures shall be relevant for, and part of, the handling of topsoil:

(a) Topsoil borrow areas

Suitable topsoil shall be obtained within the limits of the area to be cleared. The Engineer may indicate to the Contractor the areas from which topsoil may be selected. If the Contractor fails to conserve topsoil as instructed he shall obtain suitable substitute material from other sources at no extra cost to the Employer. It may also be specified that the Contractor shall procure and furnish topsoil from his own sources outside the Site. The suitability of these substitute materials shall be decided on by means of soil analysis.

(b) Storage of topsoil

Topsoil shall be stockpiled in separate loose heaps as tipped from trucks and shall not be stockpiled higher than 3,0 m. Care shall be exercised during stockpiling to prevent compaction of topsoil and the mixing of topsoil with sub-soil and/or any other material. If stockpiled for a period longer than 8 months, the Engineer may instruct for the stockpiles to be seeded with an approved seed mixture. This seedbed shall be kept moist by the Contractor so as to achieve an acceptable cover.

PS LSC-5.2.2. Shaping

Areas requiring shaping involving bulk earthworks shall be excavated, filled, compacted when required, and shaped to the correct contours to within a tolerance of plus or minus 150 mm. Shaping will be to roughly round off cuts and fills and any other earthworks to stable forms, sympathetic to the natural surrounding landscape.

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Such work shall be considered as earthworks and measurement and payment shall be made under the relevant clauses in SANS 1200 D or 1200 DA as applicable or as specified.

PS LSC-5.2.3. Trimming

Trimming shall consist of bringing the existing or previously shaped ground to an even surface with the final levels generally following the original surface. Where machine operations are not practicable trimming shall be done using hand tools. Trimming shall be done where instructed by the Engineer but trimming of rock outcrops and 'koppies' will not be required. Areas previously shaped shall be trimmed to within a tolerance of plus or minus 100 mm with all undulations following a smooth curve. This tolerance shall apply only to areas where the final contours are shown on the drawings.

Trimmed surfaces shall be left slightly rough to facilitate binding with topsoil or the natural establishment of vegetation. During trimming all stones with any dimension in excess of 30 mm in areas to be mowed by machine, all stones with dimensions in excess of 150 mm in other areas and all other excess material shall be removed to selected dumping sites. Trimming of any areas requiring grassing shall be done in such a way that, after application of any topsoil and cultivation, the finished surface of the area shall be approximately 25 mm below the top of adjacent kerbing, channelling or pavement. No separate measurement and payment shall be made for trimming. These costs shall be included in the various rates in SANS 1200 D or 1200 DA as applicable, and in the various rates in this Specification.

PS LSC-5.2.4. Preparation of areas for grassing

The various areas to be grassed shall be prepared as follows:

- (a) Where the area to be grassed consists of suitable material it shall be scarified to a minimum depth of 75 mm with furrows spaced at 250-300 mm centres. Scarifying along slopes shall run parallel to the contours, forming horizontal terraces. All loose stones and other excess material shall be removed during trimming (sub-clause 5.2.3).
- (b) Where areas to be grassed consist of unsuitable material which, in the opinion of the Engineer, cannot be improved sufficiently to support good plant growth by the addition of soil amendments, topsoil shall be placed. Approved topsoil shall be placed on slopes flatter than 1:1,5. Only in certain circumstances will topsoil be specified on fill slopes steeper than 1:1,5.

Where topsoil is required the surface shall be left slightly rough during trimming to ensure a proper bond between the topsoil and the subsoil. Topsoil shall be placed on the prepared surfaces and trimmed to the uniform thickness required. Unless otherwise specified a 75 mm layer of topsoil shall be placed. The topsoil shall be scarified as described in (a). The soil shall be moist to a depth of at least 300 mm while being worked, prior to fertilizing and seeding.

- (c) Large steeply sloping areas, such as embankment dams, with a high erosion potential shall be prepared as specified in (a) above, unless otherwise stated.

PS LSC-5.2.5. Fertilizing

The Contractor shall have the top 150 mm of the prepared surfaces (as described in sub-clause 5.2.4) tested and submitted to the Engineer to determine the amount and type of fertilizer required for establishing proper growth conditions for grass. The choice of the type of fertilizer to be used and the application thereof shall be the

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responsibility of the Contractor but shall be approved by the Engineer before application.

Fertilizer shall be evenly applied over all surfaces where grass is to be planted and shall be worked into the soil within 12 hours after application to prevent losses by wind or water. The Contractor shall take into account in his planting programme any required waiting periods for fertilizing. No delays shall be considered as a result of these waiting periods.

PS LSC-5.2.6. Mulching

The decision to use mulch rests with the Contractor, but should be discussed with the Engineer. Proper mulching (+ 70% coverage) is an erosion prohibiting measure and should therefore always be considered. Mulching may be done by hand or, if hydroseeding is to be carried out, by hydroseeder.

PS LSC-5.2.7. Methods of Grassing

The method of establishing grass shall depend on the circumstances relating to each case. The Engineer shall decide which method is to be used where not specified. The types and mixtures of seeds, runners or sods shall be specified or shall be agreed upon between the Engineer and the Contractor before any seeds, runners or sods are ordered.

After establishing runners, sods, a seedbed or revegetation cylinders by one of the methods described below the Contractor shall water the established area immediately after planting or placing and keep these areas sufficiently wet for establishment and proper maintenance. He shall also protect the established area against erosion as described in sub-clause 5.1.3. The Contractor shall be solely responsible for establishing an acceptable grass cover and any approval by the Engineer of seed or seed mixtures proposed by him for use shall not relieve him of his responsibility.

Provision is made in this Specification for the following methods of grassing:

(a) Planting of grass runners

The areas to be planted shall, unless wet, be thoroughly watered before planting to ensure that the soil is uniformly wet to a depth of at least 300 mm when planting takes place. Approved grass runners, as described in sub-clause 3.2, shall be evenly planted by hand or mechanical means at a rate of at least 40 grain bags of runners per hectare. Only fresh runners shall be used and no grass runners that have been allowed to dry out shall be used. After planting, runners shall be given copious watering and, when sufficiently dry, shall be rolled with a light agricultural roller and rewatered.

(b) Sodding

Sods will generally only be placed on slopes varying between 1:1,5 and 1:1. Where specifically required, sods may be placed on flatter areas.

Areas to be grassed by sodding shall be trimmed to the required level, raked or spiked to give a loose surface for a depth of at least 40 mm and covered with a layer of approved topsoil not more than 75 mm thick. Topsoil may be omitted if and when the Engineer decides the subsoil is suitable for grassing. The necessary soil amendments as indicated by soil tests shall be added to and worked into the topsoil or subsoil. The areas to be sodded shall be thoroughly watered beforehand so that it is wet to a depth of at least 150 mm when sodding is done. The surface shall be made slightly rough to ensure a good penetration of roots into the soil. Sods

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shall be protected against drying out and kept moist from the time of harvesting until finally placed.

The first row of sods shall, where it is possible, be laid in a straight line and, if on a slope, starting at the bottom of the slope. The sods shall be butted tightly against each other, care being taken not to stretch or overlap sods. Where a good fit cannot be obtained the intervening spaces shall be filled with parts of sods or topsoil. The next row shall be placed in the same way tightly against the bottom row with the joints staggered, until the full area is covered with sods. On steep slopes the sods shall be held in position by sufficient timber stakes of at least 300 mm in length. The Contractor shall water the sods directly after placing to prevent drying out of the sods.

(c)

Hydroseeding

Irrespective of the method used (A, B or C), the seedbed shall be kept moist after hydroseeding to ensure good germination. The various methods of hydroseeding are described below.

Method A

The specified seed mix and necessary fertilizer shall be added to the required amount of water and applied using an approved hydroseeding machine. Unless otherwise specified the rate of application of slurry shall not be less than 30 cubic metres per hectare and shall be applied in such a manner as to have even distribution of seed and fertilizer.

Method B

Method A shall be used but additional components shall be included in the slurry. These additional components may be mulch (suitable for use in the hydroseeder), cellulose pulp, organic fibre, chemical binder or any other material required to assist in the application of the slurry or to enhance the germination and growth of the seeds. Additional water may be needed to make the slurry workable but the required mass of seed and the necessary fertilizer and other components per hectare shall nevertheless be applied. It may also be specified that the Contractor will design a suitable mix using additional components.

Method C

Mulch shall firstly be applied by hand to the area to be hydroseeded. The surface shall then be hydroseeded as described under Method A.

(d)

Handseeding

The area to be seeded shall be wet to a depth of at least 300 mm before any seeding takes place. The seed mixture and fertilizer, if any, shall be mixed, halved and applied evenly in two successive applications - the second application following immediately after the first. Immediately thereafter the seeded area shall be rolled, or compacted by an approved method, to the satisfaction of the Engineer. Seeds shall not be covered by more than two millimetres of soil. The seeded area should be well watered.

(e)

Revegetation cylinders

The revegetation cylinders shall be placed end to end in rows along the contour lines of the slope as directed by the Engineer. The spacing of rows shall be as shown on the Drawings or as specified in the Project Specification or as ordered by the Engineer. The cylinder ends shall be staggered in alternate rows. Revegetation cylinders shall be secured at their ends and in the middle to barbed wire stays running down the slope using special wire ties supplied by the manufacturer and tied with a suitable tying tool.

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The stay wires shall be secured to the slope by means of steel stakes and pulled taut. The slope face shall preferably not be smooth but kept slightly rough in order to facilitate the retention of topsoil.

After the revegetation cylinders have been placed and secured in position the space between rows shall be filled with an approved topsoil and the upper surface of the topsoil finished flush with the top of the revegetation cylinders or slightly below it if mulch is to be applied. Care shall be taken during construction not to compact the topsoil excessively or to damage the cylinders when moving topsoil down the slope. All topsoiling shall start from the top of the slope.

PS LSC-5.2.8. Soiling and Seeding to follow Earthworks

The Contractor shall undertake all soiling, seeding and grass establishment, as described in sub-clauses 5.2.1 to 5.2.7, at the specified times, taking into account the climatic conditions prevalent in order to maximise growth of vegetation and therefore reduce erosion.

PS LSC-5.2.9. Watering

All grassed areas shall be maintained during the Establishment Period by adequate watering at frequent and regular intervals in order to ensure proper germination of seeds and growth of grass until an acceptable grass cover has been established (as defined in sub-clause 2.3) and as per the following conditions:

(a) New Grassed Areas

The number and frequency of watering shall be at the discretion of the Engineer but shall be a minimum weekly rate of 20 mm which shall be in applications of 8 – 12 mm/hr. Watering shall commence and continue immediately following establishment of grass.

(b) Rehabilitation of Existing Grassed Areas

The number and frequency of watering shall be at the discretion of the Engineer but shall be a minimum weekly rate of 40 mm which shall be in applications of 8 – 12 mm/hr. Watering shall commence immediately following conclusion of previous phase in the rehabilitation process as set out in PS L 5.5, and continue for the duration specified in the schedule of quantities.

PS LSC-5.2.10. Weeding

Weeds shall be controlled by means of extraction, cutting or other specified means.

PS LSC-5.2.11. Mowing

The Contractor shall mow or cut all grassed areas to promote adequate coverage, until the end of the Period of Maintaining. All grass cuttings shall be collected and disposed of if so directed by the Engineer. Mowing shall be undertaken with an approved power mower. All established grass cover shall be cut to a height of 25 mm above ground level. Mowing of planted areas, as opposed to soddied areas, shall be undertaken initially with the mower set to cut 50 mm above ground level, the height of cut being reduced to 25 mm when adequate cover has been achieved. In cases where mechanical mowing is impossible, an approved method of cutting the grass by hand (e.g. by means of a scythe) shall be used.

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Unless otherwise directed by the Engineer, all plant holes shall be square and prepared as follows:

Hole size: 5 times as wide as the container
1,5 times as deep as the container

Minimum hole sizes: 600 mm square x 900 mm deep for trees
500 mm square x 600 mm deep for shrubs

If impenetrable shale, solid rock or clay layers are present just below the soil surface, making it impossible to make the appropriate hole size to accommodate the container plant without entering the impenetrable layers, or if a high water table causes problems the Contractor shall request the Engineer immediately to give the necessary guidance.

Planting holes shall be refilled with selected and approved topsoil, thoroughly mixed with manure or compost (one heaped spadeful added to every plant hole) and, depending upon the soil tests, the required amount and type of fertilizer. Holes shall be thoroughly watered and an approved ant and termite killer shall be added to each hole before planting. Where local soil has poor drainage broken rock shall be placed to a depth of 150 mm at the bottom of the planting hole before filling it with soil and planting the plant.

PS LSC-5.3.6. Transplanting Natural Vegetation

Natural vegetation such as trees, shrubs, cycads, ferns, groundcovers, grass sods, grass runners and perennials on the Site which will be identified by the Engineer shall be transplanted. Only trees with a maximum height of 1,5 m shall be transplanted unless otherwise specified. Transplanting shall take place in late winter before new leaves appear.

Method

- (a) The trees to be transplanted shall be carefully removed from the soil so as to leave a large clump of soil affixed to the roots, and the roots undisturbed. The larger the tree, the larger root ball shall be left. For trees of 1 to 1,5 m high, dig at least 0,4 m away from the trunk.
- (b) The root ball shall be wrapped in a hessian or plastic cover to retain the soil.
- (c) To replant the plant in its new position, a square hole shall be dug, before removing the plant from its original position, wide and deep enough to take the root ball and allow room for some fresh soil to be packed around the sides. The hole shall be thoroughly watered before planting.
- (d) The plant shall be lowered into the hole and the plastic cover carefully removed. If the cover is of hessian it need not be removed although the cord holding the hessian shall be loosened before the hole is filled with soil.
- (e) The plant shall be staked and tied before filling the hole completely with soil. The stakes shall be driven in alongside (not through) the root ball and secured to the stem as indicated in sub-clause 5.3.8. Hereafter the plant hole can be filled with soil.
- (f) The soil shall be firmly pressed down. The previous planting depth shall not be exceeded.
- (g) A raised basin having a depth of at least 200 mm deep shall be made around the plant for watering purposes. This basin shall be filled with water after planting.

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- (h) If the tree cannot be transplanted in the new position immediately, it shall be planted in a container (as described in (j) below) and stored (as described in sub-clause 5.3.1) until such time as it can be replanted (as described in sub-clause 5.3.7).
- (j) The container shall be slightly larger than the root ball. The space in the container around the root ball shall be filled with the container mixture as specified in sub-clause 5.3.1.

PS LSC-5.3.7. Planting of Container Plants

Plants shall be watered well with at least 1 litre of water for small plants and 4 litres of water for large plants such as trees before they are removed from their containers for planting. As much of the soil from the container as possible shall be retained around the roots of the plant during planting. The plant shall be planted in the specified size plant hole. The approved soil, compost and fertilizer mix used to refill the plant hole shall cover all roots and shall be firmed down well to be at the same level as the surrounding in situ material. Directly after planting each plant shall be watered well to establish the plant firmly in the soil.

After the soil has set, additional soil shall be added where necessary to bring the hole backfill to within 50 mm of the ground level. A raised basin having a depth of at least 200 mm shall be made around the plant to ensure that sufficient water can be retained. All trees shall be anchored as described in sub-clause 5.2.8. After planting the soil around the plant shall be covered with mulch.

PS LSC-5.3.8. Anchoring of Plants

All trees shall be tied to three weather resistant wooden or steel stakes anchored firmly in the ground. Two stakes shall be located on the windward side of the plant. A piece of wire, covered with a 20 mm diameter plastic PVC pipe, shall be tied tightly to the stakes half to two thirds the height of the tree above ground and looped around the trunk of the tree. The stakes shall be placed at least 500 mm apart and away from the trunk and roots of the tree so as not to damage the roots. This distance will depend on the size of the tree, and shall be approved by the Engineer before the stakes are firmly anchored in the ground.

PS LSC-5.4 Maintaining of Planted Areas

During the Establishment Period and the Period of Maintaining the Contractor shall be responsible for watering the plants and keeping the area immediately around them free from weeds and pests. The Contractor shall check all plants for pests and diseases at least once every two weeks and treat the plants if necessary. Every plant that, in the opinion of the Engineer, is not healthy or shows unsatisfactory growth shall be replaced at the expense of the Contractor with the same species as specified, or replaced by another species as approved by the Engineer in writing.

From the date of commencement of grassing (whether by hydroseeding, sodding, handseeding, planting of runners or any other method) and/or planting of trees, shrubs and other individual plants the Contractor shall be responsible for maintaining all grassed areas and planted plants. Maintaining these areas and plants shall be such that the grass coverage and growth of individual plants is enhanced. This shall be such that a minimum grass cover of 75% is achieved and that individual plants are strong and healthy growers at the end of the Period of Maintaining.

PS LSC-5.5 Rehabilitation of Existing Grass

Rehabilitation shall be executed by means of the stated method, with strict adherence to order of process, stated rates and ratios and durations.

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Method

(a) Aeration

Shall be executed by means of stated type of process to required depths and rates for aeration:

iii. Hollow tine:

Shall be executed to a depth of 100 mm below turf surface, either by hand or by means of self-propelled walk-behind or tractor drawn aerator. Holes shall be 25 mm Ø and a ratio of no less than 50 holes per m² (matrix of 143 mm x 143 mm c/c) and shall be maintained. All cores shall be raked and disposed of by contractor following completion of tining process.

iv. Spiker

Shall be executed to a depth of 25 mm below turf surface, either by hand or by means of self-propelled walk-behind or tractor drawn aerator. Holes shall be 10 mm Ø and a ratio of no less than 600 holes per m² (matrix of 40 mm x 40 mm c/c) and shall be maintained.

(b) Weeding as set out in PS L 5.2.10

(c) Spreading of specified grass seed by specified means.

(d) Fertilizing as set out in PS L 5.2.5

(e) Apply topsoil topdressing to specified thickness.

(f) Watering as set out in PS L 5.2.9(b) for specified duration.

PS LSC-6.

TOLERANCES

The tolerances acceptable shall be as specified in the respective clauses or in the Project Specification.

PS LSC-7.

TESTING

The Contractor shall take representative soil samples to be tested of all soils on which vegetation is to be established with the guidance of the Engineer. These samples shall consist of at least 1 kg of soil. The sample shall be placed directly in a plastic bag and labelled with a location number or description from which the exact position can be established after testing.

The Contractor shall submit the results, together with the method used in the analysis, to the Engineer. These results shall include the following and/or other components as specified:

- (i) Phosphate (Bray I or Bray II method)
- (ii) Potassium, Calcium, Magnesium and Sodium
- (iii) pH (Water)
- (vi) Soil fraction or particles and texture class.

PS LSC-8.

MEASUREMENT AND PAYMENT

PS LSC-8.1

BASIC PRINCIPLES

The rates shall depend on the nature of the landscape work. The areas to be grassed, as given in the Schedule of Quantities, are provisional.

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PS LSC-8.2 SCHEDULED ITEMS

PS LSC-8.2.1. Preparation of Areas for Grassing

PS LSC-8.2.1.1 Topsoiling (thickness specified)..... Unit: m²

The unit of measurement shall be the area of topsoil measured in square metres applied to the thickness indicated.

The tendered rate shall cover the total inclusive costs of all the following items:

- (a) Loading onto transport.
- (b) Transportation (regardless of distance).
- (c) Off-loading.
- (d) Roughening the area to be topsoiled.
- (e) Placing.
- (f) Spreading to required thickness.
- (g) Levelling to a smooth surface.
- (h) Removal of stones and other foreign material.
- (i) Removal of unsuitable material or excess suitable material to spoil dumps.
- (j) All other incidental activities necessary to ensure proper placing of topsoil.

PS LSC-8.2.1.2 Preparation of surfaces Unit: m²

The unit of measurement shall be the prepared area measured in square metres.

The tendered rate shall cover the total inclusive costs of all the following items:

- (a) Trimming after topsoiling.
- (b) Scarifying.
- (c) Removing stones to suitable dumping areas.
- (d) Smoothing-off of the surface.
- (e) Fertilizing.
- (f) Mulching.
- (g) Sampling and testing of prepared surface.
- (h) All other incidental activities necessary to ensure that the surface is prepared properly.

PS LSC-8.2.2. Grassing

The tendered rate shall include full compensation for furnishing runners, sods, seeds and/or revegetation cylinders for planting or placing, for watering, fertilizing, weeding, replanting if necessary and all other incidentals that may be required to establish an acceptable cover. The tendered rate shall also cover all activities, plant, labour and any other incidentals required to perform the activities specified in this Specification. The costs of supplying of seed and fertilizer shall be included in the applicable items.

PS LSC-8.2.2.1 Planting of grass runners (type indicated)..... Unit: m²

The unit of measurement shall be the area of grass runners planted measured in square metres.

The tendered rate shall include for the total inclusive costs of all the following items:

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- (a) Obtaining and delivering grass runners.
- (b) Planting.
- (c) Fertilizing.
- (d) Mulching.
- (e) Watering.
- (f) Rolling.
- (g) All other incidental activities necessary to ensure that an acceptable cover will be obtained.

PS LSC-8.2.2.2 Sodding (type indicated)..... Unit: m²
The unit of measurement shall be the area of sodding carried out measured in square metres.
The tendered rate shall include for the total inclusive costs of all the following items:

- (a) Obtaining and delivering sods.
- (b) Placing.
- (c) Fertilizing.
- (d) Watering.
- (e) Supply and placing of timber stakes.
- (f) In case of veld sods, levelling and trimming of areas from which sods are taken.
- (g) All other incidental activities necessary to ensure that an acceptable cover will be obtained.

PS LSC-8.2.2.3 Hydroseeding (method indicated)..... Unit: m²
The unit of measurement shall be the area of hydroseeding carried out measured in square metres.
The tendered rate shall include for the total inclusive costs of all the following items:

- (a) Obtaining and delivering seeds for use in the hydroseeder and other components (eg. mulch) of hydroseeding.
- (b) Applying mulch by hand where applicable.
- (c) Mixing seed, fertilizer, mulch and other contents.
- (d) Spraying mix.
- (e) All other incidental activities necessary to ensure that an acceptable cover will be obtained.

PS LSC-8.2.2.4 Handseeding Unit: m²
The unit of measurement shall be the area of handseeding carried out measured in square metres.
The tendered rate shall include for the total inclusive costs of all the following items:

- (a) Obtaining and delivering the seeds (The type of seeds required will be stipulated in the Project Specification.)
- (b) Sowing (in two applications).
- (c) Fertilizing.
- (d) Mulching.
- (e) Watering.
- (f) Rolling.
- (g) All other incidental activities necessary to ensure that an acceptable cover will be obtained.

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PS LSC-8.2.2.5 Revegetation cylinders..... Unit: m²

The unit of measurement shall be the area covered with revegetation cylinders measured in square metres (Placed end to end in rows. Distance between rows will be indicated.)

The tendered rate shall include for the total inclusive costs of all the following items:

- (a) Obtaining and delivering revegetation cylinders.
- (b) Placing.
- (c) Fertilizing.
- (d) Watering.
- (e) Supply and placing of netting, wire ties or other means of securing revegetation cylinders.
- (f) All other incidental activities, including royalties, necessary to ensure that an acceptable cover will be obtained.

PS LSC-8.2.3. Trees, Shrubs And Individual Plants

PS LSC-8.2.3.1 Lifting of natural vegetation..... Unit: No.

The unit of measurement shall be the number of plants lifted from their natural position irrespective of type.

The tendered rate shall include for the total inclusive costs of all the following items:

- (a) Actual digging out of the plants.
- (b) Watering.
- (c) Hessian, plastic and/or other material to cover roots.
- (d) All other incidental activities necessary to ensure that the plants are well lifted as described in sub-clause 5.3.6(a) and (b).

PS LSC-8.2.3.2 Planting and establishment of natural vegetation in containers Unit: No.

The unit of measurement shall be the number of plants planted and established in containers.

The tendered rate shall include for the total inclusive costs of all the following items:

- (a) Providing an approved container.
- (b) Providing proper potting soil.
- (c) Placing and planting the plant in the container.
- (d) Fertilizing.
- (e) Mulching.
- (f) Watering.
- (g) Transporting plant and container to the nursery.
- (h) All other incidental activities necessary to ensure that the plants are well established.

Any payment made for a plant which later dies shall be deducted unless the plant is replaced by the Contractor.

PS LSC-8.2.3.3 Storage of the container plants in the nursery Unit: No/Month

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The unit of measurement shall be the number of plants stored and maintained per month.

The tendered rate shall include for the total inclusive costs of all the following items:

- (a) Watering
- (b) Weeding
- (c) Fertilizing
- (d) Control of insects, pests and diseases
- (e) Protection against wind, frost and direct sunlight
- (f) Substituting plants that become diseased or that die
- (g) All other incidental activities necessary to ensure healthy, strong plants.

PS LSC-8.2.3.4 Providing, planting and establishment of trees, shrubs and individual plants (Types indicated) Unit: No.

The unit of measurement shall be the number of each type planted and established in its final position.

The tendered rate shall include for the total inclusive costs of all the following items:

- (a) Obtaining and delivering plants to the position of planting.
- (b) Placing
- (c) Excavating the hole to the specified dimensions.
- (d) Furnishing soil mixture for filling the hole
- (e) Backfilling
- (f) Mulching
- (g) Fertilizing
- (h) Watering
- (j) Anchorage
- (k) All other incidental activities necessary to ensure that the providing, planting and establishing of plants comply with measures according to sub-clause 5.3.

PS LSC-8.3 MAINTAINING OF PLANTED AREAS

PS LSC-8.3.1. Maintaining of grassed areas Unit: m²/month

The unit of measurement shall be for the square metres of grassed area satisfactorily maintained multiplied by the number of months during which it is maintained.

The tendered rate shall include for the total inclusive costs of all the following items:

- (a) Watering
- (b) Weeding
- (c) Mowing
- (d) Fertilizing
- (e) Erosion control
- (f) Replanting and re-establishment of areas which have not achieved an acceptable grass coverage.
- (g) All other incidental activities necessary in order to establish an acceptable grass cover.

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PS LSC-8.3.2. Maintaining of planted plants..... Unit: No/Month

The unit of measurement shall be the number of plants satisfactorily maintained multiplied by the number of months during which it is maintained.
The tendered rate shall include for the total inclusive costs of all the following items:

- (a) Watering
- (b) Weeding
- (c) Pruning
- (d) Fertilizing
- (e) Erosion control
- (f) Replanting and re-establishment of plants, shrubs and trees which are not healthy or show unsatisfactory growth.
- (g) All other incidental activities necessary in order to establish strong healthy individual plants.

PS LSC-8.4 REHABILITATION OF GRASSED AREAS

The unit of measurement shall be the area of grass to be rehabilitated, measured in square meter for the following.

PS LSC-8.4.1. Aeration Unit: m²

The type of, number of processes and required depth shall be stated. The tendered rate shall include for the raking together and removal to a suitable dumping site of all cores, plugs and other waste that may be reasonably generated as a result of aeration process.

PS LSC-8.4.2. Weeding Unit: m²

Individual types of processes/applications shall be scheduled separately.

The number of processes/applications shall be stated.

PS LSC-8.4.3. Fertilizing Unit: m²

Individual types of applications shall be scheduled separately.

The number of applications shall be stated.

PS LSC-8.4.4. Over-seeding.....Unit: m²

Individual types of seeds and types of applications shall be scheduled separately.

PS LSC-8.4.5. Top Dressing Unit: m²

Thickness of application shall be stated.

PS LSC-8.4.6. Watering Unit: Days

The tendered rate shall include for the application of water to the specified area in accordance with the minimum rates as set out in PS L 5.2.9(b).

The area to be watered shall be stated, measured in square metres.

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PS LSC-8.5 DETECTION OF IRRIGATION

PS LSC-8.5.1. Detection of irrigation Unit: Sum

Contractor to provide for the detection, marking and protection against damage of all existing irrigation pipes and sprinklers during all phases of the contract for the duration of the contract.

Any repair to existing irrigation due to damage as a result of normal construction and maintenance operations shall be for the contractors account. Duration of contract shall be stated measured in months.

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C5.5.4. IN HOUSE SPECIFICATIONS: "BW": BUILDING WORKS

BW 1. STANDARD CONDITIONS

BW 1.1 USE OF LOCALLY MANUFACTURED MATERIALS AND PRODUCTS

Materials and products manufactured in South Africa shall be used in carrying out the work to which this specification refers, unless an imported product is prescribed specifically, or when no suitable locally manufactured product for the specific use is available.

BW 1.2 APPLICATION OF CLAUSES

All clauses in this specification which describe the materials and methods to be used in carrying out the work specified in the specification of work to be done, or indicated on the drawings, or included in the bills of quantities, or in any detail drawings, or instructions issued by the Engineer or Engineer's Representative to the Contractor during the progress of the work, shall be considered as applying to the performance of the contract.

BW 1.3 SAMPLES

The Contractor shall furnish without delay, such samples and/or certificates as called for or may be called for by the Engineer or Engineer's Representative. Materials and/or workmanship not corresponding with approved samples shall be rejected.

BW 1.4 WATER

Clean, fresh water free from vegetable or organic matter, earth, clay, acid or alkaline substances either in suspension or in solution, other than those used for purification thereof by the responsible authority, shall be used throughout.

Where there is any reason to suspect the presence of impurities, the Engineer or Engineer's Representative shall require the Contractor to obtain a chemical analysis of the water by a competent analyst at his own cost.

BW 1.5 INTERPRETATION OF DRAWINGS ETC.

Should any part of the drawings, specifications or bills of quantities not be clearly intelligible to the Contractor or that the materials or articles to be used in the execution of the works be considered insufficiently described, the Engineer or Engineer's Representative shall be requested to provide clarity in writing.

BW 1.6 SCALE

No dimensions are to be scaled of any drawings.

BW 1.7 UNITS OF MEASUREMENTS

Units of measurements have been standardized in accordance with "Système International d'Unites" (SI).

BW 1.8 Verification of Dimensions

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All dimensions are to be verified and confirmed prior to the commencement of construction.

BW 2.

INTERPRETATIONS

BW 2.1

SOUTH AFRICAN STANDARD SPECIFICATIONS AND CODES OF PRACTICE

SANS	312:	Red Lead Base Primers for Structural Steel
SANS	322:	Distemper
SANS	460:	Copper and Copper Alloy Tubing
SANS	471:	Portland Cement (ordinary, rapid hardening and sulphate-resisting)
SANS	497:	Glazed Ceramic Sanitary ware
SANS	509:	Malleable Cast-Iron Pipe Fittings
SANS	515:	Decorative Paint with a Non-Aqueous Solvent Base for Interior Use
SANS	523:	Limes for Use in Building
SANS	540:	Woodfibre Building Board
SANS	542:	Concrete Roofing Tiles
SANS	543:	Fire Hose Reels (with hose)
SANS	545:	Wooden Doors
SANS	546:	Cast Iron Fitting for Fibre Cement Pressure Pipes
SANS	558:	Cast Iron Surface Boxes and Manhole and Inspection Covers and Frames
SANS	559:	Vitrified Clay Sewer Pipes and Fittings
SANS	563:	Stress-graded Softwood: General Structure Timber
SANS	565:	Pentachlorophenol-Zinc Napthenate Timber Preservative
SANS	581:	Semi-Flexible Vinyl Floor Tiles
SANS	586:	Thermo Plastic Floor Finishes
SANS	622:	Gypsum Cove Cornice
SANS	626:	Portland Blastfurnace Cement
SANS	629:	Softwood Flooring Boards
SANS	630:	High Gloss
SANS	631:	Decorative Oil Gloss Paint for Interior and Exterior Use
SANS	632:	Clay Roofing Tiles
SANS	633:	Emulsion Paints for Interior Decorative Purposes
SANS	634:	Emulsion Paints for Exterior Use
SANS	653:	Softwood Brandering and Battens
SANS	675:	Zinc-coated Fencing Wire (plain and barbed)
SANS	677:	Concrete Non-Pressure Pipes
SANS	678:	Primers for Wood for Interior and Exterior Use
SANS	679:	Type I: Primers: Brush applications
SANS	680:	Glazing Putty for Wood and Steel Sashes
SANS	681:	Undercoats for Paints
SANS	682:	Finishing Paint, Aluminium-type
SANS	683:	Roof Paints
SANS	684:	Structural Steel Paint
SANS	685:	Fibre-Cement Sheets: Profiled and Flat
SANS	723:	Wash Primer (Metal Etch Primer)
SANS	727:	Windows and Doors made from rolled mild steel sections
SANS	746:	Cast-Iron pipes and pipe fittings for use above ground in drainage installations
SANS	752:	Float Valves: Part I and Part II
SANS	763:	Hot-dip (Galvanised) Zinc Coatings other than on continuously zinc-coated sheet and wire
SANS	786:	Flexible Vinyl Flooring
SANS	801:	Epoxy-tar Paints
SANS	802:	Bituminous Aluminium Paint
SANS	803:	Fibre-Cement Boards
SANS	821:	WC Flushing Cisterns
SANS	831:	Portland Cement 15 (Ordinary and Rapid Hardening)
SANS	887:	Varnish for Interior Use

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Witness:

SANS	903:	Aluminium Alloy Corrugated and Troughed Sheets
SANS	906:	Stainless Steel Wash Hand Basins and Wash Troughs
SANS	907:	Stainless Steel Sinks for Institutional Use
SANS	909:	Red Oxide Zinc Chromate Primer for use on Steel Windows and Doors
SANS	912:	Calcium Plumbate Primer
SANS	920:	Steel Bars for Concrete Reinforcement
SANS	926:	Two pack zinc-rich epoxy primer
SANS	934:	Hot dipped galvanized zinc coatings on steel sheets and strips.
SANS	949:	Strongroom Doors
SANS	952:	Polyolefin film for damp-proofing and waterproofing in buildings
SANS	978:	Wood Mosaic Flooring
SANS	1024:	Welded Steel Fabric for Concrete Reinforcement
SANS	1039:	Wooden Ceilings and Paneling Boards
SANS	1083:	Aggregates from Natural Sources
SANS	1089:	Laminated Timber: Stock glued
SANS	1090:	Sand for Plaster and Mortar
SANS	1099:	Hardwood Furniture Timber
SANS	1128:	Fire Fighting Equipment
SANS	1129:	Pressed Steel door frames
SANS	1200:	Standardized Specifications for Civil Engineering Construction
SANS	1215:	Concrete Masonry Units
SANS	1223:	Fibre-Cement Pressure Pipes and Couplings
SANS	1227:	Textured wall coatings, emulsion base, for interior and exterior use
SANS	1236:	Silvered Glass Mirrors for General Use
SANS	1245:	Stress-Graded Softwood Engineering Timber
SANS	1263:	Safety and security glazing materials for buildings
SANS	1288:	Preservative-Treated Timber
SANS	1300:	Particle Board: Exterior and Flooring Type
SANS	1301:	Particle Board: Interior Type
SANS	1359:	Softwood timber for industrial use
SANS	1373:	Chain-Link Fencing and its wire accessories
SANS	1381:	Materials for thermal insulation of buildings
SANS	1388:	Tributyltin Oxide-Lindane Timber Preservative
SANS	1449:	Ceramic floor tiles
SANS	1460:	Laminated Timber (Glulam)
SANS	1466:	Portland fly ash cement
SANS	1491:	Portland cement extenders

CODES OF PRACTICE

SANS	03:	The Protection of Buildings against Lightning
SANS	05:	Preservative Treatment of Timber
SANS	021:	Waterproofing of Buildings
SANS	043:	The laying of Wood Floors
SANS	064:	Preparation of Steel Surfaces for coating
SANS	070:	The laying of thermoplastic and similar types of flooring
SANS	096:	Manufacturing of Finger-Jointed Structural Timbers
SANS	0107:	The fixing of Glazed Wall Tiles
SANS	0137:	The installation of glazing materials in buildings
SANS	0155:	Accuracy in building
SANS	0040:	The application of the National Building Regulations

CKS SPECIFICATIONS

CKS	055:	Glass for Glazing
CKS	208:	Concrete Flooring Tiles

STANDARD TEST METHODS

STM	861:	Sampling of freshly mixed concrete
STM	862:	Slump of freshly mixed concrete

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Witness:

STM 863: Compressive strength of concrete
(IN ALL CASES THE LATEST PUBLICATION OR REVISION SHALL APPLY).

BW 2.1

GENERAL

Building work shall be carried out in accordance with the latest amendments of the National Building Regulations and Building Standards Act 103 of 1977, and the project specifications.

Where possible the SANS mark shall appear on all articles, materials or items where it is required to comply with such SANS specification.

BW 2.2

ACCURACY OF BUILDING WORK

The method of measurement and accuracy of dimensions required for the setting out of structures and for completed building work shall be as described in SANS Code of Practice 0155, unless otherwise specified in this document.

BW 3.

MATERIALS

BW 3.1

CEMENT

Cement shall be Portland cement complying with the requirements of SANS Specification 471 or PC15 complying with SANS Specification 831.

BW 3.2

WATER

Clean, fresh water free from vegetable or organic matter, earth, clay, acid or alkaline substances either in suspension or in solution, other than those used for purification thereof by the responsible authority, shall be used throughout.

Where there is any reason to suspect the presence of impurities, the Engineer or Engineer's Representative may require the Contractor to obtain a chemical analysis of the water by a competent analyst at his own cost.

BW 3.3

SAND (FINE AGGREGATE)

The fine aggregate (for plaster and mortar) shall comply with the requirements of SANS Specification 1083 and 1090. Other aggregates may be approved if they have a satisfactory history and/or test results.

A sample of 25 kg must be delivered to an approved laboratory for testing purposes.

BW 3.4

STONE (COARSE AGGREGATE)

The coarse aggregate shall comply with the requirements of SANS Specification 1083.

NB: Certain fine-grained sand and stone originating from the Beaufort Series and Karoo

Systems which are known by reputation, local experience or tests, to exhibit excessive shrinkage when used in concrete, shall be deemed unacceptable by the Engineer or Engineer's Representative.

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Witness:

A certificate of proof is required from the Contractor that the aggregates are not alkali reactive. The cost of testing and certification are to be borne by the Contractor.

BW 3.5

BURNT CLAY BRICKS

BW 3.5.1

Burnt clay bricks shall comply with the requirements of SANS Specification 227, and shall be equal in all respects to the selected samples.

BW 3.5.2

Clay bricks for foundations shall be as described in 3.6.1 above, but extra hard burnt (14 MPa).

BW 3.5.3

Where bricks with holes are used, the holes in such bricks must be filled with solid mortar where specified.

BW 3.5.4

All bricks that do not carry the SANS Mark, must be tested by the Departmental or an approval laboratory.

BW 3.5.5

Firebricks shall be of well burnt refractory fireclay, resistant to spalling and cracking and of the same size as ordinary bricks.

BW 3.6

CONCRETE MASONRY UNITS

Pre-cast concrete masonry units shall comply with the requirements of SANS 1215 and shall be solid unless specified otherwise in the project specifications.

BW 3.7

WALL TIES

Wall ties shall comply with the requirements of SANS 28 and be of the Butterfly type only.

BW 3.8

AIR BRICKS

Air bricks shall be well-burnt terra-cotta air bricks in external faces of walls and 250 mm x 150 mm rectangular gypsum air bricks covered with copper mosquito gauze in internal faces.

BW 3.9

BRICK REINFORCEMENT

Brick reinforcement shall be hard drawn mild steel comprising two 3,15 mm diameter wires spaced 150 mm apart and 2,8 mm diameter cross wires spaced at not exceeding 300 mm apart welded to main wires, for 230 mm walls. The internal walls shall comprise of hard drawn mild steel comprising two 3,15 mm diameter wires spaced 75 mm apart and 2,8 mm diameter cross wires spaced at not exceeding 300 mm.

BW 3.10

CERAMIC TILES

Glazed ceramic tiles for walls shall comply with the requirements of SANS 22 and, unless otherwise specified.

Ceramic tiles for floors shall comply with the requirements of SANS 1449, unless otherwise specified.

BW 3.11

CONCRETE PAVING SLABS

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Witness:

Concrete paving slabs shall be precast units of grade 25 MPa/13 mm concrete and shall be of approved manufacture, at least 50 mm thick and size 500 mm x 500 mm.

Concrete slabs shall be even in thickness, truly square, free from cracks, twists and blemishes, with a uniform cement colour and surface finished smoothly in the mould and shall also be equal in all respects to the samples furnished by the Contractor prior to commencement of the works and as approved by the Engineer.

BW 3.12 DAMP-PROOF MEMBRANE

Damp-proof membrane under floors, unless otherwise specified, shall be of USB green polyethylene sheeting complying with SANS 952

Type C-plain surface- 0,25 mm thick (250 microns) in dry areas and 0,375 mm thick (375 microns) in wet areas.

BW 3.13 DAMP-PROOF COURSE IN WALLS

Horizontal and vertical damp-proof course, unless otherwise specified, shall be of bituminous sheeting complying with the requirements of SANS 248 and as Type FV (Fibre Base) sheeting or as Type GH (Hessian Base) sheeting specified therein, OR of polyethylene sheeting complying with the requirements of SANS 952 as Type B surfaces 375 microns as described therein.

BW 3.14 TREATMENT OF TIMBER

All timber shall be given a preservative treatment suitable for the duty for which the timber is intended in accordance with SANS code of practice 05, and no untreated timber shall be used. The preservative treatment shall not impair the final finish. The timber shall be impregnated throughout. When surface coating is specified, the compounds applied on the surfaces of the timber shall form an unbroken film.

BW 3.15 STRUCTURAL TIMBER

Structural timber, unless otherwise specified, shall be of South African softwood (pine) complying with the requirements of SANS 563 or SANS 1245 and, unless otherwise specified or shown on the drawings, shall be of Grade 4 or better and shall be marked as laid down in the relevant specifications.

Roof battens and other structural timbers not less than 50 mm or more than 65 mm in width and not less than 38 mm or more than 50 mm thickness, shall be of South African softwood (pine) complying with the requirements of SANS 653.

All structural timber shall bear the full standardisation mark of the South African National Standards.

The tolerance by which "actual" dimensions may vary from the "nominal" dimensions specified or stated on drawings of South African sawn structural softwood, shall be as laid down in SANS 563, SANS 653 and SANS 1245 where applicable.

BW 3.16 STRUCTURAL LAMINATED TIMBER

(a) **Stock glued laminated timber of S.A. pine**

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Witness: _____

Stock glued laminated timber of S.A. pine shall comply with the requirements of SANS 1089 and shall be marked as laid down in the specification and shall also bear the full standardisation mark of the SANS.

(b) **Structural glued laminated timber**

Structural glued laminated timber shall comply with the requirements of SANS 876 and shall be marked as laid down in the specification and shall also bear the full standardisation mark of the SANS.

The timber shall be of -

- (i) softwood or hardwood;
- (ii) the stress grade;
- (iii) the exposure category;
- (iv) dimensions & moisture content; and
- (v) of Class A or Class B appearance;

as specified and, in services having timbers treated against infestation by insect pests, shall be treated against pests as laid down in the specification for laminated timber.

BW 3.17

GALVANISED STEEL ROOF SHEETING

Galvanised steel roof sheeting shall be of the profile as described or shown on the drawings, of 0,60 mm thick (after galvanising) and to the requirements of SANS 934 for a Class Z275 coating quality.

BW 3.18

METAL RIDGING FOR STEEL COVERED ROOFS

Galvanised iron ridging for ridges and hips of steel covered roofs shall be of 0,60 mm thick (after galvanising), galvanised as specified for roof sheeting in clause BW 3.18.

BW 3.19

NUTEC FIBRE CEMENT FITTINGS & ACCESSORIES

Fibre cement fittings & accessories for ridges of fibre cement covered roofs, shall be of same manufacture as the roof sheeting, of not less than 6 mm in nominal thickness, with overlapping end joints and shall suit the profile of the roofing sheets. Width of wing shall not be less than 300 mm measured from the centre of roll.

BW 3.20

GALVANISED GUTTERS & DOWNPIPES

Galvanized box gutters (150x150mm) & rectangular downpipes (100x100mm) shall be of approved manufacture, according to SABS-quality and with spigot and socket ends.

Gutter brackets shall be of heavy quality galvanized steel as supplied by the manufacturers of the gutters & downpipes.

BW 3.21

COVERING TO CEILINGS

(a) **Gypsum plasterboard ceilings with plaster finish**

Gypsum plasterboard for ceilings shall be 6,4 mm in thickness and complying with the requirements of SANS 266.

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The cover strips shall be galvanised or lacquered wire gauze not less than 50 mm wide. The plaster shall be a retarded semi-hydrate wood-fibre plasterboard bonding gypsum plaster.

(b) **PVC Ceiling Panels**

PVC ceiling panels shall comply with the requirements of SANS 428.

BW 3.22 CORNICES TO CEILINGS

(a) **Gypsum plasterboard cornices**

Gypsum plasterboard cornices to ceilings shall comply with the requirements of SANS 622 and shall be of 75 mm or 125 mm girth as specified.

(b) **Polystyrene ceiling cornices**

.Polystyrene ceiling cornices to ceilings shall be 60 mm x 60 mm coved cornices.

BW 3.23 TIMBER FOR JOINERY

Softwood for joinery shall comply with the requirements of SANS 1359 and hardwood with the requirements of SANS 1099 and shall be of the clear grade.

BW 3.24 FRAMED AND LEDGED BATTEN DOORS

(a) **Softwood doors**

To be 44 mm thick framed and ledged batten doors complying with the requirements of SANS 545, but the timber shall comply with the requirements of SANS 1359 and shall be of clear grade.

(b) **Hardwood doors**

To be 44 mm thick framed and ledged batten doors complying with the requirements of SANS 545, but the timber shall comply with the requirements of SANS 1099 and shall be of clear grade. The hardwood shall be solid without any laminations.

BW 3.25 FLUSH DOORS

Flush doors shall be solid laminated, chip core or hollow core as specified and shall comply with the requirements of SANS 545. All glue used in the manufacture of the doors shall comply with the requirements of the above specification. Flush doors shall not be used as external doors. All flush doors, unless otherwise specified, will be 40 mm in thickness and hung to pressed steel door frames internally.

BW 3.26 IRONMONGERY

All ironmongery shall be of best quality and shall be approved by the Engineer/Client, before fixing.

Screws for fixing of articles shall be of similar metal than the articles.

Locks shall comply with the requirements of SANS 4 and shall be supplied with two keys each.

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Unless otherwise specified, interior and exterior doors shall be fitted with two and four lever heavy-duty mortice locks respectively where a higher level of security is required. 5 Lever mortice locks are usually classed as security locks and therefore only on external doors.

BW 3.27 HOT-DIP GALVANISING TO STEELWORK

Where prescribed, all steelwork built in as the work proceeds, shall be hot-dip galvanised after fabrication and before leaving the manufacturer's works, in accordance with SANS 763.

If the need arises, all site welds shall be zinc sprayed in order that the zinc coating be even and continuous over all surfaces.

BW 3.28 PRESSED STEEL DOOR FRAMES

Pressed steel door frames shall comply with the requirements of SANS 1129 and shall be constructed of 1,6 mm thick mild steel sheeting, pressed or rolled to the required shapes, properly mitered, welded and reinforced.

Frames shall be of widths required to suit the thickness of walls into which they are built and shall be fitted with suitable tie-bars and braces at bottom, and lugs for building in, three to each jamb of frames without fanlights and four to each jamb of frames with fanlights.

Where fanlights are shown over doors, the frames shall be fitted with transoms of pressed or rolled steel sheet as above and rebate for fanlights and for doors if required.

The rebates in frames and transoms for doors and fanlights shall be of width required to suit the thickness of doors and fanlights.

Frames shall each be fitted in the rebate of one jamb with a pair of approved 100 mm steel butt hinges, and transom to opening fanlights hung at bottom shall each be fitted with a pair of approved 75 mm steel butt hinges, all set flush into recesses in frames and either fixed with countersunk screws or securely welded on.

Frames shall be holed as and where required for screws fixing fanlight openers, keeps of spring catches, etc. Where fanlights are shown to be fixed into frames, the frames shall be holed in the rebates, for screws, securing the fanlights, four to each frame. Frames shall each be fitted in one jamb, with approved chromium plated or stainless steel (unless otherwise specified) adjustable striking plate keep, boxed in at back of frame with sheet metal box welded on, and not less than two rubber buffers. All welding shall be cleaned off smooth and flush on exposed faces and frames shall be cleaned and primed as described for steel windows before leaving the manufacturer's works.

BW 3.29 STEEL DOORS, SIDELIGHTS AND FANLIGHTS

Steel doors, sidelights and fanlights shall, in the case of stock types, comply with the requirements of SANS 727, and in the case of purpose made types with the constructional and other requirements of the above specification wherever applicable, and shall in addition be equipped with the following:

(a) Suitable weather bars where required to render doors, perfectly watertight;

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- (b) Suitable lugs, or holes at the same spacing as the standard fixing lugs, for screwing frames to plugs in the concrete, where frames of doors, are to be fixed to concrete columns, beams, etc.
 - (c) A primer as described for steel windows, except where hot-dip galvanising is prescribed.
 - (d) Doors, sidelights and fanlights, unless otherwise shown shall be of "one piece" construction, but where shown to be in two or more "one piece" units, the units shall be coupled together with standard coupling-mullions and/or transoms.
 - (e) Bottom openings in doors and sidelights shall be fitted with kicking plates of 1,6 mm thick mild steel sheet fixed with metal beads.
- (a) Frames of outward opening doors shall be fitted at bottom with sills of door framing section (stepped sills) and of inward opening doors with metal ties, welded to frames, for embedding in thresholds (flush sills).

BW 3.30

BALANCE TYPE PRESSED STEEL DOOR

The balance type steel door shall be of the "back track" type tip-up door, constructed of not less than 0,8 mm thick mild steel sheeting, pressed to form troughed or fluted pattern horizontal panels, each approximately 200 mm wide, all strongly reinforced at back with 1,2 mm thick top hat section mild steel braces and/or stiffeners and provided all round exposed edges with 1,2 mm thick mild steel channels, all properly welded together and with all welding cleaned off smooth and flush.

Doors is to be hung on two galvanised flexible steel cables of not less than 5 mm diameter, connected at lower ends to 125 mm diameter steel encased counterweights of such length and mass as will balance the door in the full open position and connected at upper ends to door unit by passing cables over 140 mm diameter bushed cast aluminium pulleys, securely fixed to 2,50 mm thick mild steel top plates.

The movement of door is to be controlled by means of sintered metal rollers, (nylon rollers are not acceptable) securely fixed at top and centre of outer edges to door unit to operate in horizontal and vertical runner guides respectively. The guides are to be formed of 37 mm x 32 mm x 25 mm mild steel channels and with vertical channels fitted at upper ends with horizontal channels, welded on to form back track for top rollers. Each vertical channel is to be four times bolted to jamb of door opening and each horizontal channel is to be secured in position to internal wall with mild steel angle bracket, twice bolted to wall to form rigid construction.

The counterweights to door to be encased with 2,50 mm thick mild steel cover plates, each the full height of door and securely fixed to wall and channel guide.

Doors to be fitted near bottom with cast aluminium lifting handle for operating the door and with chromium plated locking handle, complete with control rods and with striking plate bolted to lintel, over door opening. The locking handle is to be operated from outside and is to be provided with two keys.

Before leaving the manufacturer's works, all metal is to be given a protective priming coat of paint in accordance with the requirements of SANS 909.

BW 3.31

STEEL WINDOWS

Stock residential and industrial type steel windows shall comply with the requirements of SANS 727 and all other types both stock and purpose made shall comply

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with the constructional and other requirements of the above specification wherever applicable, and shall in addition be equipped with the following:

- (a) Suitable weather bars where required to render the windows perfectly watertight;
- (b) Suitable lugs, or holes at the same spacing as the standard fixing lugs, for screwing frames to plugs in the concrete where frames of windows are to be fixed to concrete columns, beams, etc.,
- (c) Windows and components, except where specified to be hot-dip galvanised, shall before leaving the manufacturer's works, be cleaned by acid pickling rinsing and drying, as laid down in SANS code of practice 064, or by other approved means, to remove all scale, rust, grease, oil and foreign matter and then primed with red oxide zinc chromate primer complying with the requirements of SANS 909, applied by dipping or by means of spray gun.

Ventilators hung at side to open out in windows above ground floors and not accessible for cleaning from an adjoining opening ventilator in the same window or from verandas, balconies and the like, shall be hung on projecting hinges.

Windows, unless otherwise specified, shall be of "one piece" construction, but where shown to be in two or more "one piece" units, shall be coupled together with standard coupling mullions and/or transoms.

Windows shall be fitted with solid brass handles, stays, catches and other fittings, those to windows constructed of universal sections having polished finish and to all other windows rumpled finish. The fittings shall be fixed in such a way as to be removable after windows are glazed.

BW 3.32

RESILIENT FLOOR FINISHINGS

Semi-flexible vinyl (vinyl-Fibre) floor tiles shall comply with the requirements of SANS 581; flexible vinyl (PVC) floor tiles and sheeting shall comply with the requirements of SANS 786 and thermoplastic (asphaltic) floor tiles shall comply with the requirements of SANS 586. Unless otherwise described, the flooring shall be of marbled pattern and of approved light colour and tiles shall be 230 mm x 230 mm or 250 mm x 250 mm in size.

Vinyl cove skirtings shall be of approved manufacture and colour and unless otherwise stated, 70 mm in height.

BW 3.33

GLASS FOR GLAZING

Glass for glazing shall comply with the requirements of CKS 55.

Glass not exceeding 0,75 square metre surface area of glass pane, shall be flat drawn clear sheet glass of "QQ" quality (ordinary glazing quality) and of 3 mm thickness.

Glass exceeding 0,75 square metre and up to 1,5 square metres surface area of glass pane, shall be clear float glass of "GG" quality (glazing quality) and of 4 mm thickness.

Laminated safety glass for glazing shall be of "SQ" quality (selected glazing quality) and of 6 mm thickness unless otherwise specified. If high impact strength glass is

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used, whether cut to size or not, the stencil mark is to appear in a prominent place on the glass.

Toughened safety glass for glazing up to 3 square metres shall be, unless otherwise specified, of 4 mm thickness and must be ordered to the correct size as toughened glass cannot be cut, and each piece of glass to be marked in a clear and permanent fashion. (For bigger sizes, manufacturer's instructions are to be followed).

Any pane of glass installed in any door shall, where not made of safety glass, be not more than 1 m² in area and shall have a nominal thickness of not less than 6 mm.

Obscure glass for glazing, unless otherwise specified, shall be Arctic or other similar approved figured rolled glass, of a nominal thickness of not less than 3 mm for glass panes up to a surface area of 0,75 square metre and not less than 5 mm over 0,75 square metre.

Putty for glazing shall comply with the requirements of SANS 680, of Type I for glazing in wood and of Type II for glazing in steel windows, doors, etc. Putty used for glazing in unpainted hardwoods, shall be tinted to match the colour of the wood.

BW 3.34

PAINTS

All materials for paint work for which South African Bureau of Standards specifications have been published, shall comply with the requirements of such specifications and shall bear the standardisation mark of the South African Bureau of Standards on the container or packing. Materials for paint work for which no SANS specifications have been published shall be of brand and manufacture approved by the Engineer.

All materials for paint work must be brought on to the site in unopened containers and no adulteration will be allowed.

Undercoats for paint work shall be as supplied by the manufacturer of the paint being used for the finishing coat.

Paints shall be suitable for application on the surfaces on which they are to be applied, and those used externally shall be of exterior quality or suitable for exterior use.

If necessary, paints shall be strained free from skins and similar impurities immediately before application.

The various primers, undercoats, paints and distempers shall comply with the requirements of the specifications quoted hereunder and shall be of the type of grade stated, viz:

(a) Primers

(i) For wood:

SANS 678. Type I shall be used on exterior woodwork and Type III on interior woodwork.

(ii) For metal:

Dip or spray application (red oxide zinc chromate). For steel windows, doors, door jambs, and other articles normally dip or spray primed in the manufacturer's works: SANS 909.

Brush application (zinc chromate). For all metal surfaces primed on site and then painted: SANS 679, Type I.

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(iii) For structural steel (red lead)

SANS 312, Type II, Grade I.

(iv) For galvanised iron

SANS 912.

(v) For galvanised metal surfaces and surfaces of non-ferrous metals

Wash primer (metal etch primer): SANS 723.

(b) **Undercoats**

For all surfaces under HIGH GLOSS, OIL GLOSS, FLAT and EGGSHELL finishing paints: SANS 681, Type II.

(c) **Paints**

(i) High gloss : SANS 630

(ii) Oil gloss : SANS 631

(iii) Flat and eggshell : SANS 515

(iv) Emulsion paint (interior) : SANS 633, Grade I

(v) Emulsion paint (exterior) :SANS 634, Synthetic Polymer Base Type, but pure acrylic resin base for Fibre cement surfaces

(vi) Aluminium paint : SANS 682, Grade II

(vii) Roof paint : SANS 683, Type B

(viii) Structural steel paint : SANS 684, Type B

(ix) Epoxy tar : ... SANS 801 (types as specified)

(d) **Distemper**

SANS 322

(e) **Varnish for interior use**

SANS 887, Type I with eggshell finish.

BW 4. PLANT

BW 4.1 GENERAL

The Contractor shall have at his disposal the normal plant necessary for the proper and neat completion and rounding off of all facets of the building work.

BW 5. CONSTRUCTION

BW 5.1 BRICKLAYER

BW 5.1.1 Cement Mortar

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Witness:

Cement mortar shall, unless otherwise specified, be composed of four parts by volume of building sand and one part by volume of cement for normal brickwork, and three parts by volume of building sand and one part by volume of cement for reinforced brickwork.

The ingredients for cement mortar shall be measured in proper gauge boxes on a boarded platform and thoroughly mixed. Alternatively mixing may be by means of an approved mechanical batch mixer. Only when the dry ingredients have been thoroughly mixed and a mixture of uniform colour has been obtained may clean water be added in sufficient quantities to obtain mortar with the required consistency.

Care shall be taken in mixing cement mortar to remove from the mixing machine or platform any old mortar that has already set, as such mortar must not be incorporated in any new batch.

Cement mortar shall be produced in such quantities as can be used before commencing to set, as no cement mortar that has once commenced settings shall be used in any way.

BW 5.1.2 Brickwork

Brickwork, wherever practicable and not otherwise specified, shall be built in Stretcher bond, inclusive of brick reinforcement and wall ties as specified on the drawings. No false headers shall be used, and none but whole bricks employed, except where legitimately required to form bond.

The brickwork, unless otherwise specified, shall be built in 4:1 cement mortar. Brick arches and brick lintels shall be built in 3:1 cement mortar.

The bricks shall be laid on a solid bed of mortar and all joints thoroughly grouted up solid throughout the whole width of each course.

The brickwork shall be carried up in a uniform manner, no portion being raised more than 1,2 m above an adjacent portion.

The bricks shall be well saturated with water, in the stack or dump, approximately two hours before being used. The tops of walls left off, shall be well wetted before work is recommenced.

All rough and fair cutting and cutting of splays, skew backs, chamfers, etc., shall be properly performed.

All necessary openings for pipes, etc., shall be formed or left and made good after pipes, etc., are fixed in position.

Walls generally shall be taken up two courses above panelled ceilings in the same mortar as the wall below and cut between ties, etc.

Where hollow concrete masonry units are used, brick-force shall be built into the walls every third course. Mortar for hollow concrete masonry units shall consist of one part cement, two parts lime and nine parts building sand by volume. All cavities below floor level shall be filled with Grade 15 MPa/19 mm concrete.

BW 5.1.3 Mortar Joints

Mortar joints to brickwork generally shall be 10 mm in thickness.

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The joints in brickwork receiving plaster, tiling or similar finishings, shall be raked out whilst the mortar is soft to form key for the plaster or mortar backing.

The depth of the raking out will depend on the condition of the bricks; the rougher the bricks on face the shallower the raking out and the smoother the bricks the deeper the raking out.

The joints in brickwork shall be flushed off where walls are to be bagged, in readiness for the bagging.

BW 5.1.4 Brickwork In Thicknesses

Walls built in two or three thicknesses shall be tied together with metal ties of sufficient length to allow not less than 75 mm of each end to be built into brickwork and shall be spaced not more than 1 m apart to every third course and staggered.

BW 5.1.5 Half Brick Thick Walls

Half brick thick walls shall be built in 4:1 cement mortar and reinforced with 75 mm wide brick reinforcement, one row to every eighth course in height, and built 100 mm into main connecting walls. The reinforcement shall be lapped 150 mm at end joints, where these are necessary, and 75 mm at angles.

BW 5.1.6 Cavity Walls

Cavity walls, unless otherwise specified, shall be built with two half brick thicknesses of brickwork in stretcher bond with 50 mm cavity between, and the two thicknesses tied together with 200 mm long metal wall ties of the butterfly type, spaced at not more than 1 m centres alternately to every third course of brickwork.

Unless otherwise specified, the brickwork shall be built in 4:1 cement mortar. The cavities shall be carried up from one course of brickwork below damp course level up to two courses below wall plate level, unless otherwise shown or specified. The brickwork above cavities shall be built solid, and where 270 mm thick shall be cut and well bonded where possible. Cavities in foundation walls of cavity walls shall be filled with Grade 15 MPa/19 mm up to 150 mm below the damp-proof course level.

The cavities shall be kept free of all rubbish, mortar droppings and projecting mortar.

The tops of walls shall be covered with planks or sacking during wet weather to prevent rain from entering the cavities.

The cavities shall not be ventilated.

At door, windows and other openings, the cavities shall be stopped 110 mm back from jambs of openings with the inner thickness of brickwork returned and stopped against the outer thickness and not bonded to same. A 110 mm wide strip of damp-proof sheeting as described for damp-proof course in clause 3.14 shall be built in between the two thicknesses in the joint formed by the return and the outer thickness. The damp-proof strip shall be lapped at least 50 mm on to the sheeting between the two thicknesses of sills and between the two thicknesses of lintels.

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Sills to windows shall be divided into external and internal thicknesses with strips of damp-proof sheeting as above, built in line with the damp-proof sheeting in jambs and extending 100 mm beyond the jambs of openings.

The lintels shall be provided with damp-proof sheeting as described under lintels. Unless otherwise specified, cavities shall be stopped one course below and one course above and 110 mm from sides of openings for air bricks and the like.

BW 5.1.7**Reinforced Brick Lintels**

Reinforced brick lintels shall be built with sound machine made bricks, in 3:1 cement mortar, with all vertical and horizontal joints filled solid with mortar throughout the required number of courses and to a distance of at least 330 mm on either side of the clear opening.

The number of courses in lintels over the various size openings shall be as specified in table hereunder, and reinforcing steel wires or rods shall be built into the first horizontal joint over the bottom course as laid down therein, viz.:

LINTEL SPAN	NUMBER OF COURSES	REINFORCEMENT
Not exceeding 1 m	4	One row of 75 mm wide brick reinforcement for each half brick width soffit.
Over 1 m to 1,5 m	6	One row of 75 mm wide brick reinforcement for each half brick width soffit.
Over 1,5 m to 2,1 m	7	Three 6,3 mm diameter mild steel rods for each half brick width of soffit.

The reinforcing wires and rods shall be of length at least equal to the width of the clear opening plus 330 mm at each end. The reinforcement shall be evenly spaced in the brick joints, with the outer wires or rods having at least 20 mm cover from face of brickwork.

Brick lintels in 270 mm thick cavity walls shall be built in two half brick thicknesses in stretcher bond, with inner face of outer thickness for a depth of three courses above soffit, covered with sheeting as for damp-proof course, the full length of lintels, and space between the two thicknesses for the depth of the sheeting filled in solid with Grade 15 MPa/19 mm concrete. Where cavities continue above lintels, the sheeting shall be taken up and turned on to top of first course of brickwork to inner thickness of wall, above the concrete filling in lintels.

The lintels, except where built over pressed steel door frames and the like, shall be supported on temporary formwork left in position for at least fourteen (14) days.

BW 5.1.8**Beam Filling**

Beam filling, unless otherwise specified, shall be half brick thick, built in similar mortar as used in the walls below, cut in between roof timbers and continues up to underside of roof covering, and flushed up in mortar.

BW 5.1.9**Bagged Finish To Brickwork**

Bagged finish to brickwork, if done whilst the mortar in joints is still soft, shall be formed by rubbing over the wall surfaces with wet rough sacking, until all joints and

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crevices are filled up and an even surface is obtained. Mortar, as used for building the brickwork, shall be added as may be necessary.

If bagging to walls is done after the mortar in joints has set the wall surfaces shall be rubbed over with wet rough sacking as above, but cement grout shall be added as necessary to fill up the joints and crevices and to obtain an even surface.

BW 5.1.10 Building In In-brick Work

Ends of timbers, hold-fasts, cramps, gratings, air bricks, dowels, etc., shall be built-in in cement mortar.

Door and window frames and the like shall be set up in positions for building in and securely strutted to prevent distortion whilst the brickwork, lintels, etc., are being built.

Pressed steel door frames shall be grouted solidly at back with cement mortar as the work proceeds.

Wood slips, fixing bricks, hoop iron, roof ties, etc., shall be built in as the work proceeds.

Ventilators shall be built into openings formed in the walls, in 3:1 cement mortar, and grouted in solid with similar mortar and wall finishes made good if disturbed.

Wood frames to doors, windows, etc., shall be set up in position for building in as described and built in as the work proceeds with cramps to jambs of 1,6 mm thick galvanised hoop iron, 32 mm wide, with ends turned 50 mm up against stiles of frames and each twice screwed to frame, and built 450 mm into wall with end turned up into brickwork joint. Cramps shall be built in approximately 0,3 m up from bottom and approximately 0,3 m down from head of frames and intermediately at not exceeding 0,85 m apart. No frame shall have less than two cramps to each jamb irrespective of height.

Cramps to frames in 270 mm thick cavity walls shall be cranked as necessary and built into inner and outer thicknesses of walls alternately.

The stiles of wood door frames, and similar frames not having sills framed in, shall be doweled into concrete, brick, stone and similar thresholds with 10 mm diameter mild steel dowels 75 mm long, one to each stile.

BW 5.1.11 Securing Of Roofs

Roof trusses shall be fixed at each support to walls with ties of 1,2 mm thick galvanised hoop iron, 30 mm wide, built 750 mm deep into brickwork or embedded 300 mm deep into concrete or wrapped around bottom layer of reinforcing in a reinforced concrete beam and, unless otherwise specified, wrapped over truss and fixed with four galvanised nails, 60 mm long and taken up to and lapped and properly fixed around the nearest purlin and well spiked thereto.

BW 5.1.12 Bedding And Pointing

All door, window and similar frames shall be bedded and pointed in 3:1 cement mortar. All wall plates shall be set true and level and bedded in 4:1 cement mortar.

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Steel door and window frames shall be carefully pointed all round and made perfectly watertight.

Where steel door and window frames are specified to be pointed with mastic compound they shall be pointed all round externally with an approved waterproof compound, of such composition that it will not stain surrounding surfaces, and that it will adhere tenaciously, remain plastic without sagging or running, be capable of accommodating any normal movement of the joint sealed, and will receive paint without "bleeding". The pointing material shall be forced into the previously prepared joints by means of a pressure gun, or by other suitable method, all in accordance with the manufacturer's instructions.

BW 5.1.13 Faced Brickwork

Faced brickwork shall be built fair and the joints shall be square recessed to a depth of approximately 6 mm, formed with a square jointing tool well pressed into the joints as the work proceeds.

The Contractor shall construct a test section of 10 m² which shall be approved by the Engineer, before continuing with faced brickwork.

Face bricks shall be sorted by the brick manufacturer at his yard or by the Contractor on the site. Sudden changes in the general colour of face work in any one type of face brick will not be acceptable.
Sand in mortar for all faced brickwork shall be from one source.

Faced brickwork shall be kept perfectly clean and rubbing down of the brickwork shall not be allowed. Scaffold boards shall be turned back during rain to avoid splashing. Soiled brickwork shall be cleaned at the Contractor's expense, and the cleaning method shall be approved by the Engineer.

BW 5.1.14 Fibre Cement Sills

Sills shall be in single lengths cut between reveals, fitted with fixing lugs and solidly bedded in 3:1 cement mortar with a slight projection beyond the finished wall face below.

Internal sills shall be level. External sills shall be set sloping on cut brickwork or on fine concrete filling under.

BW 5.1.15 Protect And Clean Down Brickwork, Etc.

Angles of face brickwork, reveals, steps, etc., liable to damage shall be covered up and protected during the progress of the remaining work, and any damage done shall be made good at the Contractor's expense and to the satisfaction of the Engineer.

Face brickwork and brick and tile sills, copings, etc., shall be cleaned down as the work proceeds, and surfaces liable to be soiled by mortar or plaster splashes during the progress of the remaining work shall be covered with paper, or by other approved means. At completion of the works the coverings shall be removed and the surfaces again cleaned down to the satisfaction of the Engineer.

Any detergent or other materials used in the cleaning down of face brickwork, etc., shall be of such nature that will not harm adjoining paint and other finishings in any way.

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All tile and other pavings shall be thoroughly cleaned off after laying to remove all traces of mortar and other substances, covered up and protected from damage during the progress of the works, and again cleaned off at completion.

BW 5.1.16 Installation Of Electrical Service

The Contractor shall embed in the concrete and/or brickwork, as the work proceeds, all conduits, boxes, etc., which will be fixed in position by the electricians, and must cut all necessary chases and holes in walls for conduits and form recesses in walls for distribution boards, all in the positions directed, notwithstanding whether the installation of the electrical service is carried out by the Contractor or under a separate contract. Alternatively, distribution boards may be built into walls as the work proceeds, providing prior approval is obtained from the Engineer.

The Contractor shall afford every facility and shall render reasonable assistance to the electricians in carrying out their work, and shall make good where necessary, in all trades, after installation has been completed.

BW 5.1.17 Installation of Mechanical Equipment

Where the installation of mechanical equipment is carried out under a separate contract the Contractor shall arrange for the building in of special fittings, leaving holes and openings or forming chases in floors, walls, etc., for pipes, cables etc., and for the building in of pipes, sleeves, pipe clips, bolts, etc., as required or directed.

All cutting of holes through finished floors, walls, etc., after the concrete or mortar has set, must be avoided as far as possible, and the Contractor must give ample notice to the Engineer who will ascertain the exact positions where pipe sleeves, pipes, pipe clips, etc., are to be built in.

BW 5.2 TILER

BW 5.2.1 Laying Of Glazed Ceramic Wall Tiles

The tiles shall be fixed direct to walls in 3:1 cement mortar with horizontal and vertical joints continuous and shall have all joints filled with neat white cement grout. Tiles shall be well soaked in water before fixing and thoroughly cleaned off after fixing.

Unless otherwise specified, the wall tiling shall project approximately 4 mm beyond face of adjoining plaster with all exposed edges finished with glazed rounded edge tiles.

Tiling shall be returned into reveals of openings and on to window sills, and shall be butted at internal angles and provided with glazed rounded edged tiles to external angles, unless otherwise specified.

All necessary cutting to tiles shall be properly performed.
Walls shall be well wetted before tiling is commenced.

BW 5.2.2 Laying Of Ceramic Floor Tiles

Ceramic tiles shall be bedded to a true and even surface on 3:1 cement mortar and with joints not exceeding 2 mm wide.

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After the tiles have been allowed to set for a period of not less than twenty four hours the joints shall be grouted in to with approved epoxy compound, or acid proof cement mortar.

BW 5.3 PLASTERER AND PAVER

BW 5.3.1 Cement Plaster

Cement plaster for one coat work on walls shall comprise of four parts of sand and one part of cement for internal work, and five parts of sand and one part of cement for external work, all by volume, and mixed as described for cement mortar in clause BW 5.1.1.

Cement plaster on concrete surfaces shall comprise of three parts by volume of sand and one part by volume of cement.

BW 5.3.2 Forming Key To Concrete For Plaster Finish

All surfaces of concrete receiving plaster, or similar finishings, shall be well wetted and wire brushed immediately after the formwork is removed and slushed over with 2:1 cement grout to form key for the finish, to the approval of the Engineer. The slushing to be allowed to set hard before the finish is applied. Other methods may be used if approved by the Engineer.

Particular care shall be taken in forming the key for plaster where steel shuttering is used, and if considered necessary the surface of the concrete shall be chipped.

BW 5.3.3 Thickness Of Plaster

Plaster on walls shall be not less than 10 mm or more than 20 mm in thickness, and plaster on concrete ceilings and beams shall be not less than 10 mm or more than 16 mm in thickness, unless otherwise specified.

BW 5.3.4 Application Of Plaster

Walls shall be well wetted before plastering commences.

The surfaces of internal plaster shall be steel trowelled to a smooth, even and true finish. External plaster shall be finished to a true and even surface with a wood float. All plaster surfaces shall be free from blemishes.

Plaster shall be returned into reveals and soffits of openings, and all angles shall be true and straight with salient angles slightly rounded.

The rendering coat of plaster in two coat work shall be approved by the Engineer before the setting coat is applied, and notice shall be given to the Engineer when it is ready for inspection.

All cracks, blisters and other defects shall be cut out, repaired and left perfect at completion.

NB - See clause 5.3.2 for forming key for plaster on concrete.

BW 5.3.5 Cast in place concrete apron slabs.

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Concrete apron slabs shall be cast in place concrete of grade 30 MPa/19 mm concrete and shall be according to engineers' specifications.

Concrete slabs shall be even in thickness, truly square, free from cracks, twists and blemishes, with a uniform cement colour and surface finished, wood float finish, and shall also be equal in all respects to the samples furnished by the Contractor prior to commencement of the works and as approved by the Engineer.

BW 5.3.6 Power Floated Finish

Power floated finish to floors etc., unless otherwise specified, shall be floated mechanically to smooth and even surfaces before the concrete has set. Small surfaces and inaccessible places to be floated by hand in a similar way. Under no circumstances is cement mortar to be added while floating the concrete.

BW 5.4 WATERPROOFING

BW 5.4.1 Damp-Proof Course in Walls

The damp-proof course shall be the full thickness of walls above foundations and shall be laid without longitudinal joints. At end joints, angles, and intermediate junctions the sheeting shall be lapped 150 mm.

Where so specified all laps in the damp-proof course shall be sealed over the whole area of laps. Care shall be taken not to tear or otherwise damage the sheeting.

BW 5.4.2 Damp-Proof Membrane

The damp-proof membrane under floors, etc., shall be laid in the widest practical widths to minimise joints and shall be turned up, dressed to load bearing walls and if applicable lapped with the damp-proof course in the walls. All joints shall be sealed with pressure sensitive tape applied over the leading edge of the joint.

Should the damp proof membrane get damage, the damaged portion (exceeding 8mm in diameter) is to be covered with a damp proof membrane overlapping by 250mm in all directions.

BW 5.4.3 Expansion Joints

Expansion joints shall be at least 10 mm wide and filled with approved bitumen impregnated soft board or closed cell expanded polyethylene strip. Expansion joints shall be sealed with a two-component polysulphide joint sealer, 12 mm deep, according to instructions of the manufacturers.

BW 5.5 CARPENTER AND JOINER

BW 5.5.1 Protection Of Timber on Site

Timber stored on site shall be properly stacked when received, and adequately protected against extremes of weather and exposure to the sun, until required for use.

BW 5.5.2 Wrought Faces (Processed faces)

Exposed woodwork, unless otherwise specified, shall be wrought to a smooth surface, and properly sand-prepared to remove all machine or other tool marks.

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For each wrought face on structural timber, an allowance will be made off the "nominal" dimensions specified or stated on the drawings, as follows:

- (a) 2,5 mm for "nominal" dimensions up to and including 76 mm;
- (b) 3,5 mm for "nominal" dimensions over 76 mm.

For each wrought face on joinery timber, an allowance will be made off the "nominal" dimensions specified or stated on the drawings, as follows:

- (a) 3 mm for "nominal" dimensions up to and including 76 mm;
- (b) 5 mm for "nominal" dimensions over 76 mm.

The above will be the nett allowances permitted off the "nominal" dimensions specified or stated on the drawings and will not be additional to the tolerances specified for sawn timbers.

All exposed angles of wrought woodwork, unless otherwise specified, shall be arris rounded. The term "arris rounded" denotes that the angles shall be rounded off to approximately 3 mm radius.

Angles of wrought woodwork specified to be angle rounded shall be rounded off to 6 mm radius, unless otherwise shown on the drawings, and shall include, in framed joinery, for housed and mitred joints.

BW 5.5.3

Lengths Of Timbers and Methods Of Jointing

Plates, purlins, battens, laths, slats, etc., shall be in single lengths, but where this is not possible the end joints will be formed as described below. The jointing of plates, battens, etc. at junctions and angles shall also be formed as stated hereunder, viz:

- (a) Wall plates shall be halved at joints and well spiked together, and also at junctions and angles;
- (b) Purlins shall be splayed or spliced at joints and, unless otherwise specified, using timber side plates of the same dimensions as purlins, not less than 600 mm long and four times bolted with M10 mild steel bolts, with two washers each. Adjacent purlins shall not be splayed or spliced in the same bay or on the same rafter;
- (c) Sawn battens, laths, slats, etc., shall be butt jointed at heading joints and angles, and wrought battens, laths, slats, etc., shall be splayed at heading joints and mitred at angles, all over points of support and where adjacent, shall not be jointed on the same rafter.

BW 5.5.4

Joints In Roof Trusses

- (a) The number of connecting devices to be used at each intersection between two members at any heel joint or any splice in a truss shall be determined from the table below.
- (b) In the case of any joint other than a heel joint or splice, one M10 bolt plus three 90 x 4 mm nails shall be used.

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SPAN m	3 (90 x mm) NAILS PLUS M10 BOLTS AS SPECI- FIED BELOW	M16 BOLTS ONLY	50 mm TOOTHED RING CONNEC- TIONS
3	2	2	1
4	3	2	1
5	3	2	2
6	4	3	2
7	5	3	2
8	5	3	2
9	6	4	3
10	6	4	3

BW 5.5.5**Prefabricated Roof Trusses**

Prefabricated timber roof trusses shall be constructed of South African pine as described in clause 3.16 to the designs shown on the detail drawings. The timber shall be of cross-sectional dimensions shown, cut to correct lengths with ends square or cut to the required angle, and shall be assembled in truss fabricating jigs with the truss having the proper camber, and tightly clamped together and joints secured with approved connector plates of galvanised steel sheet, pressed into the timber simultaneously on both sides of the truss with hydraulic press capable of exerting such pressure as will ensure complete penetration of the teeth into the timber. The connector plates shall be of such size as to ensure that the joints so made will adequately withstand the forces exerted on the joints, and to have at least two coats Epoxy Tar finish for coastal areas.

BW 5.5.6**Valleys In Roofs**

Valleys in roofs covered with galvanised steel or fibre roofing sheets or with roofing tiles shall each be formed with two 228 mm x 25 mm sawn boards, spiked down to roof timbers, and purlins fixed along outer edges in galvanised steel and fibre sheet covered roofs and battens along outer edges where in tile covered roofs.

BW 5.5.7**Purlins**

Unless otherwise specified, purlins shall be 50 mm x 76 mm and shall be securely nailed to roof timbers at not exceeding 1,14 m centres, ranging perfectly straight and square to the roof with but joints at heading joints and angles and in the case of wrought purlins splayed joints at heading joints and mitred joints at angles.

BW 5.5.8**Branding To Ceilings**

The branding shall be 38 mm x 38 mm, securely spiked up to the supporting timbers with 88 mm wire nails at 380 mm centre-to-centre. Cross branding shall be cut in between the longitudinal branding and securely skew nailed to same with 75 mm wire nails at joints in ceilings and at edges where required for fixing of cornices.

BW 5.5.9**Steel Roofing Sheets**

The sheets shall be secured to wood purlins with approved galvanised iron roofing screws each provided with a plastic or asphalt felt washer and a galvanised steel cup washer over the plastic or felt washer and secured to steel purlins with M6 galvanised hook bolts, provided with similar washers under nut.

Screws and bolts at ends of sheets and at end laps shall be spaced at not exceeding two corrugations apart wherever possible, but in no case more than three

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corrugations apart, and at intermediate purlins at not more than four corrugations apart; screws or bolts shall, in all cases, be provided in the outermost corrugations of the upper sheets.

All necessary cutting to sheets shall be properly performed. Cut edges at sides of valleys, and elsewhere exposed, shall be perfectly straight.

At exposed verges of roofs the iron shall be finished with neatly formed rolls.

The sheets shall have side laps of not less than one and a half corrugations. The minimum roof slopes and sheet end laps shall be, unless otherwise specified, as prescribed in Table 4 of Part L of the National Building Regulations and Building Standards Act, 1977.

BW 5.5.10 Metal Ridging for Steel Covered Roofs

The ridging shall be 450 mm girth with roll top and bent down edges, and shall be lapped 225 mm at end joints, cut and properly lapped and fitted at intersections of ridges, hips and valleys, and close beaten into corrugations of roofing iron. Roll shall be closed at feet of hips and at end of ridging.

The ridging shall be fixed with screws to wood purlins and hook bolts to steel purlins, with washers under heads and nuts, respectively, all as described for fixing roofing sheets, and spaced at not exceeding 300 mm centres.

BW 5.5.11 Fascias And Barge Boards

Fascias and barge boards of pressed fibre cement boards shall be butt jointed with 75 mm wide x 3 mm thick galvanised steel plates four times bolted with M6 galvanised bolts over joints.

BW 5.5.12 Cement Flashings

Fibre cement flashings shall be secured to wood purlins with screws and to steel purlins with hook bolts, passed through the roofing sheets, and provided with plastic or felt and galvanised steel cupped washers, all as described for fixing fibre cement roofing sheets.

The manufacturer's instructions regarding fixing of the flashings, including spacing of screws or bolts shall be strictly adhered to.

BW 5.5.13 Galvanized Gutters

Galvanized gutters shall be fixed onto galvanized gutter brackets and secured with galvanized rivets, all in accordance with the manufacturer's instructions. The inside surfaces of sockets and the outside surfaces of spigot ends shall be coated with a thin solution of bed sealer to enable the compound to adhere fast when applied. After fixing the rivets, all surplus compound from the joints shall be removed.

The spigot ends of gutters shall be lapped on to the socket ends in the direction of the flow wherever possible.

The gutters shall be fixed with proper falls on gutter brackets of the fascia type where fixed to fascia boards and of the purlin type where fixed to purlins. Brackets shall be securely screwed to the roof timbers, at not exceeding 1 m centers, and with extra brackets at angles and outlets.

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Gutters shall be provided with all necessary angles, stopped ends, outlet nozzles, etc., jointed to gutters as described above.

BW 5.5.14 Galvanized Rainwater Down Pipes

Galvanized rainwater down pipes shall be jointed with a silicone bed sealant, fixed with rivets, and finished off neatly.

The pipes shall be fixed to walls with holderbats, bolted around pipes immediately below the socket, and with tails built into walls in 3:1 cement mortar.

Rainwater down-pipes shall be provided with all necessary swan necks, branch pieces, plinth bends, radius bends, shoes, etc., jointed to pipes as described above.

BW 5.5.15 Covering To Ceilings

(a) Gypsum board

The ceiling boards shall be in 900 mm or 1 200 mm widths, with board at ends of ceilings of widths required to suit length of ceilings. Ceiling board shall be in single lengths to the width of ceilings wherever possible.

6.4 mm Rhino board ceiling shall be fixed to SANS approved 38 x 38 mm SA Pine brandering.

Branderling at 380 mm centres in one direction onto which boarding to be fixed print side up, using 32 mm grabber screws spaced at 150 mm centres.

Joints between boards to consist of Rhino M-Strip fitted overboard edges with narrow flange facing down and boards fixed to brandering to 25 mm from strips. All nail or screw heads to be stopped and sanded level when dry.

BW 5.5.16 Cove Cornices to Ceilings

(a) Gypsum plasterboard cornices

Cove gypsum plasterboard cornices shall be nailed through the ceiling boards to the brandering and to wall plugs, at not exceeding 200 mm centres, with 2 mm diameter galvanised or cadmium plated clout headed nails, 38 mm long, or fixed to walls with hardened steel nails driven into the brickwork.

Cornices shall be scribed at internal angles and mitred at external angles and shall be in long lengths with splayed heading joints where necessary.

BW 5.5.17 Trap Doors In Ceilings

Openings for trap doors in ceilings shall be formed with 38 mm x 38 mm brandering all around each opening, spiked together and to bottom edge of the supporting timbers. Size of opening, unless otherwise specified, shall be 650 mm x 650 mm.

Trap door shall be formed with skeleton frame of 50 mm x 38 mm brandering, covered on underside with boarding as for ceiling, and hung on a pair of 75 mm steel butts and fitted on underside near closing edge with 100 mm brass bow handle. Soffit of trap door shall be flush with soffit of ceiling when closed, and trap door shall flap back on to top of the brandering, between tie beams or ceiling joists when open.

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When trap door is closed it shall rest on 50 mm x 19 mm fillets, fixed on soffit of ceiling all around opening, mitred at angles and securely screwed up to the trimmers. Fillets shall project 12 mm into the opening to carry the trap door.

Trap doors larger than 650 mm x 650 mm shall each be provided with 38 mm x 38 mm brandering across centre, spiked to the skeleton frame.

BW 5.5.18 Ceiling Insulation

Ceilings shall be insulated, where so specified, with approved resin bonded or stitched fibre glass or mineral wool insulation blanket 38 mm thick, cut to size and laid over brandering between ceiling joists and tie beams, etc. Where insulation is to be in two thicknesses a total thickness of 76 mm is required and the joints shall be staggered.

BW 5.5.19 Framed Joinery

Where the word "Framed" is used it is to include for all mortice and tenon joints, dovetail joints, grooves, stop grooves, rebates, stop rebates, housings, notchings, etc., including housing ends of shelves, divisions, etc.

BW 5.5.20 Joinery

Joinery work shall be put in hand immediately after the order has been given to commence work, or after the receipt of detail, where such are to be supplied, and shall not be wedged or glued up until just before fixing in the building.

No framed joinery for services situated inland shall be manufactured in the humid coastal belt, and no framed joinery for the services situated in the coastal belt shall be manufactured inland. This applies to both purpose made and stock joinery.

All exposed softwood timber in joinery which is not to be painted shall be free from large, loose or dead knots, knot holes, checks, splints, wane or other defects, and in joinery which is to be painted shall be free from all defects other than those which can be filled or otherwise made good in such a way as will not impair the paint finish. All exposed hardwood joinery timber shall be free from all knots, knot holes, checks, splints or other defects and, unless otherwise specified, shall also be free of sapwood.

Purpose made joinery shall be manufactured strictly in accordance with detail drawings.

Stock joinery shall be of approved quality. Joinery shall not be primed until it has been inspected and approved.

Skirting, rails and the like shall be in long lengths. Heading joints where necessary shall be splayed. Counter tops, table tops, drainers, and the like, shall be formed with wide boards, jointed with grooved, cross-tongued and glued joints or with grooved rebated and glued joints of approved type; cross-tongues shall be stopped 25 mm back from ends where ends are exposed to view. The boards shall be in single lengths to top, etc., but where this is not possible the heading joints shall be staggered and jointed as above.

Skirting, rails, angle moulds and beadings of all kinds, shall be close fitted, mitred or scribed at angles, and securely fixed; skirtings, rails and the like shall be fixed with hardened steel or other suitable nails driven into the brickwork or shall be nailed to

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wall plugs spaced at not more than 700 mm apart. Glazing beads and the like shall be mitred at angles and, unless otherwise specified, shall be fixed with panel pins.

BW 5.6 METALWORK

BW 5.6.1 Manufactured Steelwork Generally

Welding is to be done electrically in the most up to date manner by skilled workmen and cleaned off on completion.

All welds are to be welded with welding rods of the same chemical composition as the tubes, rods, bars, etc., to be welded and all external welds are to be filed clean and smooth.

Welding to be continuous fillet welding to all exposed edges unless otherwise described.

No scaffolding shall be allowed to rest on or fixed to steel windows, doors, frames, etc., in any way.

BW 5.7 RESILIENT FLOOR FINISHINGS

BW 5.7.1 Laying And Fixing

Vinyl sheeting and tiles and such like floor finishings shall be laid in strict accordance with the manufacturer's instructions, on a perfectly dry and clean screeded surface, using an adhesive supplied or recommended by the manufacturer of the flooring material, and rolled with a suitable roller to ensure complete adhesion of the material. The flooring shall be cut where required and neatly fitted against adjoining floors, thresholds, etc. Vinyl skirtings shall be close fitted to floors and walls, butted at end joints, neatly mitred at internal angles and dressed round external angles, and fixed with adhesive as for flooring.

Unless otherwise described, sheet flooring shall be in standard widths with cut sheets at sides of floors as necessary.

BW 5.8 GLAZIER

BW 5.8.1 Fixing Of Glass

Glass fixed with glazing beads in unpainted hardwood doors shall be bedded on strips of rubber, velvet, leather, or felt turned over on to both sides of glass in the rebates to form a soft packing between the glass and the woodwork. In all other cases the glass shall be well bedded in back putty in the rebates.

Glass rebates, other than in unpainted hardwood doors, shall be primed before glazing.

Glass panes exceeding 0,5 m² in surface area and fixed with putty only in wood doors, sashes and the like shall be secured in addition with glazing sprigs, and in steel windows and doors with glazing pegs or clips inserted in holes in the steel framing. Glass panes shall have adequate clearance between the edges of glass and the rebates.

Putty shall be carefully trimmed and cleaned off with front putty worked to within 3 mm of the sight lines.

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BW 5.9

PAINTER

BW 5.9.1

Preparatory Work

(a) **General**

All floors must be swept clean and walls dusted down, and surfaces not being painted such as face brickwork, sills, floors and stained woodwork covered up and protected against spotting, before any painting is commenced.

No sweeping or dusting shall be done whilst painting is in progress or whilst paint is still wet.

(b) **On woodwork**

Woodwork being painted shall be well brushed down, knots treated with knotting, and all surfaces primed, stopped with hard stopping and rubbed down to an even surface ready to receive the paint.

Woodwork being oiled or stained shall have all plaster stains, pencil marks and other surface discolourations and blemishes carefully removed, and stopped with tinted stopping and well rubbed down.

(c) **On metalwork**

All metal surfaces being painted, except steel structures shall be cleaned of all rust, scale and dirt by scraping or by means of steel wire brushes; also all oil and grease shall be removed and a perfectly clean surface obtained. If necessary the surface shall be decreased immediately before applying the priming coat, by the use of a suitable grease-removing solvent; any salt deposits on the metal surfaces as may occur in industrial and marine atmospheres shall be removed by the use of a suitable detergent and the surface then thoroughly rinsed and allowed to dry.

New galvanised metal surfaces and surfaces of all non-ferrous metals, which are to be painted, shall be cleaned down as above and given one coat of wash primer (metal etch primer).

Protective coatings on new galvanised metal surfaces, applied by the manufacturers to prevent storage stain and white rust, shall be completely removed by the use of a suitable cleaning agent and the surfaces thoroughly rinsed and allowed to dry, before the surfaces are primed or painted.

After cleaning off rust on metalwork those portions so affected shall be treated with an approved rust inhibitor.

(d) **On plaster**

All plastered wall, ceiling and such like surfaces being painted or distempered shall be filled where necessary with suitable stopping or patching plaster and the whole rubbed down ready to receive the finishings.

(e) **On ceilings**

Boarded ceilings, cover strips and cornices being painted or distempered, shall be filled where necessary with suitable stopping and all nail heads in ceilings, cover strips and cornices being distempered shall be primed with flat paint.

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BW 5.9.2 Surfaces To Be Dry

All plastered wall, ceiling and similar surfaces shall be perfectly dry and in a fit state to receive the finishings, before the work is put in hand.

BW 5.9.3 Priming

Wood, metal and other surfaces normally primed before being painted shall be prepared and primed as before described in readiness to receive the specified paint system.

Backs of wood door and similar frames and surfaces of other new or re-fixed joinery in contact with brickwork, etc., and built in as the work proceeds, shall be primed before building in whether the articles are to be painted or not, to prevent moisture seeping into the wood from the mortar bedding.

Wood surfaces shall be knotted, primed and stopped before being coated with emulsion paint or distemper.

Tongued and grooved and rebated edges of boards in batten doors, and other such-like inaccessible parts of joinery shall, before the joinery is assembled, be primed or where the joinery is to receive a finish other than paint, be given one coat of such other finishing material.

Priming to external structural timbers shall be applied before the timbers are fixed in position and shall include all wrought surfaces, such as backs of fascia and barge boards.

BW 5.9.4 Application Of Paint

All coats of paint shall be thoroughly dry before subsequent coats are applied and rubbed down where necessary.

All work shall be finished to colour approved by the Engineer. The tints of undercoats shall approximate those of the finishing colour and in order to indicate the number of coats applied and to avoid misses when applying a succeeding coat, a slight difference shall be made in tint of each coat.

Priming on wood surfaces shall be by brush application. Priming on surfaces other than wood shall be by brush application or if in the opinion of the Engineer, the primer and the surfaces are considered suitable for roller application, the primer may be so applied. Priming applied by brush application shall be well brushed in to obtain maximum penetration.

Undercoat and finishing coats may be applied by brush or roller.

The use of spray gun on site for application of paint will not be permitted, except in the case of cellulose and other special cases where spraying is the accepted method of application; in cases where spraying is permitted all surrounding surfaces shall be properly masked.

The finishing coat on woodwork and metalwork, unless otherwise specified, shall be of high gloss paint. All materials shall be used in strict accordance with the manufacturer's instructions.

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- (d) Level (deviation from designed level with reference to the nearest transferred datum (TD) of the upper or lower surface, as may be specified, of any slab or other element or component) ± 10 mm
- (e) Out-of-squareness of a corner or an opening or an element such as a column (See clause 6.1.2(c)) for short side of length:
 - (i) up to and including 0,5 m ± 5 mm
 - (ii) over 0,5 m up to and including 2 m ± 15 mm
 - (iii) over 2 m up to and including 4 m ± 20 mm
- (f) Exposed surface (including floor slabs and paving):
 - (i) Flatness of plane surface ± 5 mm
 - (ii) Abrupt changes in a continuous surface ± 5 mm
- (g) Exposed surface to be plastered or receive normal or granolithic screeds:
 - (i) Flatness of plane surface ± 10 mm
 - (ii) Abrupt changes in a continuous surface ± 5 mm
- (h) Surface of plaster and normal or granolithic screeds ± 5 mm

BW 7. TESTS

BW 7.1 GENERAL

All test required in accordance with SANS shall be deemed inclusive in the tender price submitted by the Contractor.

The Engineer shall have free access to the works for taking samples and carrying out tests. The Contractor shall render any assistance necessary. If so required, the Contractor shall provide storage and protection of such samples on site.

BW 8. MEASUREMENT AND PAYMENT

BW 8.1 GENERAL

BW 8.1.1 All items in this section will be measured by number, square metre or linear metre completed and the tendered rates shall include full compensation for the supply, delivery, handling and installation of all materials, the provision of all necessary labour and supervision, transport, plant, equipment and incidentals necessary to complete, protect and maintain the works as specified or as shown on the drawings.

BW 8.1.2 Where a lump sum is required for a complete structure the tendered rate shall include all items and contingencies, as specified in this section or as shown on the drawings.

BW 8.2 SCHEDULED ITEMS

BW 8.2.1 Brickwork Unit: m²

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Brickwork will be measured on the centre line of the walls. Areas occupied in walls by windows and doors will be excluded from the areas measured, and corners and intersections common to more than one brick wall will be measured once only.

The rate shall cover the cost of brickwork complete as specified, including test sections where specified, pointing, providing brick lintels, brick reinforcement and ties (BW 5.1.2), etc., the building in of conduits, beams, pipe sleeves, doors and windows, the raking out of joints and the filling of cavities in cavity walls and walls constructed of hollow concrete masonry units, below floor level and elsewhere where specified.

The test section for faced brickwork if rejected by the Engineer (refer to clause 5.1.14), shall be removed at the Contractor's expense.

BW 8.2.2 Bagged Finish To Brickwork Unit: m²

The rate shall cover the cost of providing rough sacking, additional cement grout as required and finishing the bagging as specified.

BW 8.2.3 Window Sills Unit: m

The rate shall cover the cost of providing and building in face bricks window sills (external), plastered (internal) or any other material prescribed, as well as all accessories specified.

BW 8.2.4 Tiling Unit: m²

The rate shall cover the cost of providing all material and the laying and grouting of tiles, complete as specified. Wall and floor tiles will be scheduled separately in the Bill of Quantities. The Client to approve type, size and colour.

BW 8.2.5 Plaster Work Unit: m²

The rate shall cover the cost of the construction of the plaster work, including the supply of all materials, mixing, applying, finishing, forming reveals, joints, etc., complete as specified.

BW 8.2.6 Floor Screeds

(a) Normal screeds Unit: m²

The rate shall cover the cost of the construction of the floor screeds, including the supply of all materials, mixing, laying, finishing, the forming of nosings, reedings, etc. and, where the concrete sub-floor has matured, the brushing and applying of a cement grout, complete as specified.

BW 8.2.7 Paving (202x101x50mm) Unit: m²

The rate shall cover the cost of providing paving bricks, sand bedding and joint filling and expansion joint material and of constructing the paving including brick on edge copings and cutting of paving.

BW 8.2.8 Waterproofing

(a) Damp-proof course in walls Unit: m

(b) Damp-proof membrane under floors Unit: m²

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- (c) Damp-proof membrane under 50mm
Concrete paving blocks (CPB) Unit: m²
- (d) Penetron waterproofing admixture to concrete..... Unit: m³

The unit shall be the net length or area of waterproofing installed. The length or area of overlaps shall not be measured for payment.

The rate shall cover the cost of removing existing waterproofing if applicable, providing and laying all material as specified, including the sealing of all laps and joints, complete as specified.

BW 8.2.9 Joints

The rate shall cover the cost of providing and installing all filling and sealing material and of the forming of expansion joints, cutting of saw cut joints and the shuttering of construction joints, complete as specified.

- (a) Expansion joints Unit: m
- (b) Construction joints Unit: m
- (c) Saw cut joints Unit: m

BW 8.2.10 Roofing

- (a) Roofing to Specialist specifications Unit: Sum

The rate shall cover the cost of all labour, plant and material to construct the roof complete with 0,6mm Chromodek IBR roof sheeting covering area. Inclusive of 15°/20° crank attached to timber battens on SA Pine timber trusses to manufacturer’s design specifications on SA Pine wall plates. The entire roof structure shall be a design and supply product by a recognized manufacturer, certified and approve by the manufacturers professional Engineer.

All wood is to be treated against termites and exposed wood is to be impregnated against the elements to manufacturer’s specifications.

- (b) Roof to Engineers drawings Unit: m / m²

The rate shall cover the cost of supply and building in of all material required and paints complete as specified on drawings.

BW 8.2.11 Gutters And Rain-Water Down pipes

- (a) Gutters Unit: m
- (b) Rain-water down pipes Unit: No

The rate shall cover the cost of supply and building in of all material including angles, stopped ends, outlet nozzles, gutters, gutter brackets, etc. for gutters and swan necks, branch pieces, plinth bends, radius bends, shoes, brackets, etc. for rain-water down pipes, including all bolts, sealants and paints complete as specified.

BW 8.2.12 Ceilings

- (a) Ceilings Unit: m²

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The rate shall cover the cost of surface preparation, supplying and applying all the coats of paint, repairing any damaged surfaces, and all materials necessary for completing the work.

BW 8.2.18 Electrical Installation Unit: Sum

The rate shall cover the cost of supplying and building in of all equipment such as switchboards, conduits, wires, cables, sockets, light fittings, etc., cutting recesses, chases and holes in walls as required and repairing any damaged surfaces after installation, including testing of the installation.

BW 8.2.19 Miscellaneous

- (a) Internal Sewers..... Unit: No, m
 - i. 110mm Pipe work and fittings
 - ii. 50mm Pipe work and fittings
- (b) Internal water..... Unit: No, m
 - i. Pipe work and fittings (Hot & Cold)
 - ii. Geyser
- (c) Sanitary ware Unit: No, m
 - i. Toilet pan and cistern
 - ii. Wash hand basin
 - iii. Workshop Zinc
- (d) Fittings for the Physically impaired Unit: No
 - i. Flush valve back rail
 - ii. Cistern back rail
 - iii. Kitchen Zinc
- (e) Cupboards..... Unit: Prov Sum
 - i. Kitchen
 - ii. Bathroom
 - iii. Reception lobby
- (f) Fire Protection
 - i. 9kg DCP Fire extinguishers Unit: No
 - ii. 5kg CO² Fire extinguishers Unit: No
 - iii. Fire Signage Unit: Prov Sum
 - iv. Fire Hose Reel..... Unit: No

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- (g) Signage Unit: No
- i. Male/ Female Signage
- (h) Sanitary Necessities Unit: No
- i. Mirrors
- ii. Toilet roll holders
- iii. Soap dispensers
- iv. Hand towel rails

The rate shall cover the cost of all workshop detail drawings where prescribed, material, plant, tools and labour to complete the scheduled items as detailed, including painting, as specified for the construction of cupboards.

BW 8.2.20 Fencing

- (a) Beta Fencing or Similar Approved Unit: m
- (b) Vehicle gate Unit: No
- (c) Pedestrian gate Unit: No

The rate shall include the supply and installation of fencing to details as specified on the drawings.

BW 8.2.21 Beam filling Unit: m

The rate shall include all the labour, materials and plant to construct beam filling in accordance with BW 5.1.9.

BW 8.2.22 Change room benches Unit : m

The rate shall cover the cost of supplying in all material, labour and plant for the manufacturing, supplying and fixing of the benches, inclusive of varnish and paint as specified.

BW 8.2.23 Service hatch at Kiosk Unit : No

The rate shall cover the cost of supplying in all material, labour and plant for the manufacturing, supplying and fixing of the roller shutter door complete with fittings as specified.

BW 8.2.24 Service Hatch (1m x1m) Unit : No

The rate shall cover the cost of supplying in all material, labour and plant for the manufacturing, supplying, painting and fixing of the hatches as specified.

BW 8.2.25 Soil insecticide Unit : m²

The rate shall cover the cost of supplying in all material, labour and plant for the preparation and applying of soil insecticide as specified for foundations and surface beds.

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BW 8.2.26 Weedkiller Unit : m²

The rate shall cover the cost of supplying in all material, labour and plant for the preparation and applying of weedkiller as specified below foundations and floor slab.

BW 8.2.27 Screed Unit : m²

The rate shall cover the cost of supplying in all material, labour and plant for the applying the screed as specified.

BW 8.2.28 Conveyor belt

(a) PVC 100 RT 6mm Unit: m

The rate shall cover the cost of supplying all material and adhesives required and the laying of the Coveyor belt.

BW 8.2.29 Plumbing..... Unit : m or No

The rate shall cover the cost of supplying in all material, labour and plant for the supplying and installation of plumbing and fittings as specified.

BW 8.2.30 Metalwork Unit: No

The rate shall cover the cost of supplying all material, manufacture, applying priming coat of paint or galvanising, as specified, delivery and building in of units, including.

BW 8.2.31 Glazing..... Unit : No

The rate shall cover the cost of supplying in all material, labour and plant for the supplying and installation of glazing as specified.

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C5.6. MANAGEMENT

C5.6.1. MANAGEMENT OF THE WORKS

C5.6.1.1. APPLICABLE SPECIFICATIONS

The *Standard Specifications for Civil Engineering SANS 1200* published by the *South African Bureau of Standards* and referred to as the "Standard Specifications", including the variations and additions specified shall be applicable to this project.

C5.6.1.2. CONSTRUCTION PROGRAMME

The Contractor shall submit within the period stated in the Contract Data a suitable and realistic programme for the consideration of the Engineer.

The programme shall be in the form of a Gantt Chart and shall include the following details:

- A work breakdown structure, identifying the major activity groups.
- For each activity group further details shall be provided with regard to the scheduled start and end dates of individual activities.
- The linkages between activities shall be clearly indicated and the logical network upon which the programme is based shall be separately submitted to the Engineer if requested. Any constraints shall be classified as being time-related or resource-related.
- The critical path(s) shall be clearly indicated and floats on non-critical activities shall be shown.
- The Contractor shall indicate the working hours per day, night, week and month allowed for in the programme.
- Where relevant the Contractor shall indicate the production rates for key activities, e.g. earthworks, etc.

Together with the programme as detailed above the Contractor shall submit to the Engineer a **cash flow projection**, indicating projected monthly intervals to reflect actual payments to date and anticipated future payments.

The programme will be **reviewed** at the monthly site meetings at which the Contractor shall provide sufficient detail that will allow the comparison of completed work per activity has fallen behind. The updated programme shall be submitted to the Engineer at **least two days prior** to the monthly meetings.

If the programme has to be revised by reason of the Contractor falling behind his programme, he shall produce a **revised programme** showing how he intends to regain lost time in order to ensure completion of the Works within the time for completion as defined in **Clause 5.12** of the **General Conditions of Contract** or any granted extension of time. Any proposal to increase the tempo of work must be accompanied by positive steps to increase production by providing more labour and plant on site, or by using the available labour and plant on site, or by using the available labour and plant in a more efficient manner.

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Failure on the part of the Contractor to submit the programme or to work according to the programme or revised programmes shall be sufficient reason for the Engineer to take steps as provided in **Clause 9.2** of the **General Conditions of Contract**.

The approval by the Engineer of any programme shall have no contractual significance other than that the Engineer will be satisfied that the work is carried out according to such programme and that the Contractor undertakes to carry out the work in accordance with the programme. It shall not limit the right of the Engineer to instruct the Contractor to vary the programme if required by circumstances. The Contractor is also referred to **Clause 5.6** of the **General Conditions of Contract** when drawing up his programme.

C5.6.1.3. DRAWINGS, OPERATION AND MAINTENANCE MANUALS

All information in the possession of the Contractor that is required by the Engineer’s Representative in order to complete the As Built drawings and to prepare a completion report for the Employer must be submitted to the Engineer’s Representative before a Certificate of Practical Completion will be issued for the Works. Similarly, the Contractor will be required to submit full details of all pipes, valves meters and specials in a suitable loose bound format, including any special operational and maintenance manual for the scheme prior to the issue of a Certificate of Completion of the Works.

Only figured dimensions on the drawings may be used in the interpretation thereof, and the drawings shall not be scaled unless the Contractor is so instructed by the Engineer in writing. The Engineer will upon written request provide any dimensions that may have been omitted from the drawings.

C5.6.1.4. SITE ADMINISTRATION

An index to the Engineer’s standard site administration forms as well as examples of some of the admin-
istration forms are appended as STANDARD FORMS AND FORMATS (page 389).

Acceptance control, recordkeeping and payment certificates shall be done in accordance with the Engi-
neer’s standard system except if the Engineer approves that the Contract’s standard system may be used.

C5.6.1.5. DAILY SITE DIARY

The daily site diary in accordance with the pro forma appended in STANDARD FORMS AND FORMATS (389) shall be kept up to date by the Contractor’s Site Agent and will be signed on a daily basis by the Engineer’s Representative.

INFORMATION IN RESPECT OF PLANT

Information relating to plant on Site shall be delivered to the Engineer, on a monthly basis, in the form of a detailed summary of construction plant kept on the Site, with full particulars given for each day of the month. Distinction shall be made between plant in **working order** and plant **out of order**. Such inventory shall be submitted by the first day of the following month to be reported.

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C5.6.1.6. INFORMATION IN RESPECT OF EMPLOYEES

Information relating to labour and management on Site shall be recorded in the daily site diary. In addition, the Contractor shall deliver to the Engineer, on a monthly basis, a detailed summary of supervisory staff, labour employed (own and local labour) by category, and Contractor (both local and imported) for each day of the month. Such return shall be submitted by the first day of the month following the month to be reported.

C5.6.1.7. RAINFALL RECORDS

Rainfall records for the period of construction shall be taken on Site and recorded in the daily site diary. The Contractor shall provide and install all the necessary equipment for accurately measuring the rainfall. The Contractor shall also provide, erect, and maintain a security fence plus gate, padlock and keys at each measuring station, all at his own cost. The Engineer or his Representative shall take and record the daily rainfall readings. The Contractor shall be permitted to attend these readings, in the company of the Engineer's Representative. Access to the measuring gauge(s) shall at all times be under the Engineer's control.

C5.6.1.8. SITE INSTRUCTIONS

Site instructions by the Engineer, addressed to the Contractor at his office on the Site, will be numbered consecutively and will be deemed to have been received by the Contractor's Representative unless a break in the sequence of number is brought to the notice of the Engineer in writing immediately.

C5.6.1.9. SITE MEETINGS

The Contractor and his authorised representative shall attend all meetings held on the Site with the Employer and the professional team at dates and times to be determined by the Engineer. Such meetings will be held to evaluate the progress of the Contract, and to discuss matters pertaining to the Contract which any of the parties represented may wish to raise. It is not the intention to discuss day-to-day technical matters at such meetings.

C5.6.1.10. PAYMENT CERTIFICATES

Monthly Progress Payment Certificates shall be submitted to the Engineer's Representative on Site not later than the 20th of each month (or on the last working day prior to this date) in order to allow for checking and reconciliation of all quantities, rates, extensions and additions in the certificate. Each progress payment certificate shall include work executed or reasonably expected to be executed up to the 30th day of the specific month. The Engineer's Representative shall have a period of five (5) calendar days to review the draft certificate in collaboration with the Contractor. All quantity calculations and certificates submitted by the Contractor for checking shall be in accordance with the standard formats that are included in STANDARD FORMS AND FORMATS (page 389).

Upon agreement by the Engineer's Representative the certificate shall be submitted by the Contractor in neat, typed form in accordance with the prescribed format and with the correct spelling, to the Engineer not later than the 25th of each month (or on the first working day thereafter) together with four (4) additional copies for certification.

Where day works have been instructed by the Engineer, the Contractor shall submit the returns to the Engineer for signature and approval within twenty-four (24) hours of the end of the working day on which

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The tax invoice submitted with the certificate shall be dated the 1st of the month following the period certified. All costs for the preparation and submission of progress certificates shall be borne by the Contractor.

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C5.7. PROCUREMENT

C5.7.1. SUB-CONTRACTOR

- 1.1. The Contractor shall appoint such authorities and/or specialist sub-contractor and suppliers as may be designated or nominated by the Employer or the Engineer for those portions of the Works that are described in **C5** Specifications (*page 246*)
- 1.2. As required by **C4.1.7. Sub-Contracting** (Clause 4.4) (*page 237*), the Contractor shall be responsible for all work carried out by sub-contractor (whether nominated by the Employer or selected by the Contractor) on his behalf. The Engineer will not liaise directly with any such Contractor, nor will he become involved in any problems and/or disputes related to payments, programming, workmanship, etc., unless provided for in **C4** CONDITIONS OF CONTRACT Such problems and/or disputes shall remain the sole concern of the Contractor and his sub-contractor.

C5.7.2. LOCAL LABOUR

The Contractor shall employ labour from the local communities through the appointed Community Liaison Officer (CLO). Accordingly, the workforce that is employed on the site shall consist of residents, except for approved **key staff** in the permanent employ of the Contractor.

The labour desks shall assist in identifying available local labour and, where available **semi-skilled labour** as well as **local sub-contractor**. The Labour Desks shall also assist and advice regarding conditions of employment, minimum wages, disputes and disciplinary procedures. The function of the Community Liaison Officer shall, however, in no way diminish the responsibilities of the Contractor in terms of *Clause 4.10* of *GCC 2015* and *paragraph C4.1.13. (page 239)* of this document.

Although the Contractor shall adhere to the statutory minimum wage rates, the Contractor is, however, at liberty to negotiate additional incentive payments based on performance.

A contract of employment or sub-contract should be signed between the Contractor and each of his employees or sub-contractor. Likewise, contracts of employment must be entered into between each sub-contractor, and each of the specific sub-contractor's employees. Employment and Contractor agreements shall make clear reference to at least the following conditions:

- The minimum agreed wage rate per hour in respect of labourers.
- The agreed pay rate per unit of production where applicable;
- UIF and WCA payments;
- Minimum working hours per day;
- Start and end times of a daily shift;
- Lunch break times;
- Company Policy regarding:
 - Rain time;
 - Sickness and absenteeism;
 - Disciplinary matters;
 - Grievances;
 - Method and frequency of payment;
 - Work clothes and safety equipment.

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Witness:

C6. SITE INFORMATION

C6.1. GENERAL DESCRIPTION OF THE WORKS

See C5, Specifications, page 234.

C6.2. DESCRIPTION OF SITE AND ACCESS

See C5, Specifications, page 234.

C6.3. THE WORKS

See C5, Specifications, page 234.

C6.4. SITE OFFICES

To be finalised on appointment.

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TENDERER:

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Witness:

FIGURES AND DRAWINGS

TENDERER:

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CLIENT

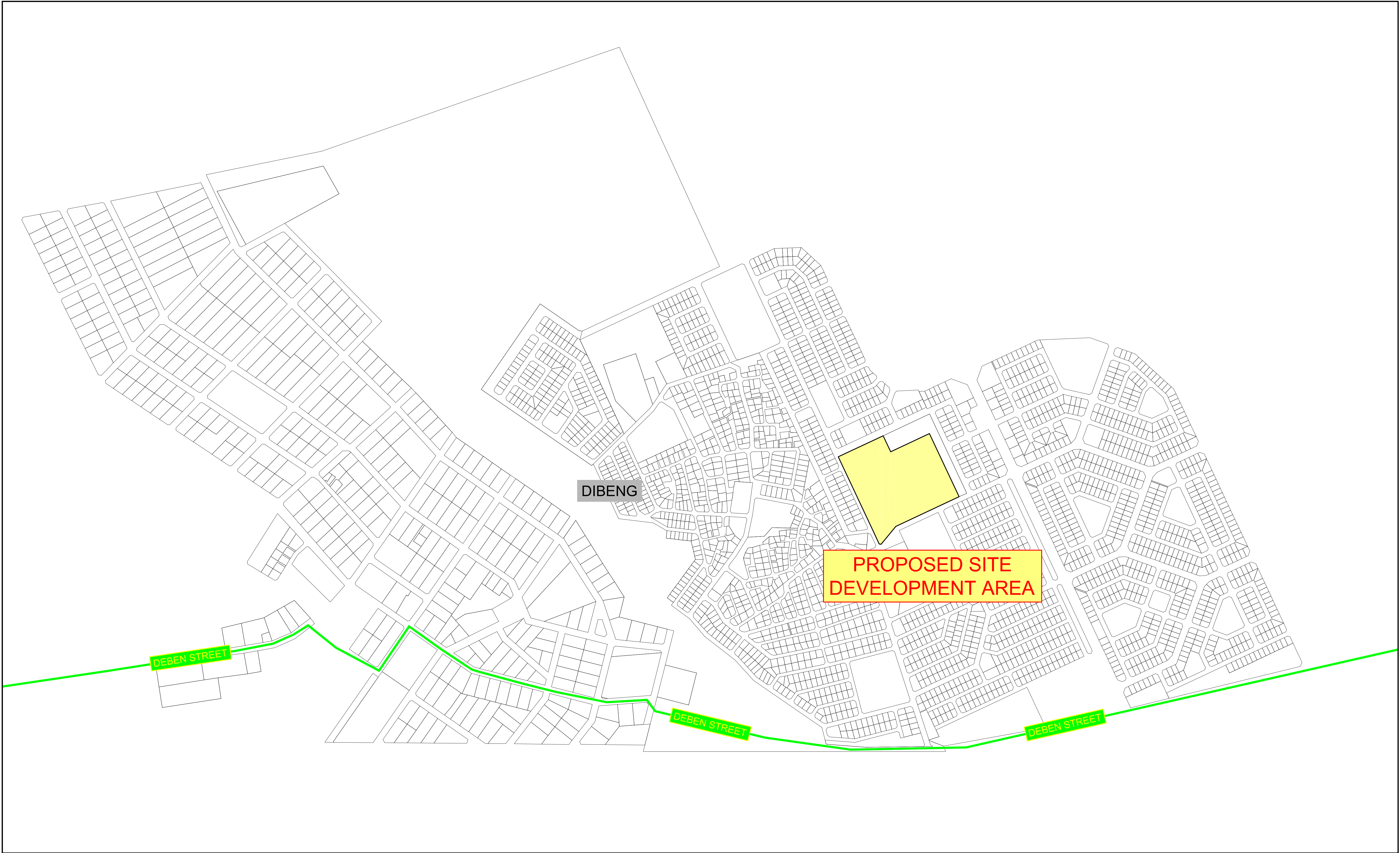
Initial: Gamagara Local Municipality _____
Witness: _____

DIBENG:
CONSTRUCTION OF SPORTS FACILITIES IN DIBENG
GAMAGARA LOCAL MUNICIPALITY

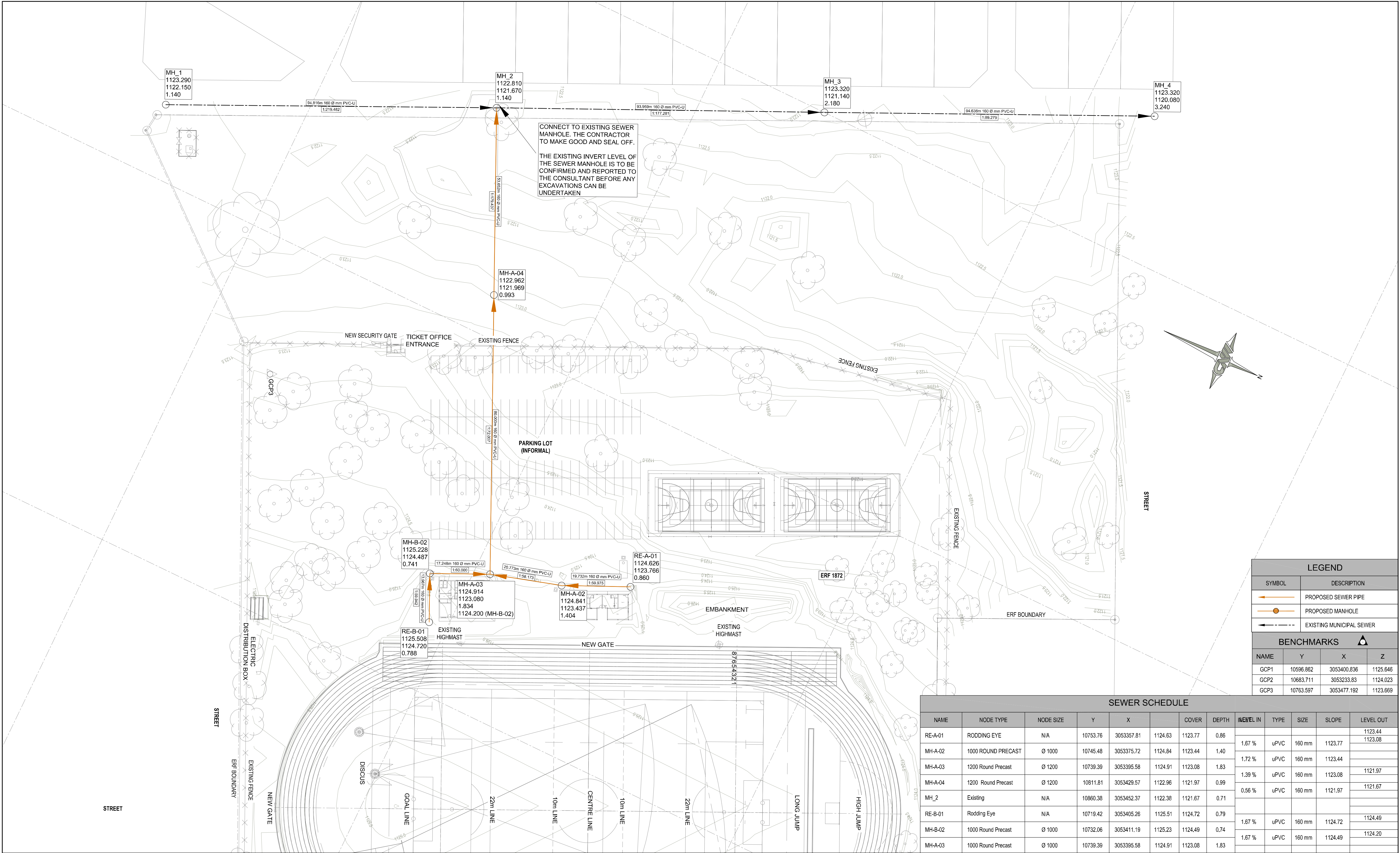
CIVIL DRAWINGS		
DRAWING NO.	DESCRIPTION	REVISION
3089-2/C/D/L001	DRAWING LIST	
3089-2/C/L/L/001	LOCALITY PLAN	
3089-2/C/M/L/001	SITE LAYOUT	
3089-2/C/F/L/001	SEWER LAYOUT	
3089-2/C/F/D/001	SEWER DETAILS 1	
3089-2/C/F/D/002	SEWER DETAILS 2	
3089-2/C/W/L/001	WATER LAYOUT	
3089-2/C/W/D/001	WATER DETAILS 1	
3089-2/C/W/D/002	WATER DETAILS 2	
3089-2/C/W/D/003	WATER DETAILS 3	
3089-2/C/R/L/001	STORMWATER LAYOUT 1	
3089-2/C/G/D/001	GENERAL DETAILS 1	
3089-2/C/G/D/002	GENERAL DETAILS 2	
3089-2/C/G/D/003	GENERAL DETAILS 3	
3089-2/C/G/D/004	GENERAL DETAILS 4	
3089-2/C/G/D/005	SECURITY FENCE LAYOUT: SECTION AND DETAILS 1	
3089-2/C/G/D/006	SECURITY FENCE LAYOUT: SECTION AND DETAILS 2	

STRUCTURAL DRAWINGS		
DRAWING NO.	DESCRIPTION	REVISION
3089-2/S/D/L/001	DRAWING LIST	
3089-2/A/B/L/001	TICKET OFFICE AND CLUBHOUSE ARCHITECT LAYOUT	
3089-2/A/B/L/002	PAVILION ARCHITECT LAYOUT	
3089-2/A/W/L/001	CLUBHOUSE WATER AND SEWERAGE LAYOUT	
3089-2/A/W/L/002	PAVILION WATER AND SEWERAGE LAYOUT	
3089-2/A/E/L/001	TICKET OFFICE AND CLUBHOUSE ELEVATION LAYOUT	
3089-2/A/E/L/002	PAVILION ELEVATION LAYOUT	
3089-2/S/C/L/001	TICKET OFFICE ROOF LAYOUT AND PAVILION BRICKWORK AND FOUNDATION LAYOUT	
3089-2/S/C/L/002	PUMPHOUSE LAYOUT, ELEVATION, SECTION AND DETAILS	
3089-2/S/S/L/001	PAVILION ROOF LAYOUT AND SECTIONS	
3089-2/S/C/D/001	GENERAL DETAILS	

ELECTRICAL DRAWINGS		
DRAWING NO.	DESCRIPTION	REVISION
3089-002/K/D/L/001	DRAWING LIST	
3089-002/K/M/V/L/001	SITE PLAN CABLE RETICULATION	
3089-002/K/G/G/001	PAVILION LIGHTS AND SMALL POWER LAYOUT	
3098-002/K/G/G/002	CLUB HOUSE LIGHTS AND SMALL POWER LAYOUT	
3089-002/K/G/SLD/001	SINGLE LINE DIAGRAM	
3089-002/K/G/D/001	PROJECT SPECIFICATION SHEET 1	



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	A1 AFTER CONTRACT HAS COMMENCED. NA KONTRAK IN AANVANG GENEEM HET.	-	-	-		DRAWN GETEKEN	K. Mann			
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						DATE DATUM	July 2024			



LEGEND			
SYMBOL	DESCRIPTION		
	PROPOSED SEWER PIPE		
	PROPOSED MANHOLE		
	EXISTING MUNICIPAL SEWER		
BENCHMARKS			
			
NAME	Y	X	Z
GCP1	10596.862	3053400.836	1125.646
GCP2	10683.711	3053233.83	1124.023
GCP3	10763.597	3053477.192	1123.669

SEWER SCHEDULE											
NAME	NODE TYPE	NODE SIZE	Y	X	COVER	DEPTH	IME/EL IN	TYPE	SIZE	SLOPE	LEVEL OUT
RE-A-01	RODDING EYE	N/A	10753.76	3053357.81	1124.63	1123.77	0.86	1.67 %	uPVC	160 mm	1123.44 1123.08
MH-A-02	1000 ROUND PRECAST	Ø 1000	10745.48	3053375.72	1124.84	1123.44	1.40	1.72 %	uPVC	160 mm	1123.44
MH-A-03	1200 Round Precast	Ø 1200	10739.39	3053395.58	1124.91	1123.08	1.83	1.39 %	uPVC	160 mm	1121.97
MH-A-04	1200 Round Precast	Ø 1200	10811.81	3053429.57	1122.96	1121.97	0.99	0.56 %	uPVC	160 mm	1121.67
MH_2	Existing	N/A	10860.38	3053452.37	1122.38	1121.67	0.71				
RE-B-01	Rodding Eye	N/A	10719.42	3053405.26	1125.51	1124.72	0.79	1.67 %	uPVC	160 mm	1124.49 1124.20
MH-B-02	1000 Round Precast	Ø 1000	10732.06	3053411.19	1125.23	1124.49	0.74	1.67 %	uPVC	160 mm	1124.49
MH-A-03	1000 Round Precast	Ø 1000	10739.39	3053395.58	1124.91	1123.08	1.83				

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E-Mail admin@mvdkalahari.co.za
www.mvdgroup.org
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DESIGN ONTWERP
DRAWN GETEKEN
CHECKED NAGEGAAN
CLIENT KLIENT
DATE DATUM

A. Coetzee
K. Mann
A. Coetzee
GLM
July 2024

PROJECT/PROJEC

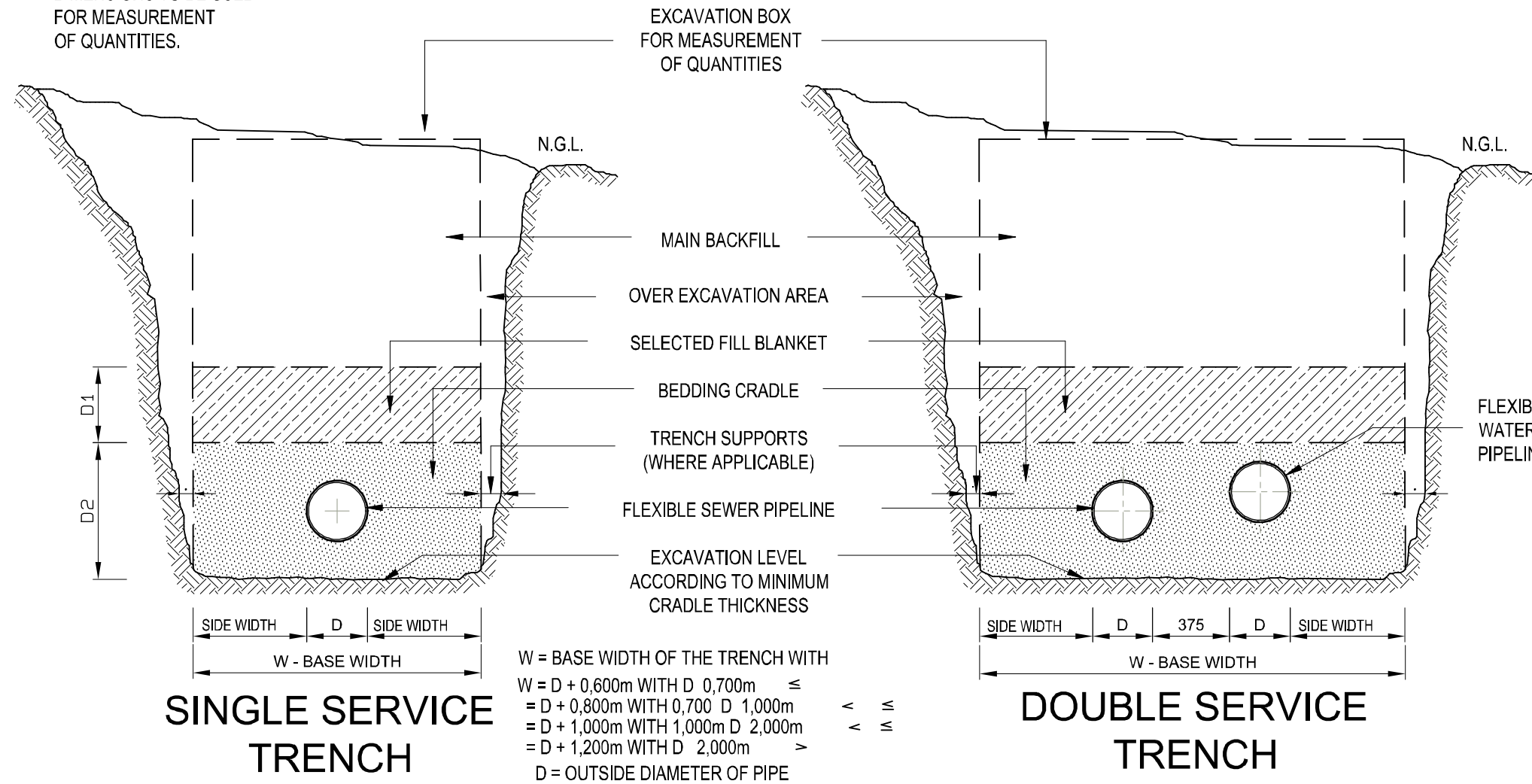
CONSTRUCTION OF SPORTS FACILITIES IN DIBENG

CLIENT/KLIENT

DRAWING DESCRIPTION/TEKENING BESKRYWING
SEWER LAYOUT
PAPER SIZE/PAPIER GROOTTE
A1
SCALE/SKAAL
1:500
DRAWING No./TEKENING Nr.
3089/2/C/F/L/001
REV No.
--

FOR TENDER

NOTE :
W, D1 & D2 ARE THE
DIMENSIONS TO BE USED
FOR MEASUREMENT
OF QUANTITIES.



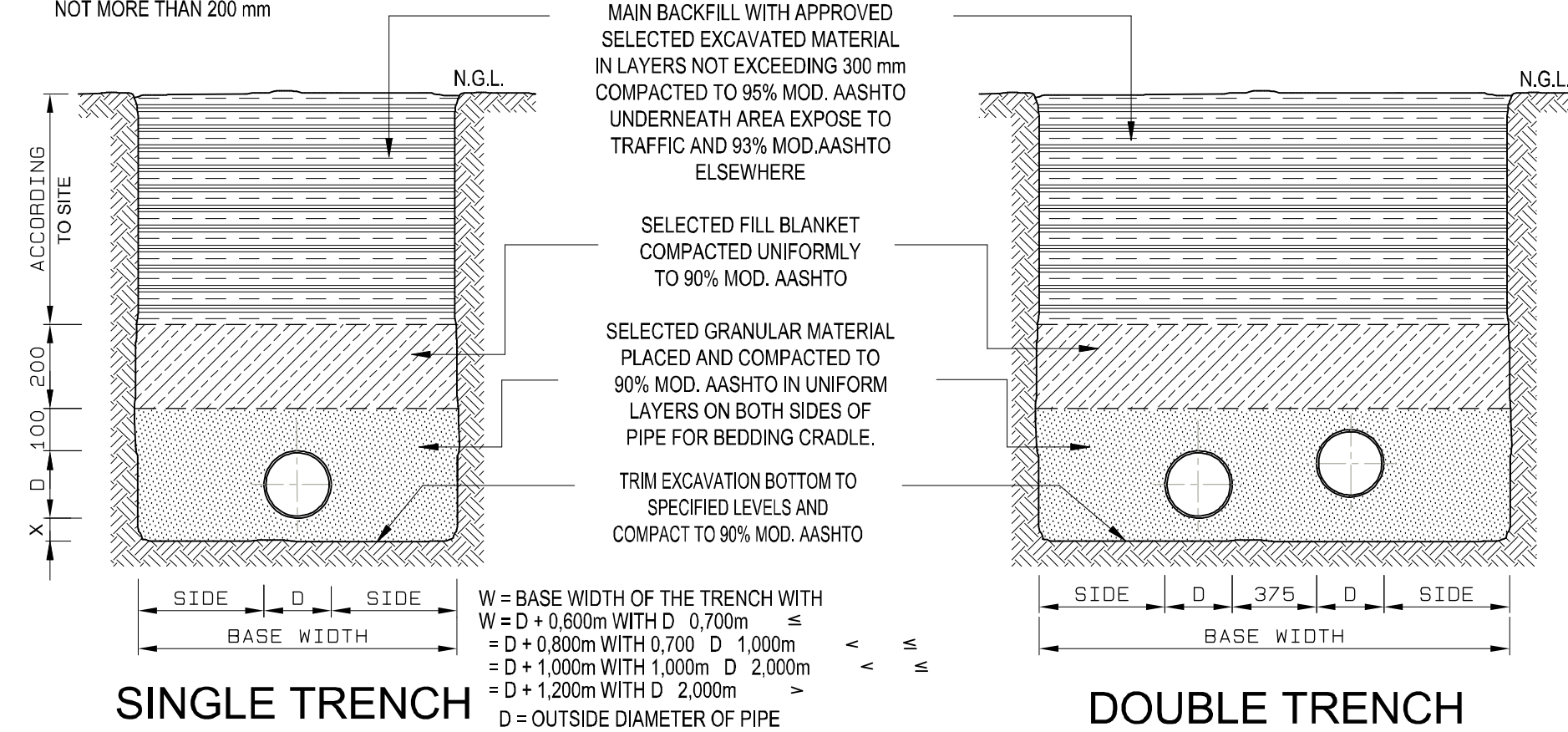
SINGLE SERVICE
TRENCH

DOUBLE SERVICE
TRENCH

MEASUREMENT OF EXCAVATION & BACKFILL

N.T.S.

NOTE :
X = D/4 SUBJECT TO X BEING
NOT LESS THAN 100 mm AND
NOT MORE THAN 200 mm



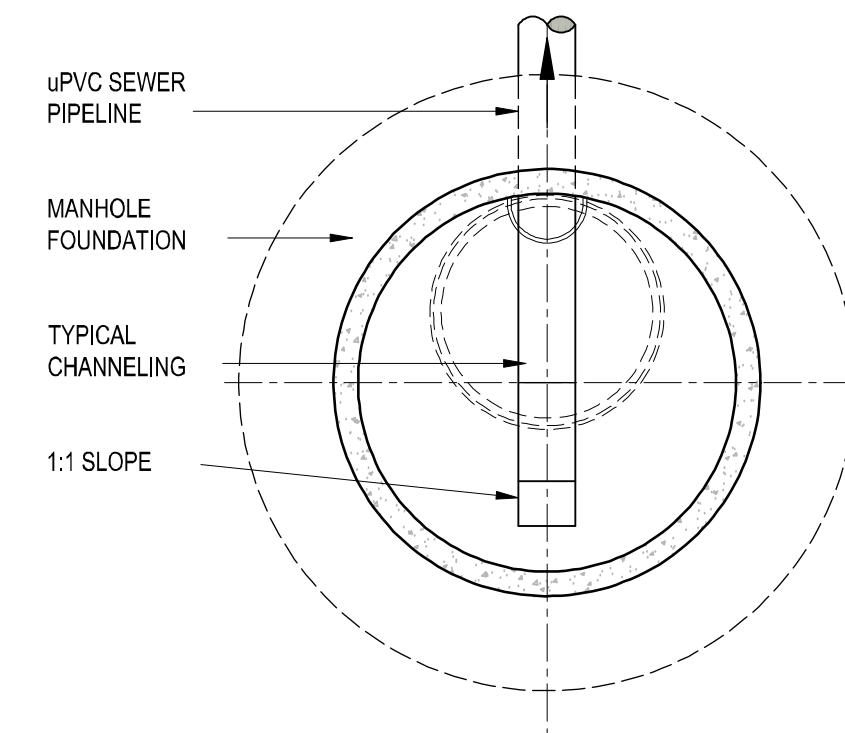
SINGLE TRENCH

DOUBLE TRENCH

PIPE BEDDING : FLEXIBLE PIPE

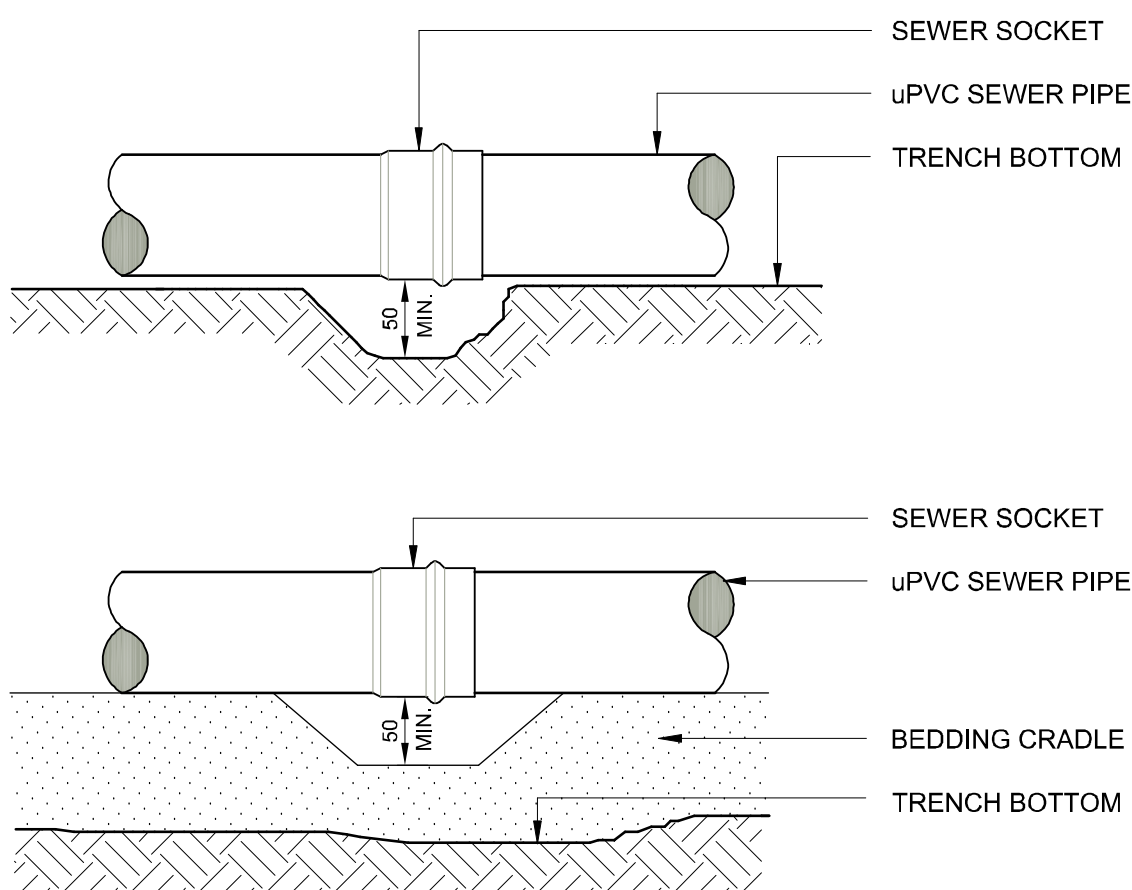
N.T.S.

NOTE :
BENCHING TO SLOPE 25mm FROM INLET TO OUTLET



MANHOLE CONNECTION TYPE 1

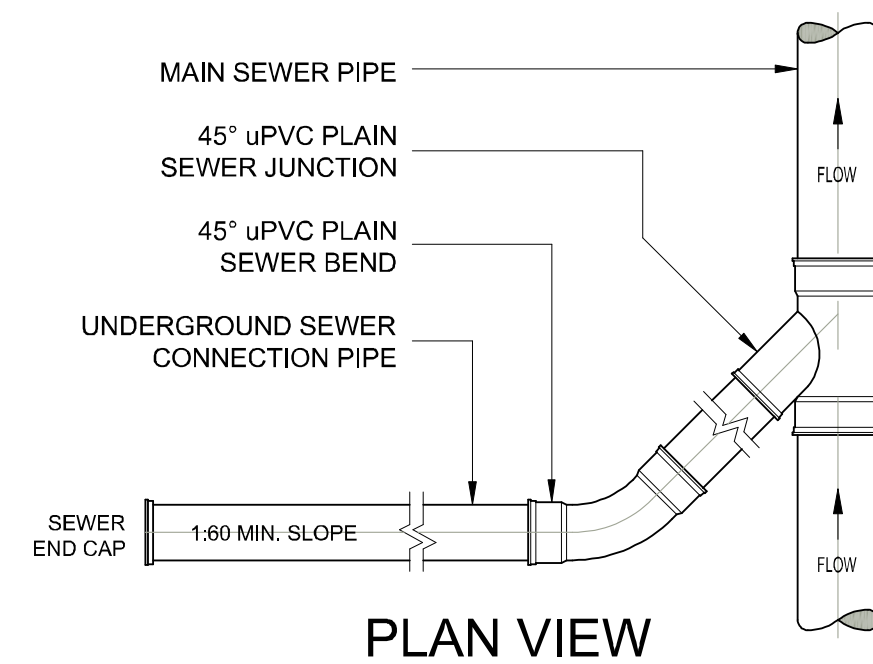
N.T.S.



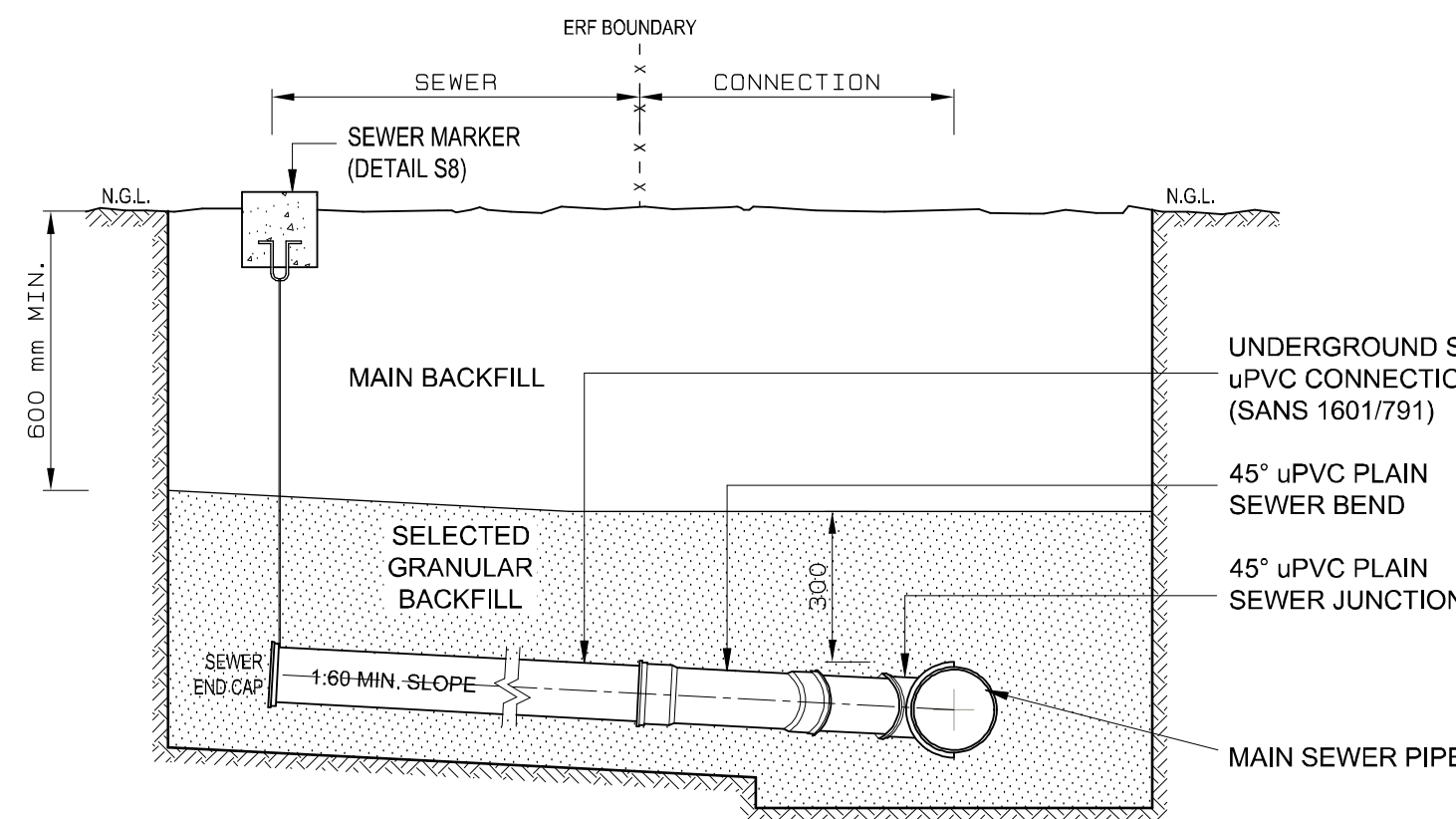
TYPICAL JOINT POCKETS

SCALE 1 : 10

S3



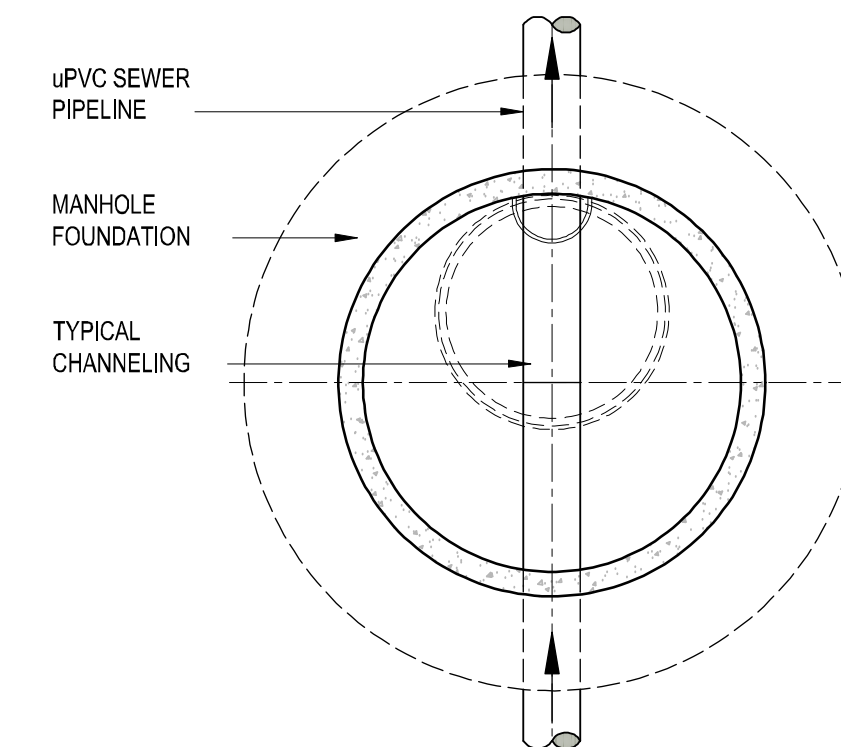
PLAN VIEW



SECTION

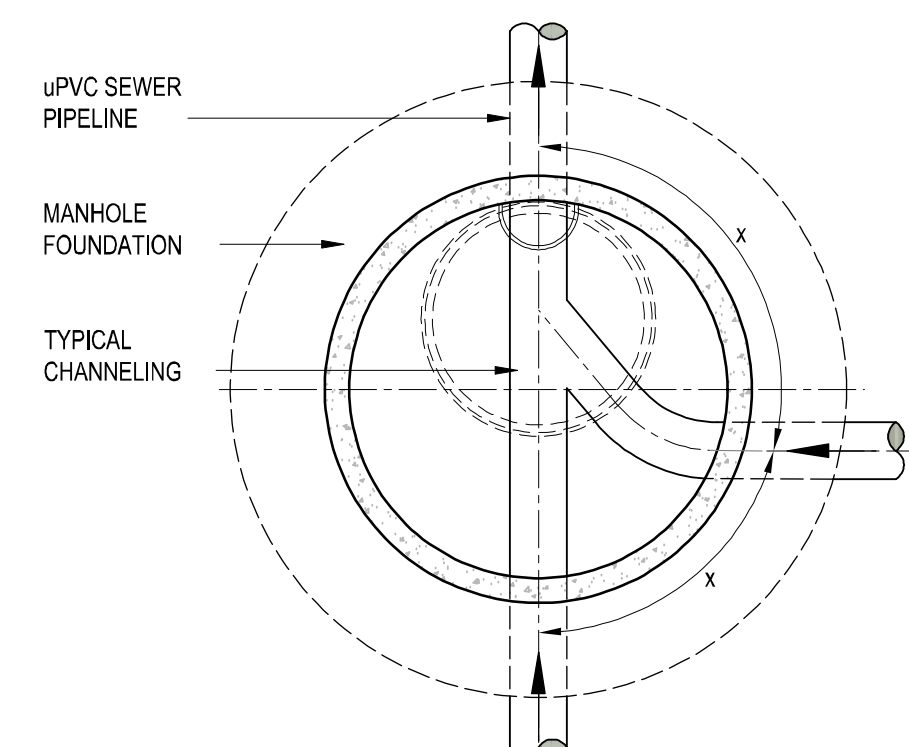
MAIN SEWER CONNECTION

SCALE 1 : 15



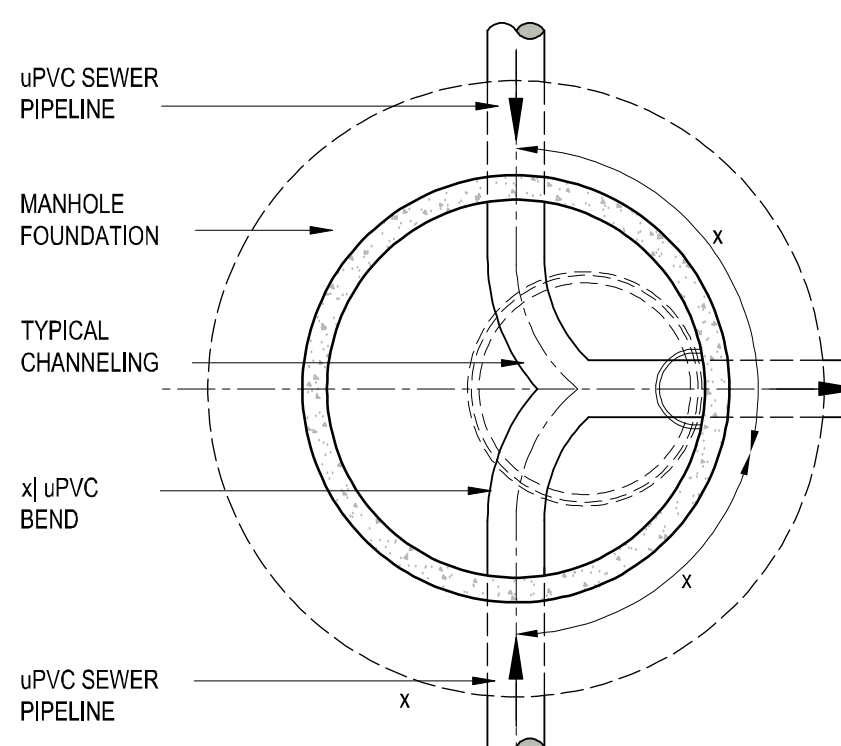
MANHOLE CONNECTION TYPE 2

N.T.S.



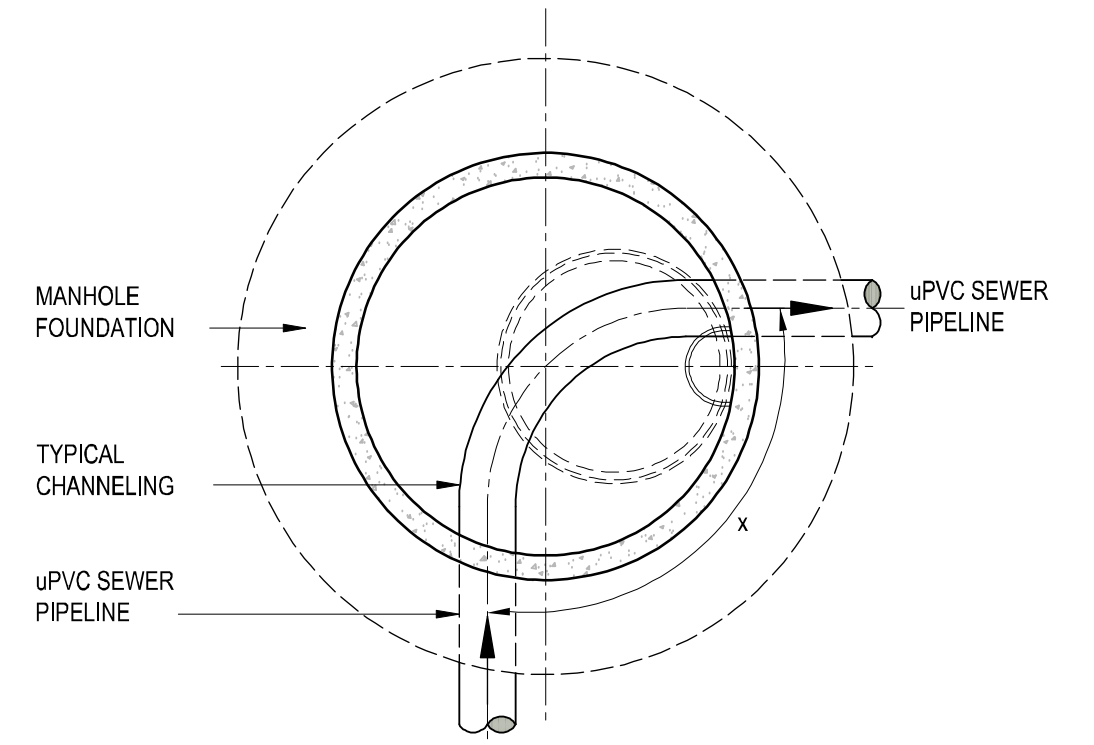
MANHOLE CONNECTION TYPE 3

N.T.S.



MANHOLE CONNECTION TYPE 4

N.T.S.



MANHOLE CONNECTION TYPE 6

N.T.S.

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Local Municipality
Khomo Mo Lefateng

DRAWING DESCRIPTION/TEKENING BESKRYWING

SEWER DETAILS 1

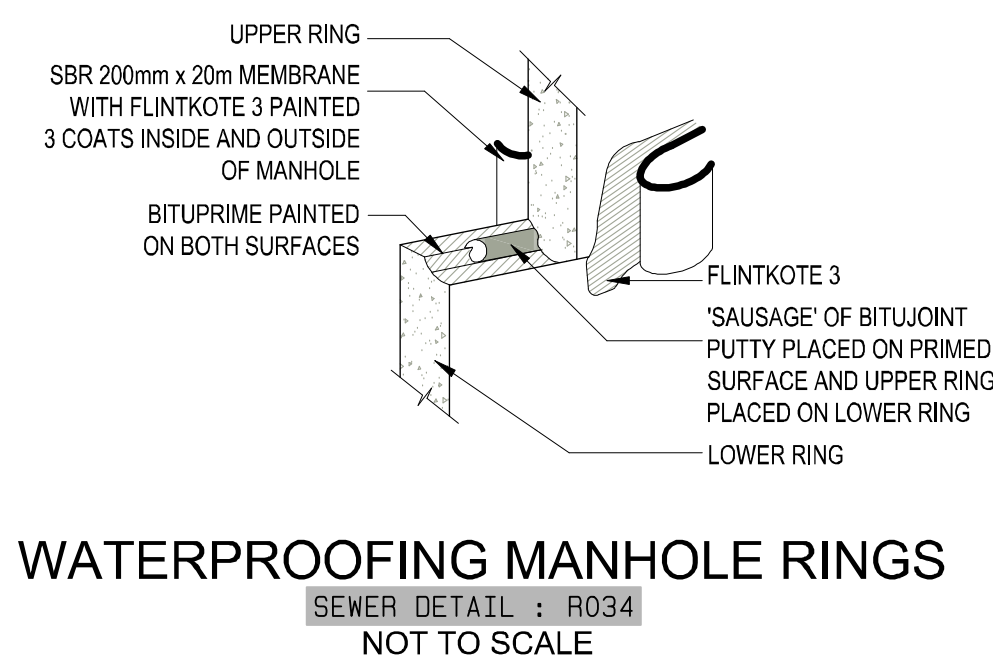
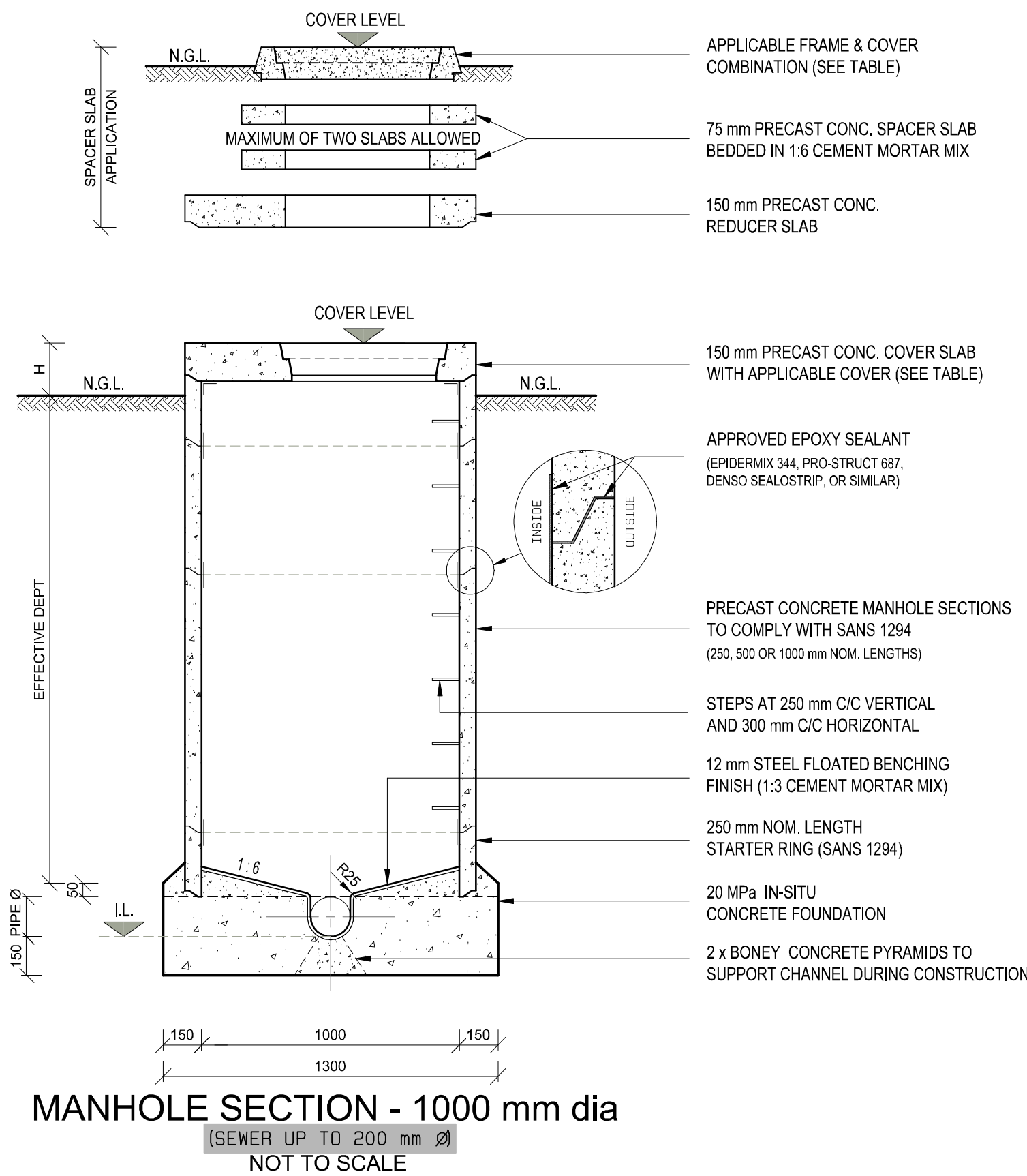
PAPER SIZE/PAPIER GROOTTE
A1

SCALE/SKAAL
AS
SHOWN

DRAWING No./TEKENING Nr.
3089/2/C/F/D/001

REV No.

FOR TENDER

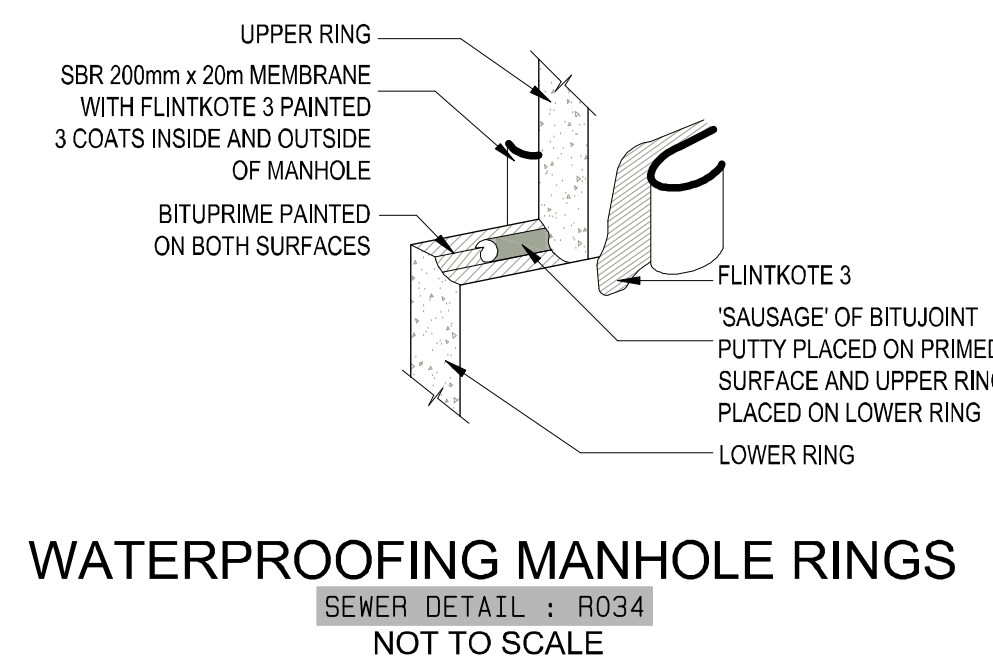
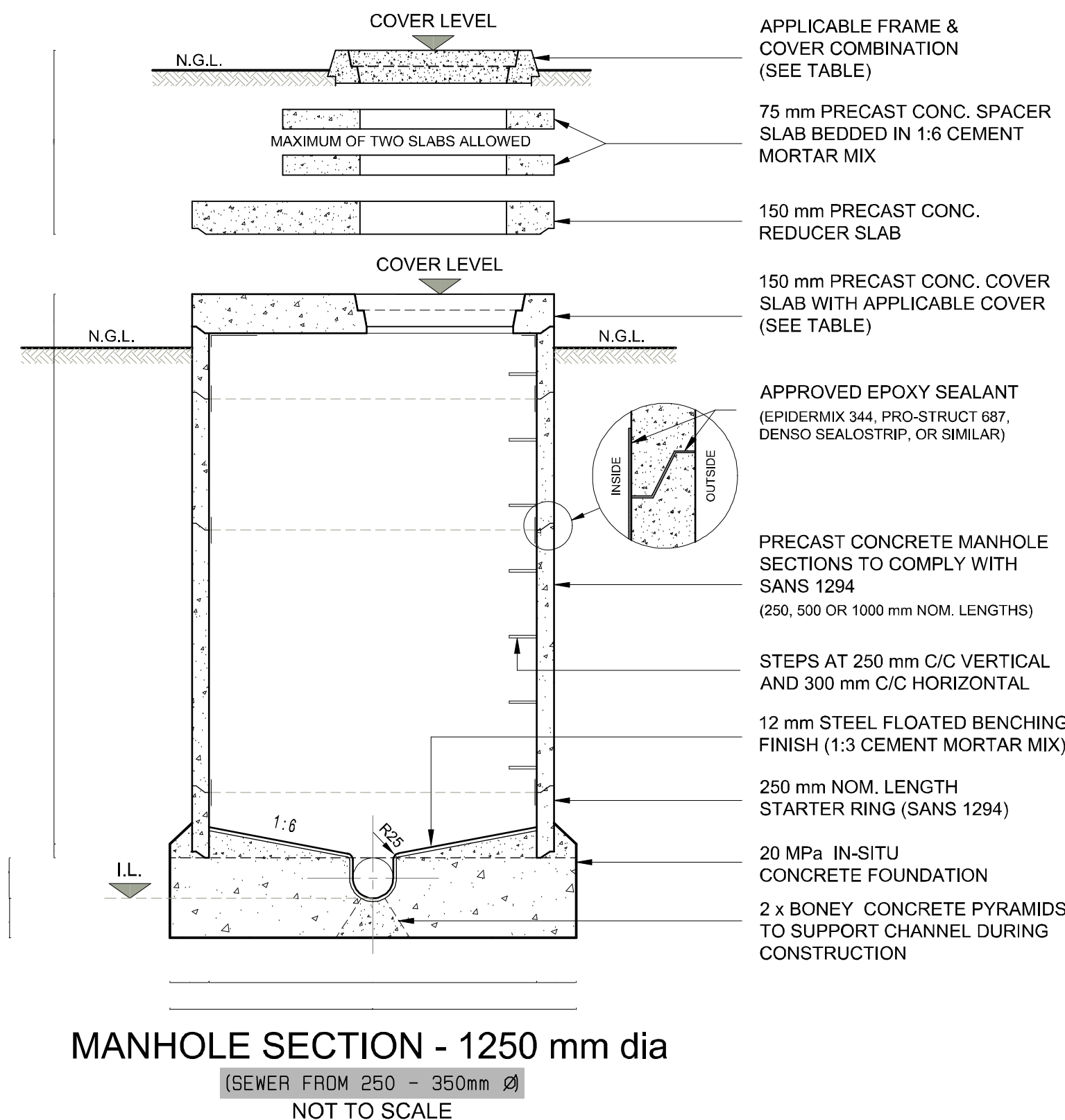


MANHOLE FRAME & COVER (SANS 558)	
MANHOLE POSITION	FRAME & COVER
ROADS & PARKING	TYPE 2A - HEAVY DUTY FRAME & COVER
ROAD RESERVES	TYPE 4 - CONCRETE FRAME & COVER
ERVEN	TYPE 4 - CONCRETE FRAME & COVER
GENERAL	ONLY TYPE 2A MANHOLE COVERS MAY BE USED FOR SEWERS OF 300 mm Ø AND LARGER

NOTE : VALUES FOR H :
 50 - 75 mm WITHIN ERVEN AND ROAD RESERVES
 250 mm FOR LOW COST HOUSING DEVELOPMENTS
 500 mm IN OPEN VELD WITH LONG GRASS OR GROWTH

CONCRETE :
 ALL CONCRETE INCLUDING BENCHING FOR MANHOLES MUST BE OF DOLOMITIC ORIGIN

MANHOLE DIAMETER :
 0m TO 1m EFFECTIVE DEPT - 750mm Ø
 1m TO 2m EFFECTIVE DEPT - 1000mm Ø
 EFFECTIVE DEPTH MORE THAN 2m - 1250 mm Ø
 OR OTHERWISE SPECIFIED BY ENGINEER



MANHOLE FRAME & COVER (SANS 558)	
MANHOLE POSITION	FRAME & COVER
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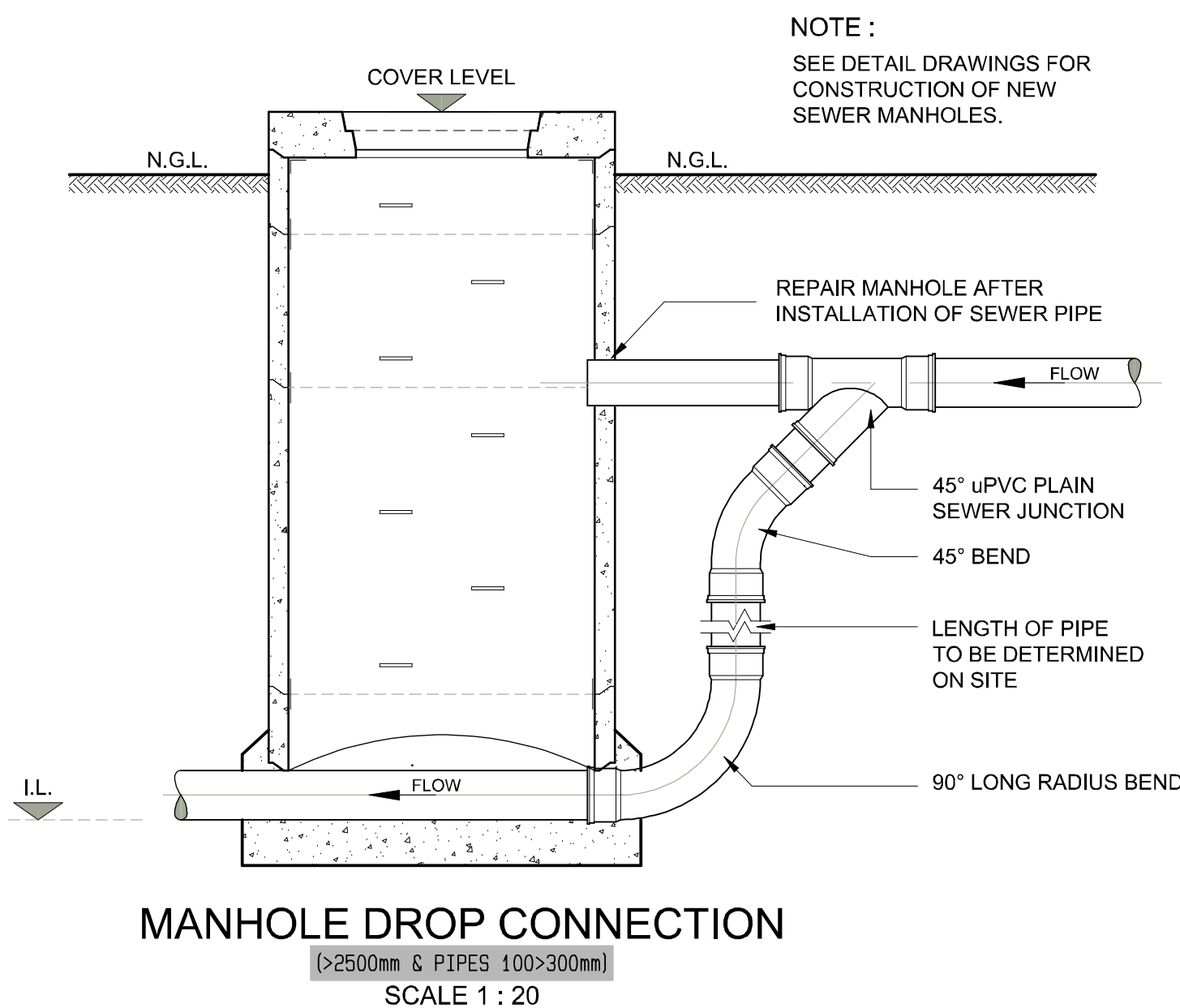
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 OR OTHERWISE SPECIFIED BY ENGINEER

S7

S8



EXPANSION JOINT PROCEDURE:-
 CUT PIPE END SQUARE. CHAMFER CUT END WITH MEDIUM FILE AND REMOVE SWARF. LUBRICATE SEAL RING WITH "PIPEKOR LUBRICANT". ENTER PIPE TO BOTTOM OF SOCKET. MARK PIPE, AND WITHDRAW PIPE 12mm BEFORE FIXING. TO AVOID DISTORTION OF PIPEWORK DUE TO EXPANSION.

- NOTES:
- 1) ALL SEWERS ABOVE THE GROUND MUST BE uPVC (SANS 967).
 - 2) ALL SEWERS UNDER THE GROUND TO BE uPVC (SANS 791 & 1601).
 - 3) EXCAVATION OF MANHOLE MUST BE 500mm WIDER THAN INSIDE Ø OF MANHOLE.
 - 4) SELECTED GRANULAR MATERIAL SHALL BE MATERIAL OF A GRANULAR, NON-COHESIVE NATURE THAT IS SINGULARLY GRADED BETWEEN 0,6-19mm, IS FREE-DRAINING, AND HAS A COMPACTIBILITY FACTOR NOT EXCEEDING 0,4%.
 - 5) SELECTED FILL MATERIAL SHALL BE MATERIAL THAT HAS A PK-6 AND THAT IS FREE OF VEGETATION AND FROM LUMPS AND STONES OF Ø EXCEEDING 30mm. TO BE PLACED IN LAYERS OF 100mm TO 300mm ABOVE THE PIPE CROWN, AND COMPACTED TO 90% MAASHTO.
 - 6) MAIN BACKFILL MATERIAL MUST BE FREE OF STONES EXCEEDING 300mm AND TREE TRUNKS OR ROOTS. USUALLY MATERIAL EXCAVATED FROM TRENCH. MATERIAL TO BE WELL COMPACTED IN LAYERS OF 300mm.
 - 7) BEDDING CRADLE: PIPES MUST BE SUPPORTED ON A CONTINUOUS BEDDING OF 100mm GRANULAR MATERIAL COMPACTED TO 90% MAASHTO. SEE JOINT POCKET DETAIL.
 - 8) PIPE TRENCHES: THE TRENCHES MUST BE EXCAVATED IN LENGTHS APPROVED BY THE ENGINEER AND TO WIDTHS THAT IN EACH CASE, PROVIDE AT LEAST THE APPROPRIATE SIDE ALLOWANCE. THE SIDES OF TRENCHES SHALL BE NEAR VERTICAL AS POSSIBLE FOR A HEIGHT AT LEAST THE Ø OF THE PIPE PLUS THE SPECIFIED DEPTH OF SELECTED FILL OVER THE PIPE.

S9

S10

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DESIGN ONTWERP A. Coetzee
 DRAWN GETEKEN K. Mann
 CHECKED NAGEAAN A. Coetzee
 CLIENT KLIENT GLM
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GAMAGARA
 Local Municipality
 Khomo Mo Lefatsheng

DRAWING DESCRIPTION/TEKENING BESKRYWING

SEWER DETAILS 2

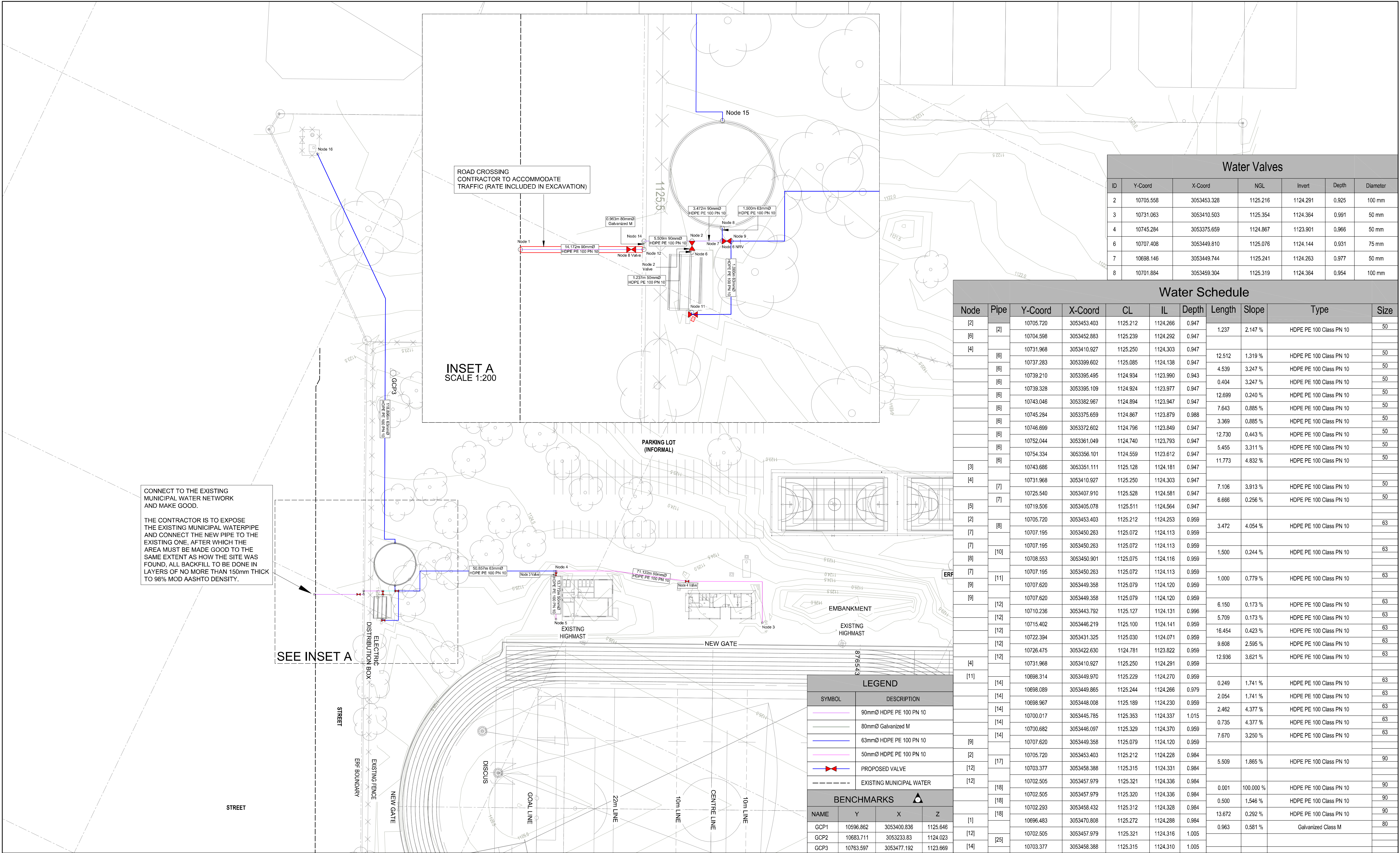
PAPER SIZE/PAPIER GROOTTE
 A1

SCALE/SKAAL
 AS SHOWN

DRAWING No./TEKENING Nr.
 3089/2/C/F/D/002

REV No.

FOR TENDER



Water Valves						
ID	Y-Coord	X-Coord	NGL	Invert	Depth	Diameter
2	10705.558	3053453.328	1125.216	1124.291	0.925	100 mm
3	10731.063	3053410.503	1125.354	1124.364	0.991	50 mm
4	10745.284	3053375.659	1124.867	1123.901	0.966	50 mm
6	10707.408	3053449.814	1125.076	1124.144	0.931	75 mm
7	10698.146	3053449.744	1125.241	1124.263	0.977	50 mm
8	10701.884	3053459.304	1125.319	1124.364	0.954	100 mm

Water Schedule											
Node	Pipe	Y-Coord	X-Coord	CL	IL	Depth	Length	Slope	Type	Size	
[2]	[2]	10705.720	3053453.403	1125.212	1124.266	0.947	1.237	2.147 %	HDPE PE 100 Class PN 10	50	
[6]		10704.598	3053452.883	1125.239	1124.292	0.947					
[4]		10731.968	3053410.927	1125.250	1124.303	0.947	12.512	1.319 %	HDPE PE 100 Class PN 10	50	
	[6]	10737.283	3053399.602	1125.085	1124.138	0.947	4.539	3.247 %	HDPE PE 100 Class PN 10	50	
	[6]	10739.210	3053395.495	1124.934	1123.990	0.943	0.404	3.247 %	HDPE PE 100 Class PN 10	50	
	[6]	10739.328	3053395.109	1124.924	1123.977	0.947	12.699	0.240 %	HDPE PE 100 Class PN 10	50	
	[6]	10743.046	3053382.967	1124.894	1123.947	0.947	7.643	0.885 %	HDPE PE 100 Class PN 10	50	
	[6]	10745.284	3053375.659	1124.867	1123.879	0.988	3.369	0.885 %	HDPE PE 100 Class PN 10	50	
	[6]	10746.699	3053372.602	1124.796	1123.849	0.947	12.730	0.443 %	HDPE PE 100 Class PN 10	50	
	[6]	10752.044	3053361.049	1124.740	1123.793	0.947	5.455	3.311 %	HDPE PE 100 Class PN 10	50	
	[6]	10754.334	3053358.101	1124.559	1123.612	0.947	11.773	4.832 %	HDPE PE 100 Class PN 10	50	
[3]		10743.686	3053351.111	1125.128	1124.181	0.947					
[4]	[7]	10731.968	3053410.927	1125.250	1124.303	0.947	7.106	3.913 %	HDPE PE 100 Class PN 10	50	
	[7]	10725.540	3053407.910	1125.528	1124.581	0.947	6.666	0.256 %	HDPE PE 100 Class PN 10	50	
[5]	[7]	10719.506	3053405.078	1125.511	1124.564	0.947					
[2]	[8]	10705.720	3053453.403	1125.212	1124.253	0.959	3.472	4.054 %	HDPE PE 100 Class PN 10	63	
[7]		10707.195	3053450.283	1125.072	1124.113	0.959					
[7]	[10]	10707.195	3053450.283	1125.072	1124.113	0.959	1.500	0.244 %	HDPE PE 100 Class PN 10	63	
[8]		10708.553	3053450.901	1125.075	1124.116	0.959					
[7]	[11]	10707.195	3053450.283	1125.072	1124.113	0.959	1.000	0.779 %	HDPE PE 100 Class PN 10	63	
[9]		10707.620	3053449.358	1125.079	1124.120	0.959					
[9]	[12]	10707.620	3053449.358	1125.079	1124.120	0.959	6.150	0.173 %	HDPE PE 100 Class PN 10	63	
	[12]	10710.236	3053443.792	1125.127	1124.131	0.996	5.709	0.173 %	HDPE PE 100 Class PN 10	63	
	[12]	10715.402	3053446.219	1125.100	1124.141	0.959	16.454	0.423 %	HDPE PE 100 Class PN 10	63	
	[12]	10722.394	3053431.325	1125.030	1124.071	0.959	9.608	2.595 %	HDPE PE 100 Class PN 10	63	
	[12]	10726.475	3053422.630	1124.781	1123.822	0.959	12.936	3.621 %	HDPE PE 100 Class PN 10	63	
[4]		10731.968	3053410.927	1125.250	1124.291	0.959					
[11]	[14]	10698.314	3053449.970	1125.229	1124.270	0.959	0.249	1.741 %	HDPE PE 100 Class PN 10	63	
	[14]	10698.089	3053449.865	1125.244	1124.266	0.979	2.054	1.741 %	HDPE PE 100 Class PN 10	63	
	[14]	10698.967	3053448.008	1125.189	1124.230	0.959	2.462	4.377 %	HDPE PE 100 Class PN 10	63	
	[14]	10700.017	3053445.785	1125.353	1124.337	1.015	0.735	4.377 %	HDPE PE 100 Class PN 10	63	
	[14]	10700.682	3053446.097	1125.329	1124.370	0.959	7.670	3.250 %	HDPE PE 100 Class PN 10	63	
	[9]	10707.620	3053449.358	1125.079	1124.120	0.959					
	[2]	10705.720	3053453.403	1125.212	1124.228	0.984	5.509	1.865 %	HDPE PE 100 Class PN 10	90	
	[12]	10703.377	3053458.388	1125.315	1124.331	0.984					
	[12]	10702.505	3053457.979	1125.321	1124.336	0.984	0.001	100.000 %	HDPE PE 100 Class PN 10	90	
	[18]	10702.505	3053457.979	1125.320	1124.336	0.984	0.500	1.546 %	HDPE PE 100 Class PN 10	90	
	[18]	10702.293	3053458.432	1125.312	1124.328	0.984	13.672	0.292 %	HDPE PE 100 Class PN 10	90	
	[18]	10696.483	3053470.808	1125.272	1124.288	0.984	0.963	0.581 %	Galvanized Class M	80	
	[25]	10702.505	3053457.979	1125.321	1124.316	1.005					
	[14]	10703.377	3053458.388	1125.315	1124.310	1.005					

LEGEND	
SYMBOL	DESCRIPTION
	90mmØ HDPE PE 100 PN 10
	80mmØ Galvanized M
	63mmØ HDPE PE 100 PN 10
	50mmØ HDPE PE 100 PN 10
	PROPOSED VALVE
	EXISTING MUNICIPAL WATER
BENCHMARKS	
NAME	Y X Z
GCP1	10596.862 3053400.836 1125.646
GCP2	10683.711 3053233.83 1124.023
GCP3	10763.597 3053477.192 1123.669

NOTE/NOTA :

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DESIGN ONTWERP

A. Coetzee

DRAWN GETEKEN

K. Mann

CHECKED NAGEGAAN

A. Coetzee

CLIENT KLIENT

GLM

DATE DATUM

July 2024

PROJECT/PROEJ

CONSTRUCTION OF SPORTS FACILITIES IN DIBENG

CLIENT/KLIENT

GAMAGARA Local Municipality Khomo Mo Lefateng

DRAWING DESCRIPTION/TEKENING BESKRYWING

WATER LAYOUT

PAPER SIZE/PAPIER GROOTTE

A1

SCALE/SKAAL

1:500

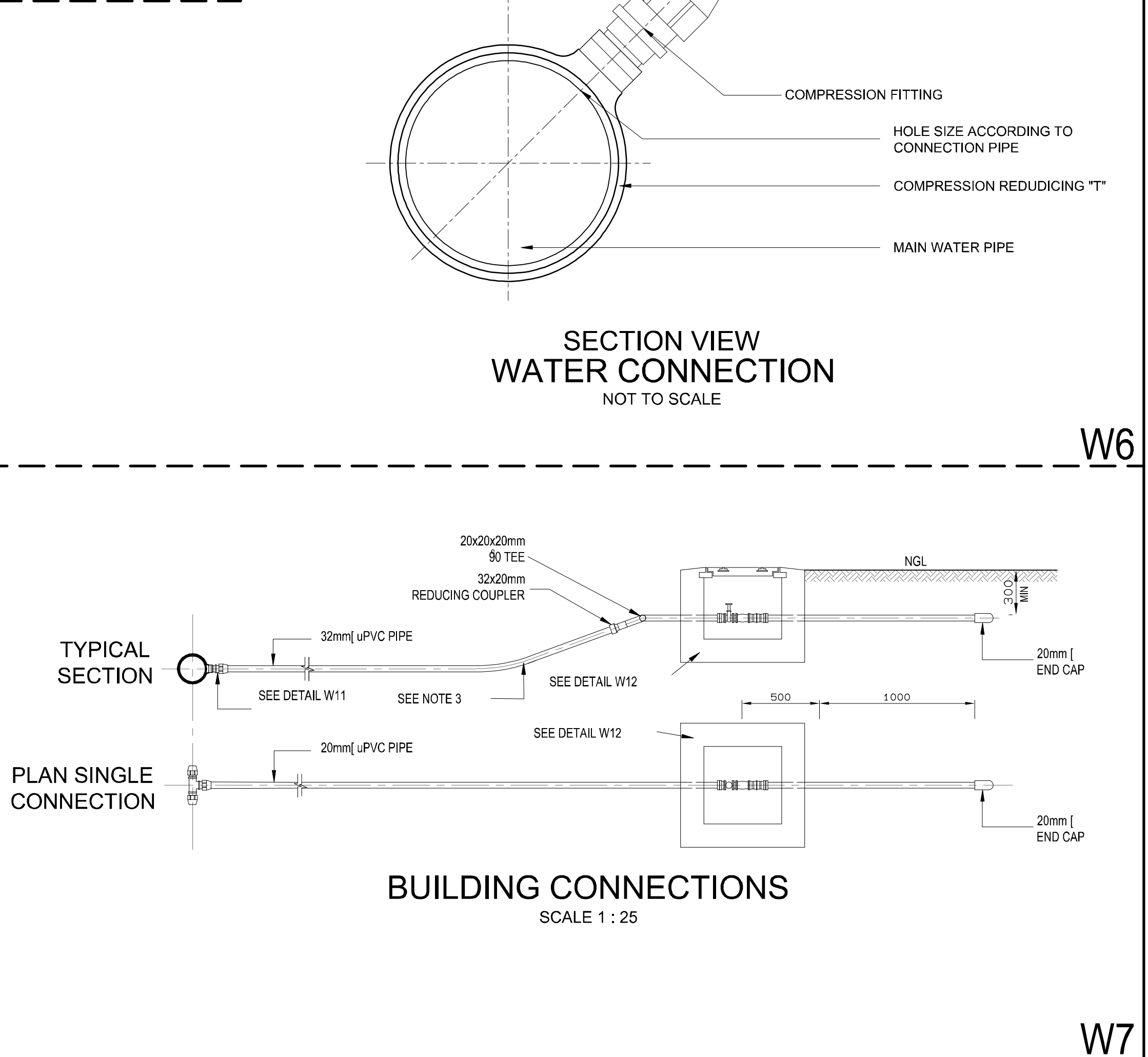
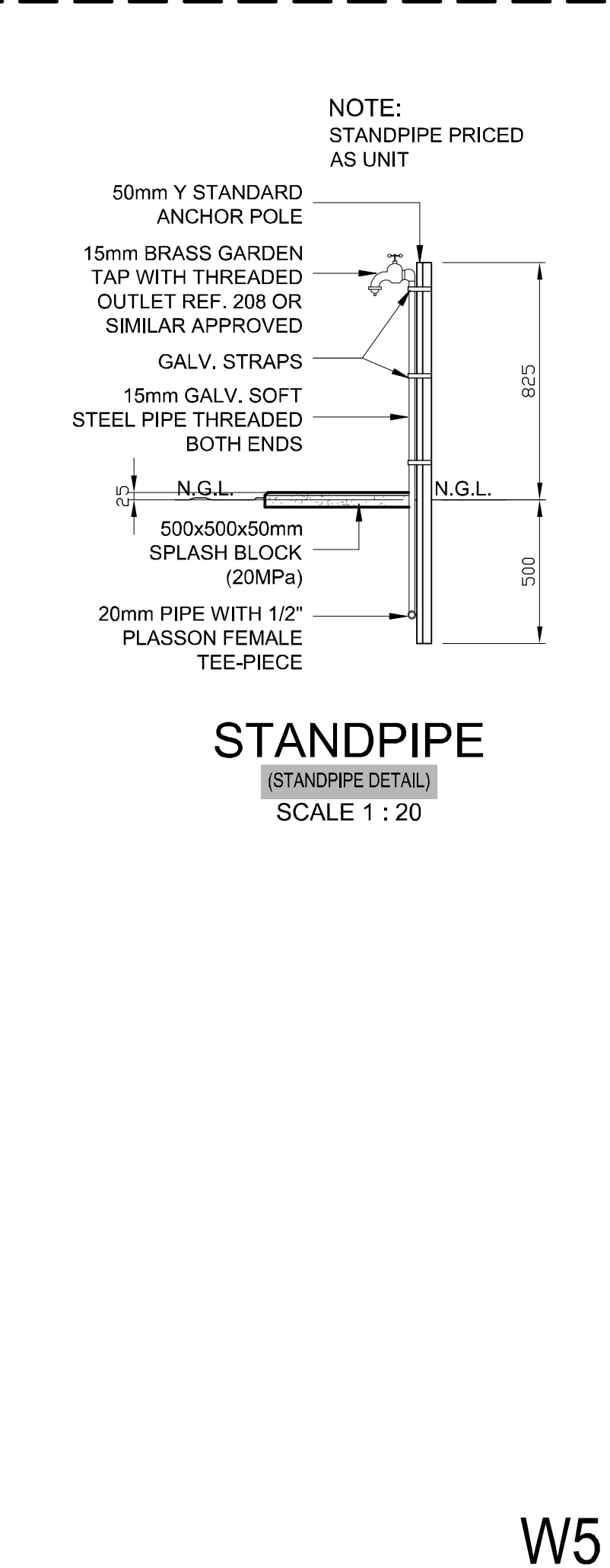
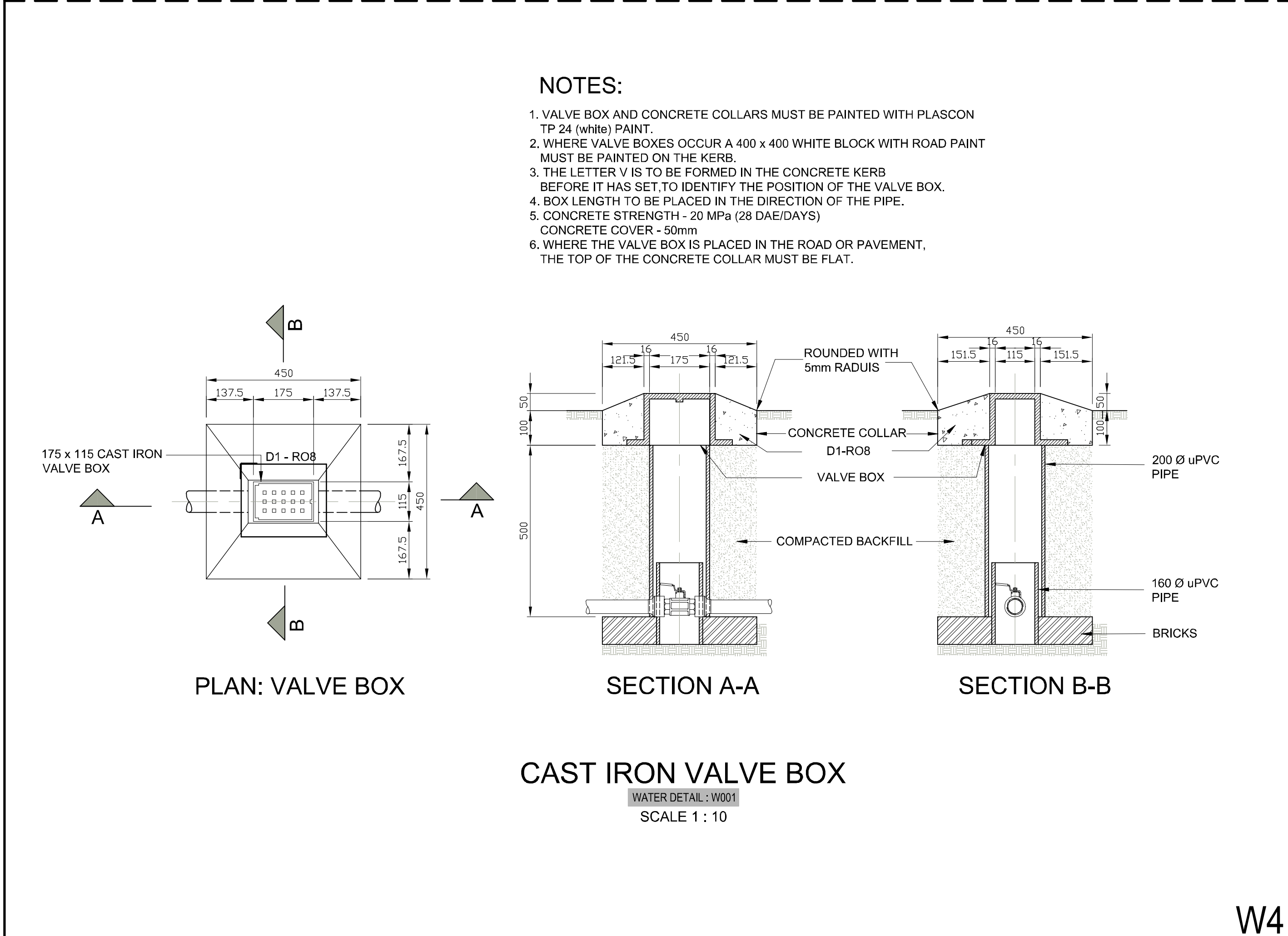
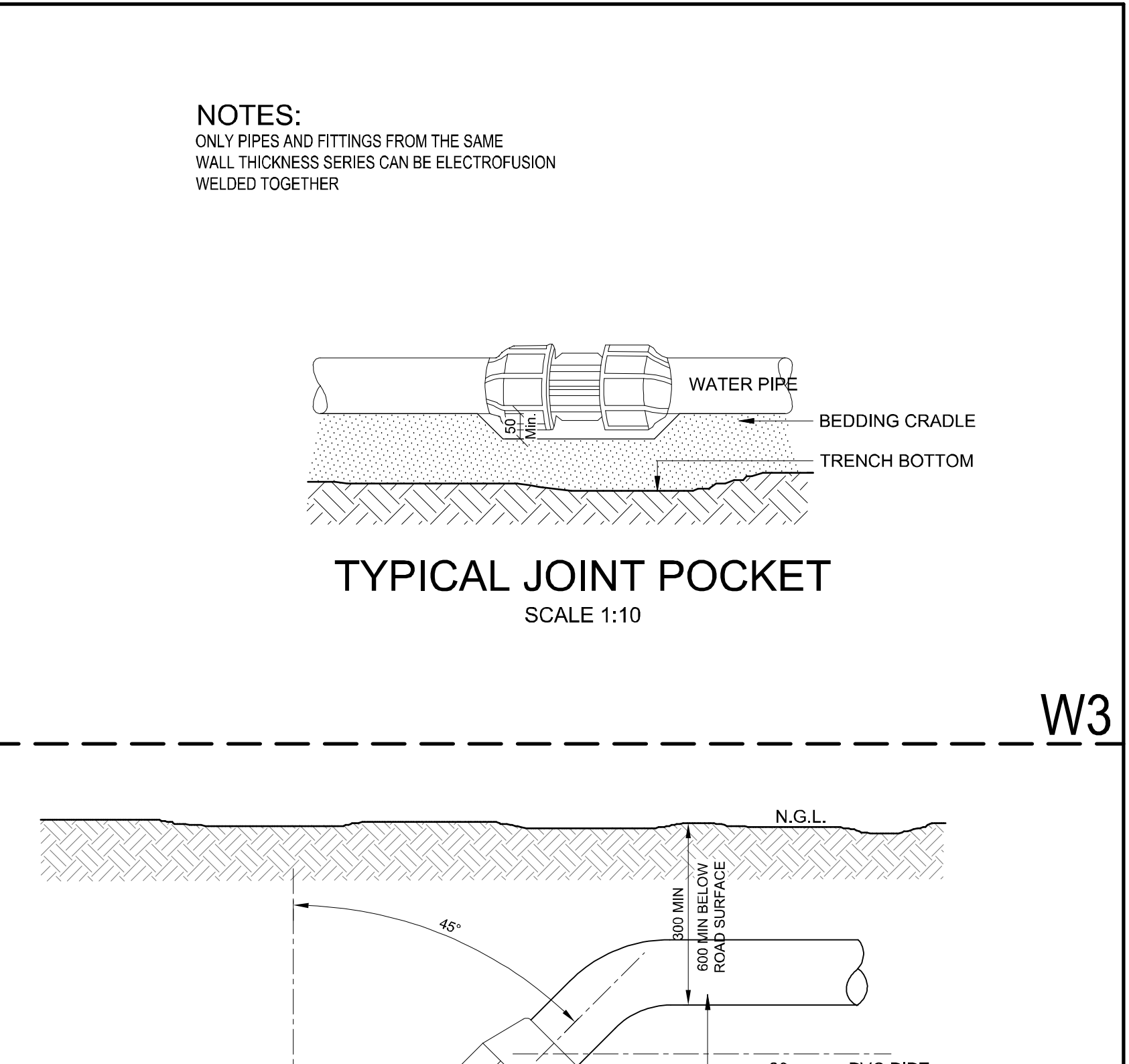
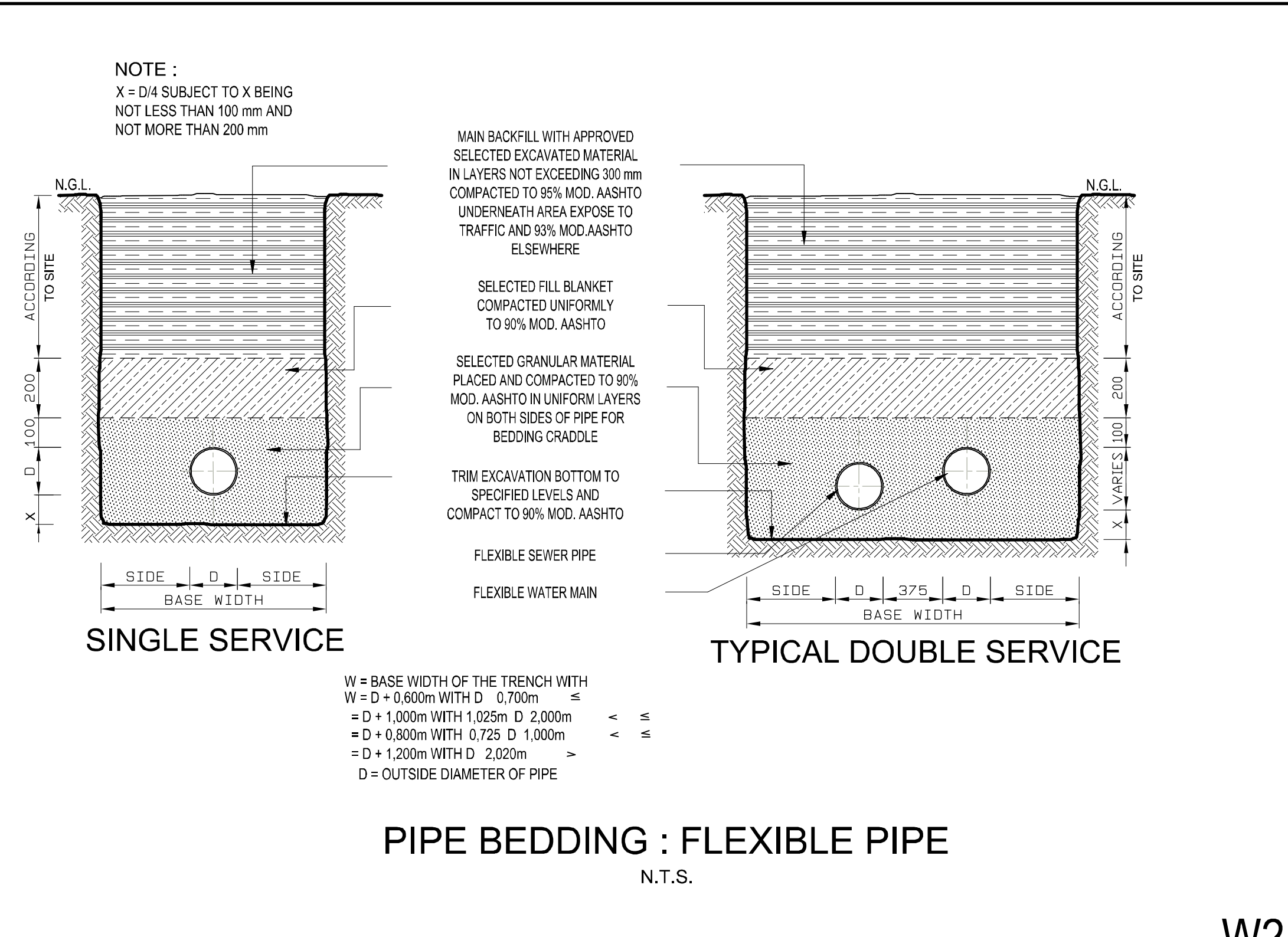
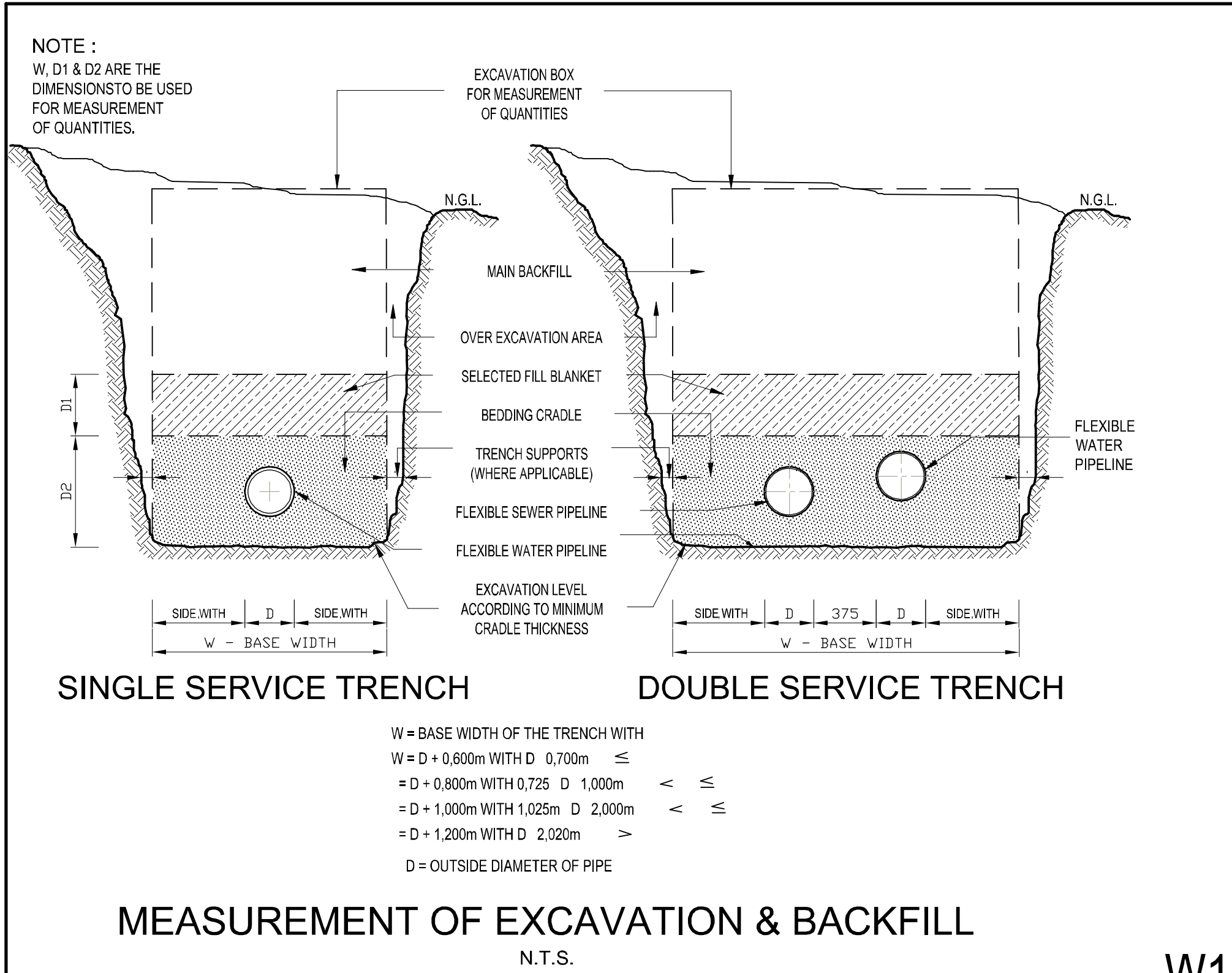
DRAWING No./TEKENING Nr.

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REV No.

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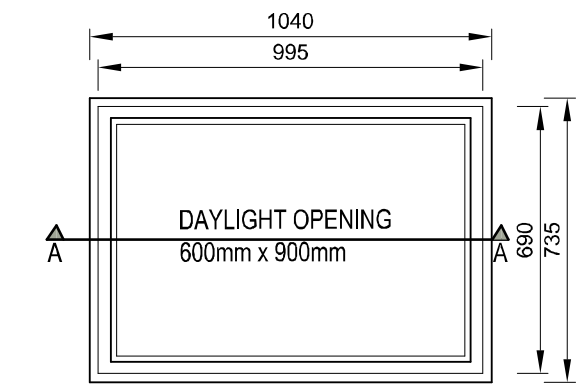
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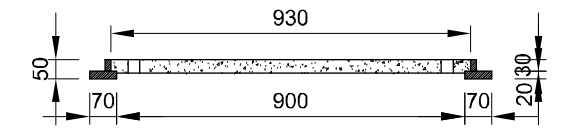
NOTE/NOTA : NO DIMENSIONS ARE TO BE SCALED OFF ANY DRAWINGS. ALL DIMENSIONS ARE TO BE RATIFIED ON SITE PRIOR TO ANY CONSTRUCTION. GEEN AFMETINGS MAG VAN TEKENINGE GESKAAL WORD NIE. ALLE AFMETINGS MOET OP TERREIN NAGEGAAN WORD VOOR KONSTRUKSIE.	A BEFORE CONTRACT COMMENCES, VOOR KONTRAK IN AANVANG NEEM. A1 AFTER CONTRACT HAS COMMENCED, NA KONTRAK IN AANVANG GENEEM HET. COPYRIGHT IS VESTED IN MVD KALAHARI IN TERMS OF THE COPYRIGHT ACT. (ACT 98 OF 1978) OUTEURSREG IS GEVESTIG IN MVD KALAHARI, KRAGTENS DIE WET OP OUTEURSREG. (WET 98 VAN 1978)	NO. NR. DATE DATUM AMENDMENTS WYSIGINGS	MVD Kalahari Consulting Engineers and Town Planning/Raadgewende Ingenieurs en Stadsbeplanning. Du Toitspanweg 188 / Du Toitspan Road Posbus / P.O. Box 580, Kimberley 8300 Tel: (053) 831 1889/90 E-Mail admin@mvdkalahari.co.za www.mvdkalahari.co.za Level 2 B-BBEE Contributor CESA Consulting Engineers South Africa	DESIGN ONTWERP A. Coetzee DRAWN GETEKEN K. Mann CHECKED NAGEGAAN A. Coetzee CLIENT KLIENT GLM DATE DATUM July 2024	PROJECT/PROJEC CONSTRUCTION OF SPORTS FACILITIES IN DIBENG	CLIENT/KLIENT GAMAGARA Local Municipality Khomo Mo Lefatibeng DRAWING DESCRIPTION/TEKENING BESKRYWING WATER DETAILS 1 PAPER SIZE/PAPIER GROOTTE A1 SCALE/SKAAL AS SHOWN DRAWING No./TEKENING Nr. 3089/2/C/W/D/001 REV No.	FOR TENDER

PIPE SCHEDULE		
No.	ITEM DESCRIPTION	ø PIPE
1	ELBOWS, GALV.	65mm ø
2	VALVE LHC	RSV 80mm ø
3	REDUCER	80mm ø - 65mm ø
4	DISTANT PIECE	65mm ø
5	WATER METER	65mm ø
6	PIPE GALV.	80mm ø
7	'DENSOTAPE' WRAPPING AROUND ALL UNDERGROUND GALVANIZED PIPING	YES
8	CONCRETE VALVE BOX	YES
9	ANCHOR BLOCKS	YES
10	SCREWED FLANGE	65mm ø
11	AVK GATE VALVE PN 10 OR PN 16	YES
12	AVK NON RETURN VALVE	YES
13	ELBOWS, GALV.	80mm ø
14	DN65 PN16 GJS STRAINER	65mm ø
15	END CAP	80mm ø

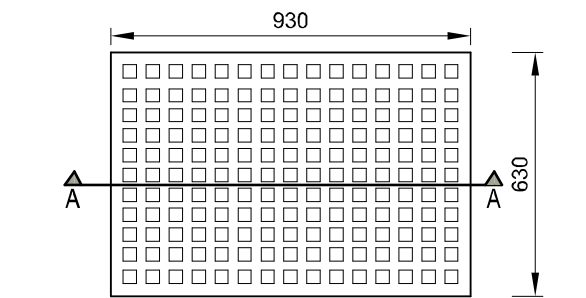
- NOTES:**
1. PLACE WATER METER PARALLEL TO PROPERTY BOUNDARY
 2. CONCRETE STRENGTH FOR COLLAR - 20 MPa (28 DAYS.) CONCRETE COVER - 50mm.
 3. WHERE UNDERGROUND VALVE BOX IS PLACED IN THE ROAD OR PAVEMENT, THE TOP OF THE CONCRETE COLLAR SHALL BE FLAT.
 4. FLANGES DRILLED TO TABLE BS 10:1962 T/D



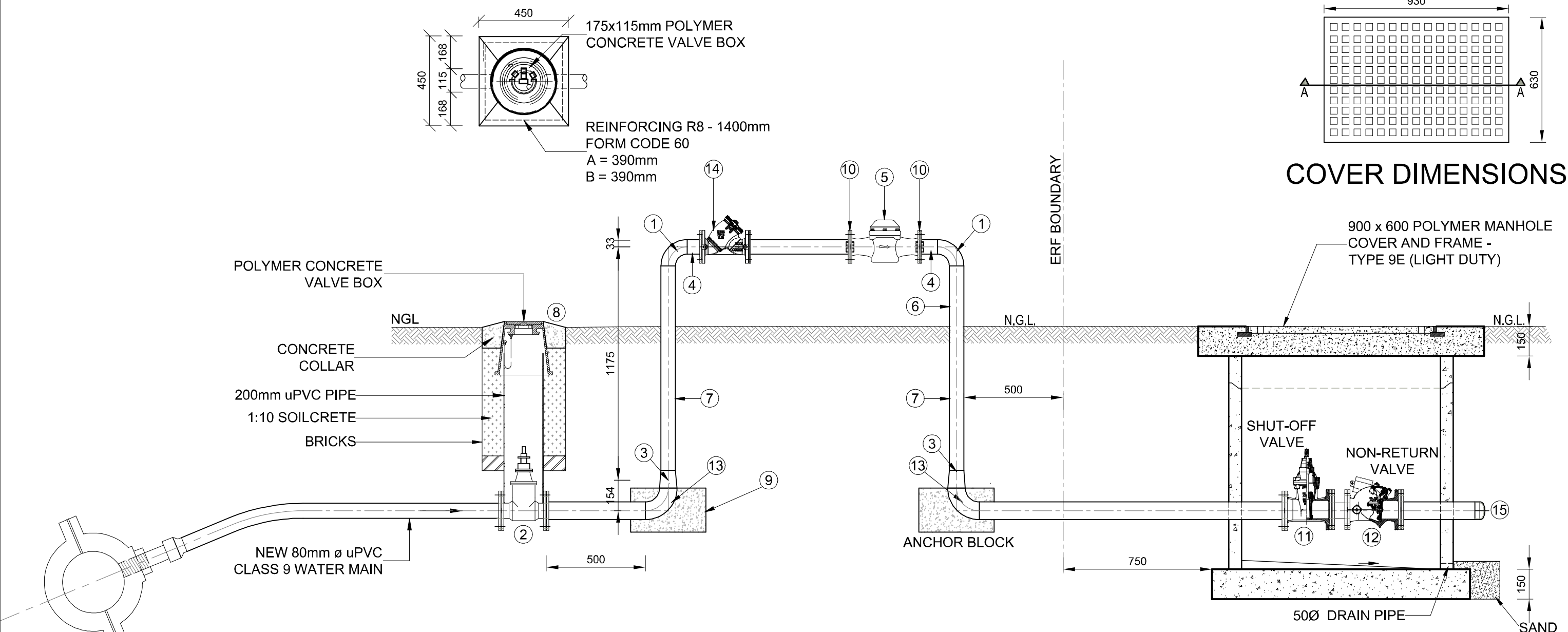
FRAME DIMENSIONS



COVER AND FRAME SECTION A-A



COVER DIMENSIONS

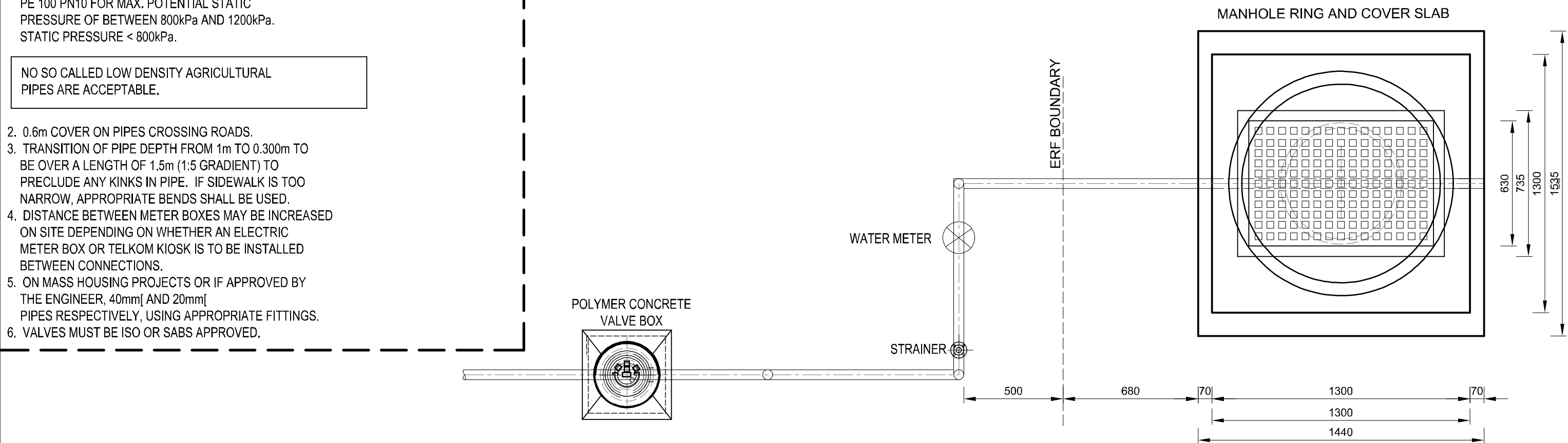


DIAGRAMATIC LAYOUT WATER METER AND VALVE CONNECTION

SCALE 1:20

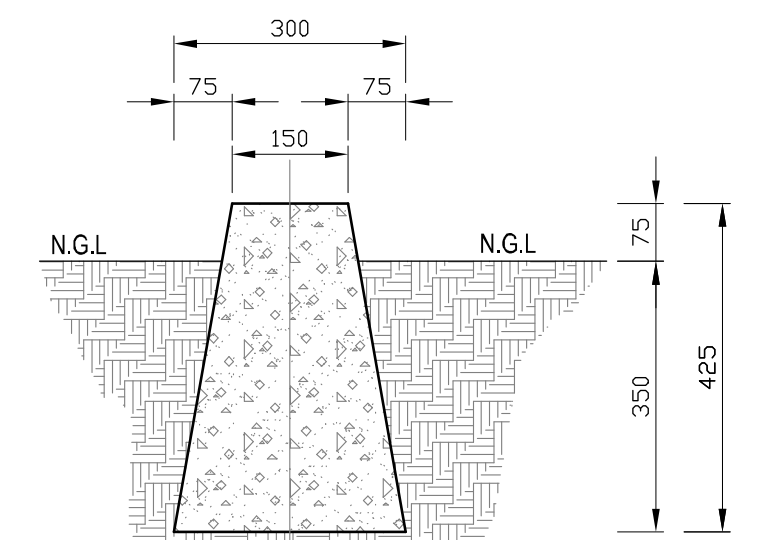
- NOTES:**
1. ALL PIPES AND FITTINGS SHALL COMPLY WITH SANS 4427 AND SHALL BE ONE OF THE FOLLOWING: PE 100 PN10 FOR MAX. POTENTIAL STATIC PRESSURE OF BETWEEN 800kPa AND 1200kPa. STATIC PRESSURE < 800kPa.
 2. 0.6m COVER ON PIPES CROSSING ROADS.
 3. TRANSITION OF PIPE DEPTH FROM 1m TO 0.300m TO BE OVER A LENGTH OF 1.5m (1:5 GRADIENT) TO PRECLUDE ANY KINKS IN PIPE. IF SIDEWALK IS TOO NARROW, APPROPRIATE BENDS SHALL BE USED.
 4. DISTANCE BETWEEN METER BOXES MAY BE INCREASED ON SITE DEPENDING ON WHETHER AN ELECTRIC METER BOX OR TELKOM KIOSK IS TO BE INSTALLED BETWEEN CONNECTIONS.
 5. ON MASS HOUSING PROJECTS OR IF APPROVED BY THE ENGINEER, 40mm AND 20mm PIPES RESPECTIVELY, USING APPROPRIATE FITTINGS.
 6. VALVES MUST BE ISO OR SABS APPROVED.

NO SO CALLED LOW DENSITY AGRICULTURAL PIPES ARE ACCEPTABLE.



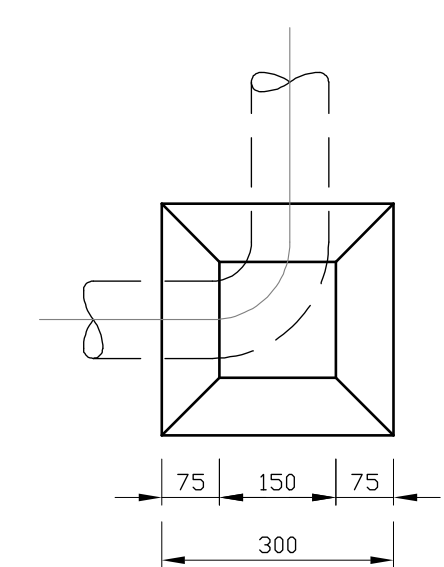
PLAN LAYOUT WATER METER AND VALVE CONNECTION

SCALE 1:20



SECTION

NOTE: MARKERS MUST BE PAINTED BLUE

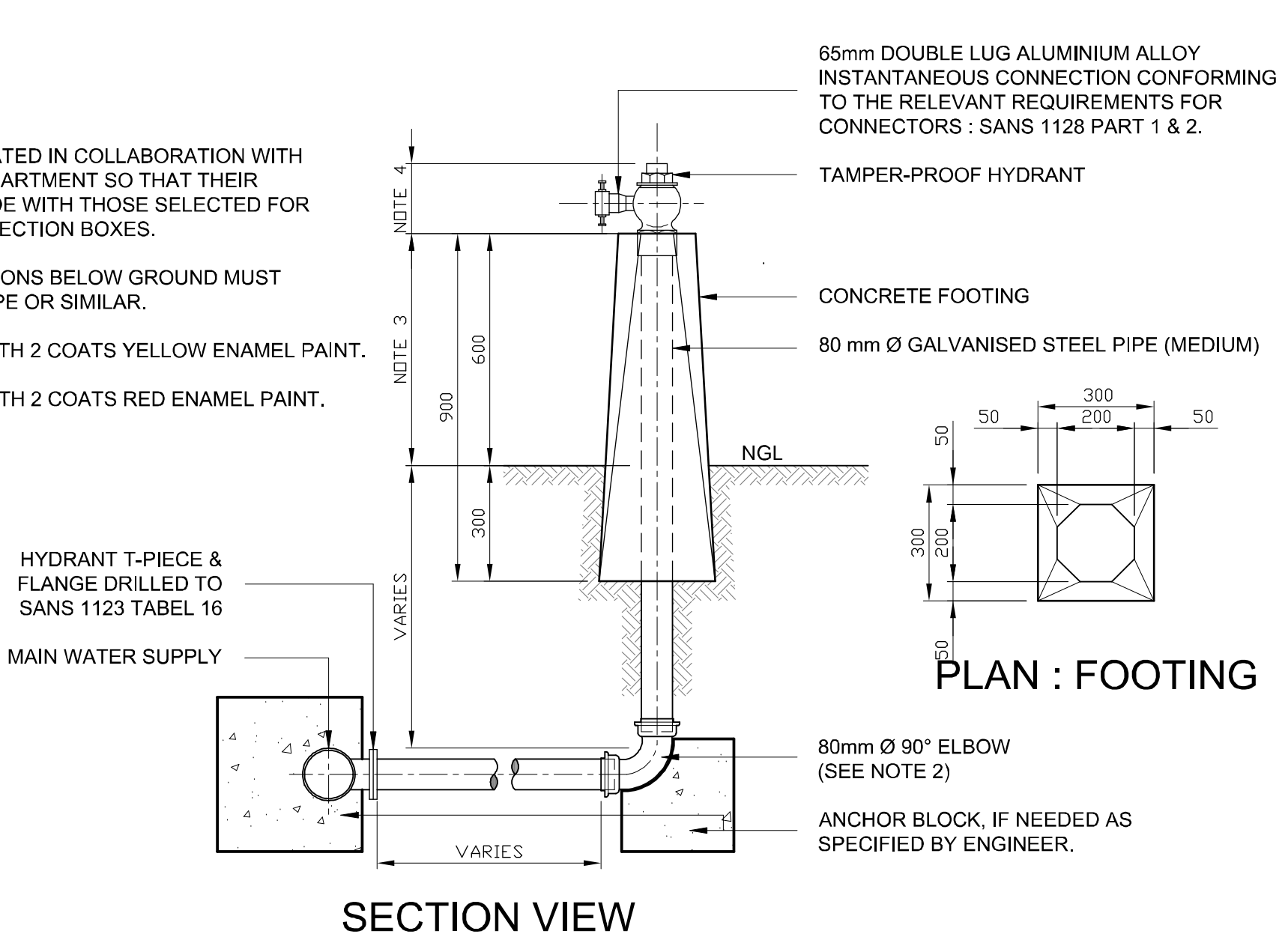


PLAN

MARKING OF PIPES

SCALE 1 : 10

- NOTE :**
1. HYDRANTS MUST BE LOCATED IN COLLABORATION WITH THE CITY ENGINEERS DEPARTMENT SO THAT THEIR POSITION DO NOT COINCIDE WITH THOSE SELECTED FOR ELECTRICAL HOUSE CONNECTION BOXES.
 2. ALL THREADED CONNECTIONS BELOW GROUND MUST BE TAPED WITH DENSOTAPE OR SIMILAR.
 3. SUITABLE UNDERCOAT WITH 2 COATS YELLOW ENAMEL PAINT.
 4. SUITABLE UNDERCOAT WITH 2 COATS RED ENAMEL PAINT.

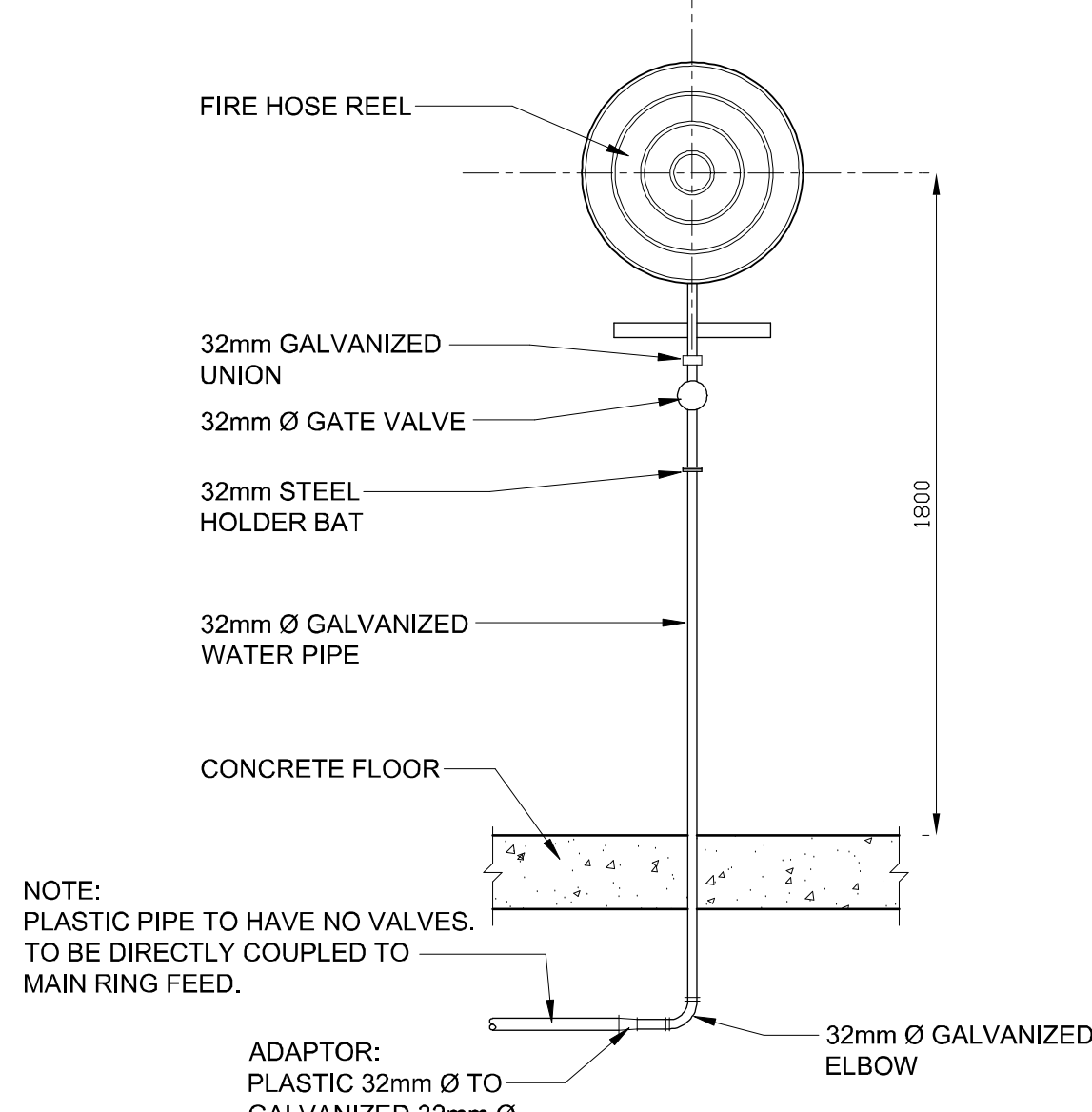


SECTION VIEW

HYDRANT DETAIL

SCALE 1 : 15

NOTE: MARKERS MUST BE PAINTED BLUE



TYPICAL FIRE HOSE DETAIL

SCALE 1:20

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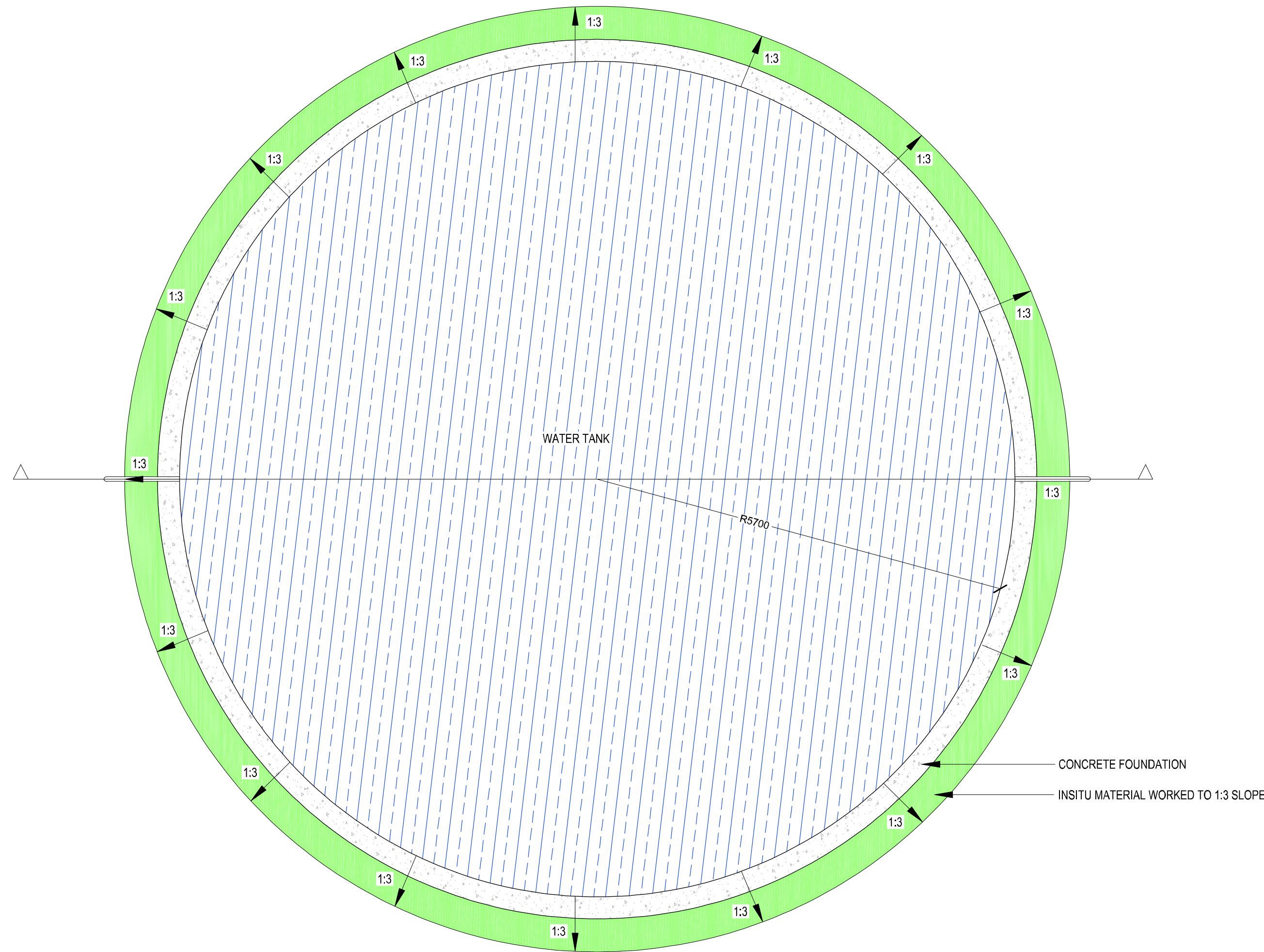
DESIGN ONTWERP	A. Coetzee
DRAWN GETEKEN	K. Mann
CHECKED NAGEGAAN	A. Coetzee
CLIENT KLIANT	GLM
DATE DATUM	July 2024

PROJECT/PROJEK

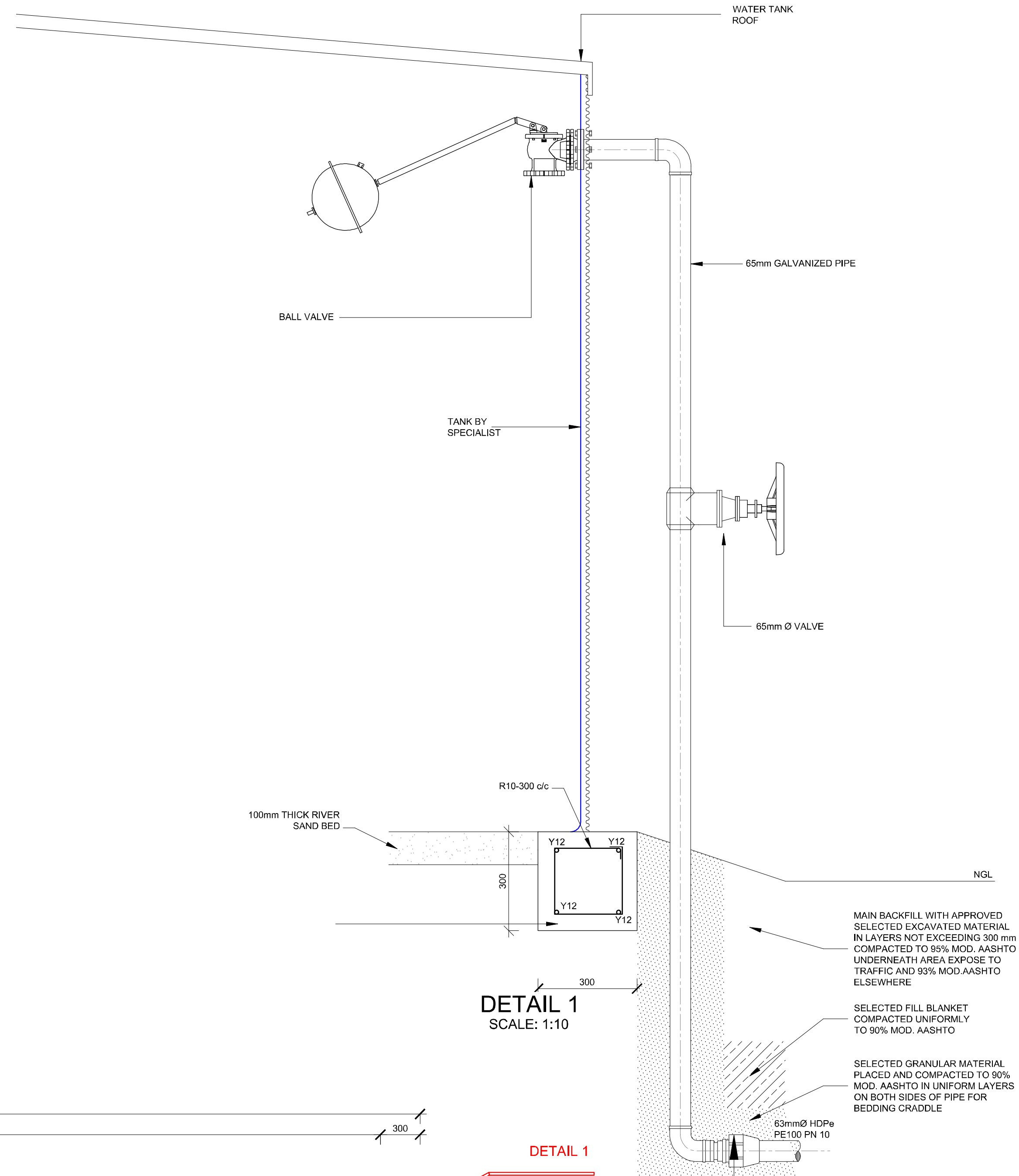
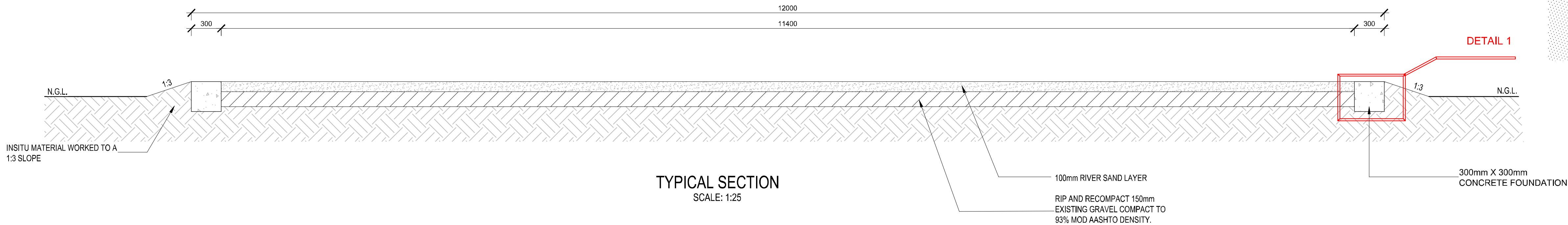
CONSTRUCTION OF SPORTS FACILITIES IN DIBENG

CLIENT/KLIANT		 GAMAGARA <i>Local Municipality</i> <i>Khomo Mo Lefatsibong</i>		FOR TENDER
DRAWING DESCRIPTION/TEKENING BESKRYWING		WATER DETAILS 2		
PAPER SIZE/PAPIER GROOTTE	SCALE/SKAAL AS SHOWN	DRAWING No./TEKENING Nr.	REV No.	
A1		3089/2/C/W/D/002		

FOR TENDER



PLAN VIEW
SCALE: 1:50



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CHECKED NAGEGAAN
CLIENT KLIENT
DATE DATUM

A. Coetzee
K. Mann
A. Coetzee
GLM
July 2024

PROJECT/PROJEK

CONSTRUCTION OF
SPORTS FACILITIES
IN DIBENG

CLIENT/KLIENT



DRAWING DESCRIPTION/TEKENING BESKRYWING

WATER DETAILS 3

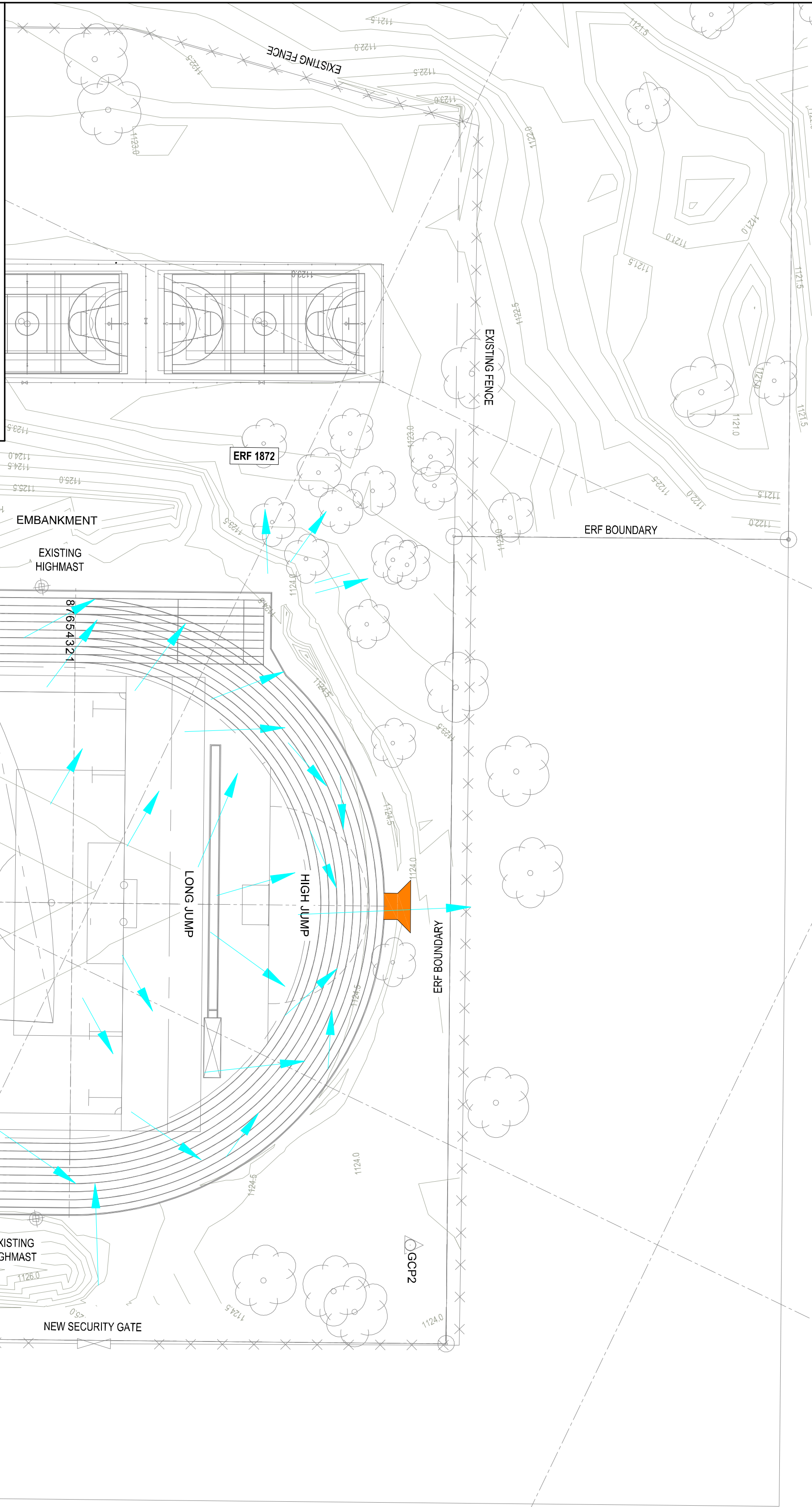
PAPER SIZE/PAPIER GROOTTE
A1

SCALE/SKAAL
AS SHOWN

DRAWING No./TEKENING Nr.
3089/2/C/W/D/003

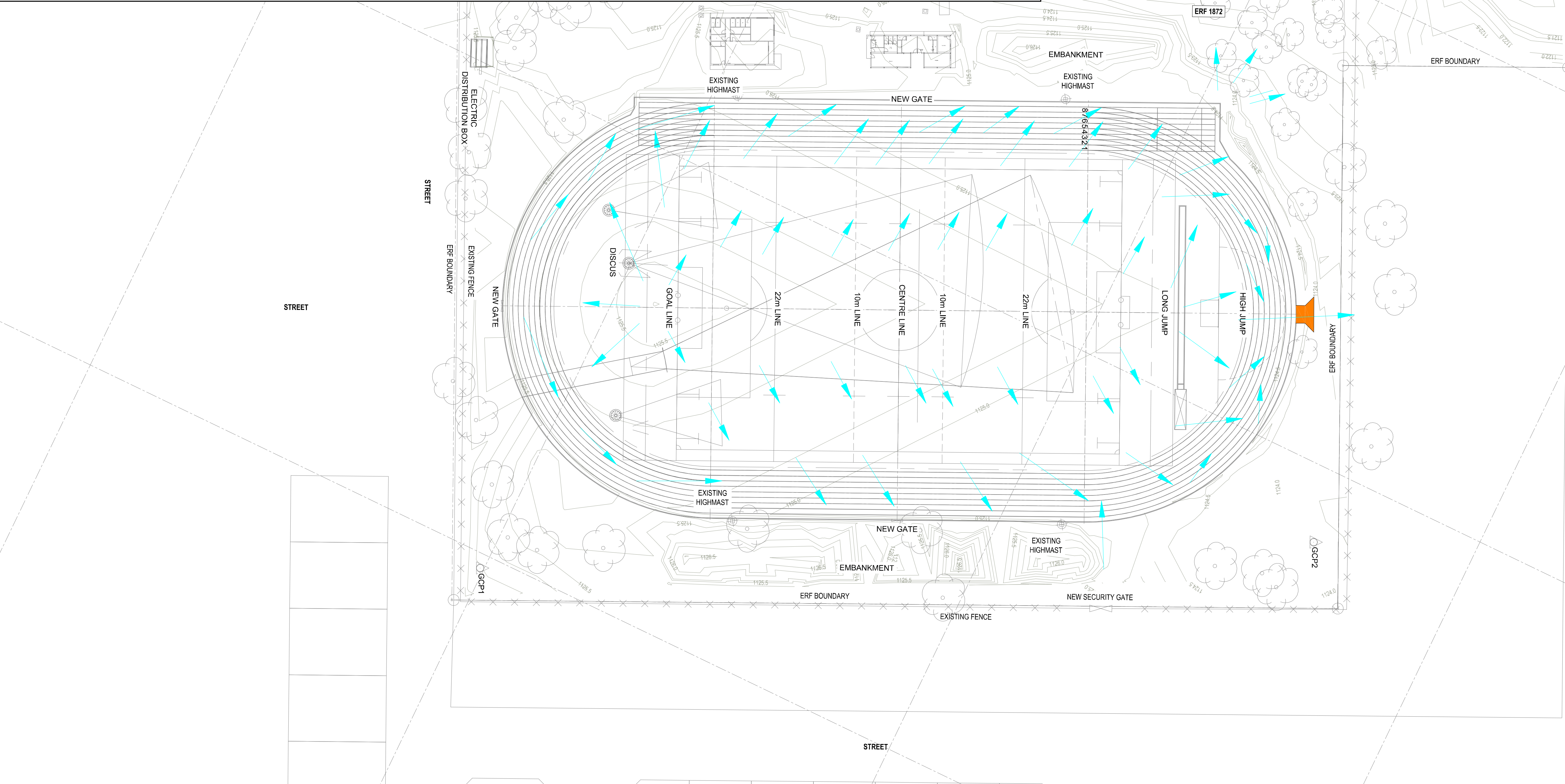
REV No.
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FOR TENDER



LEGEND			
SYMBOL		DESCRIPTION	
		STORM WATER FLOW DIRECTION	
		STONE PITCHING	

BENCHMARKS 			
NAME	Y	X	Z
GCP1	10596.862	3053400.836	1125.646
GCP2	10683.711	3053233.83	1124.023
GCP3	10763.597	3053477.192	1123.669



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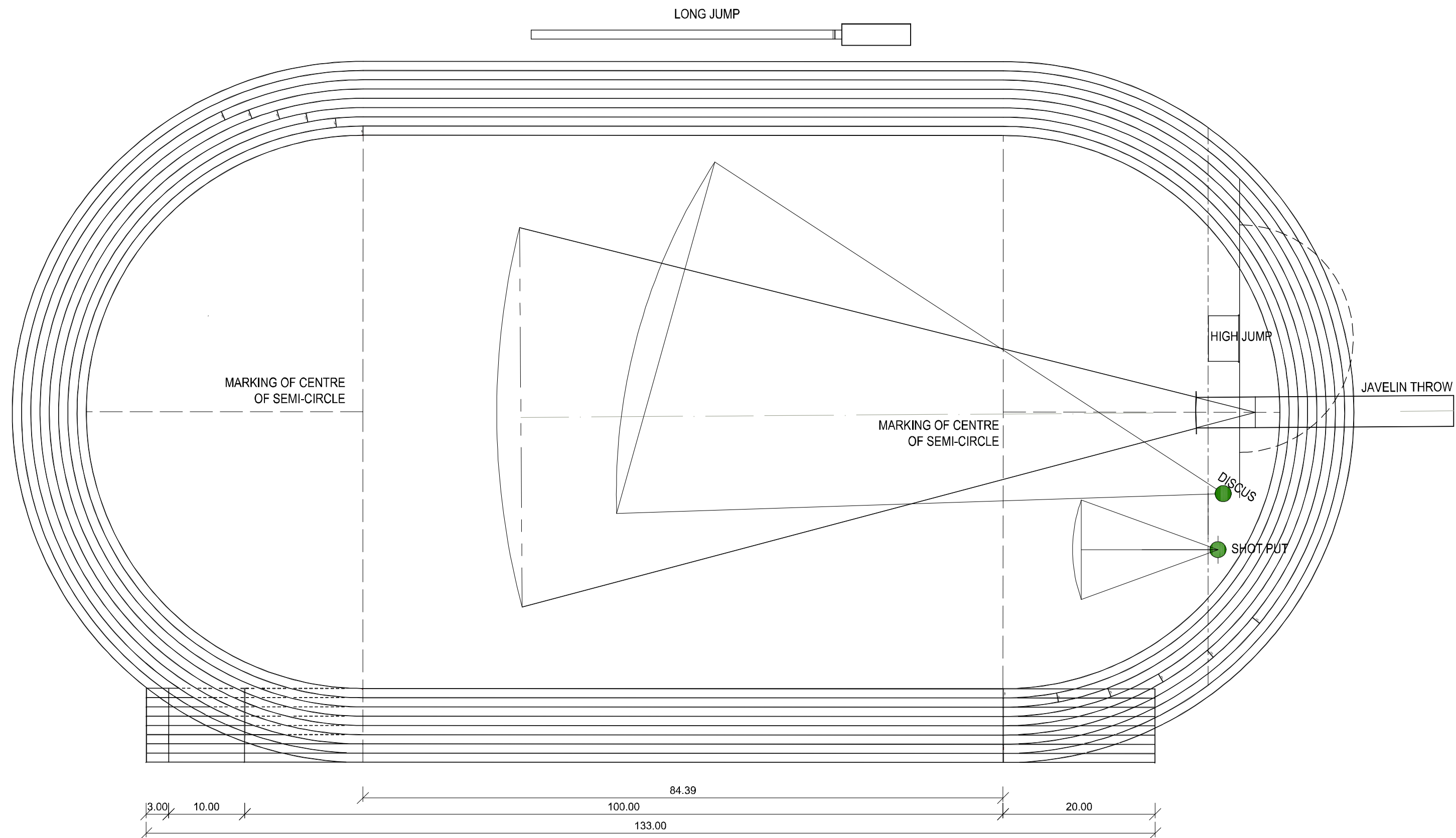
DESIGN ONTWERP	A. Coetzee	
DRAWN GETEKEN	K. Mann	
CHECKED NAGEGAAN	A. Coetzee	
CLIENT KLIJNT	GLM	
DATE DATUM	July 2024	

PROJECT/PROJEK

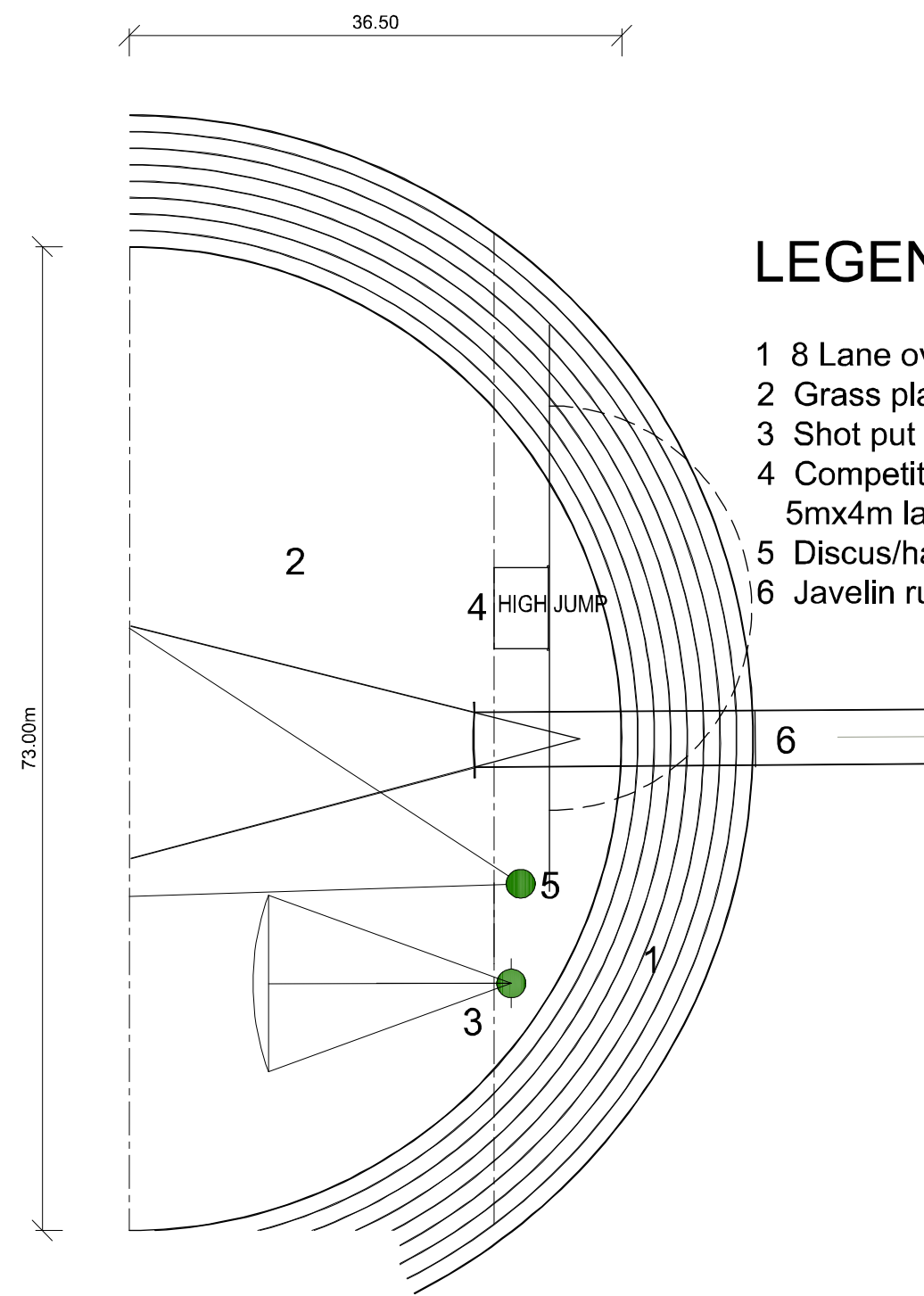
CONSTRUCTION OF SPORTS FACILITIES IN DIBENG

CLIENT/KLIENT		 GAMAGARA Local Municipality <i>Khuma Mo Lefateng</i>		FOR TENDER
DRAWING DESCRIPTION/TEKENING BESKRYWING				
STORMWATER LAYOUT				
PAPER SIZE/PAPIER GROOTTE	SCALE/SKAAL	DRAWING No./TEKENING Nr.	REV No.	
A1	1:750	3089/2/C//L/001	--	

FOR TENDER



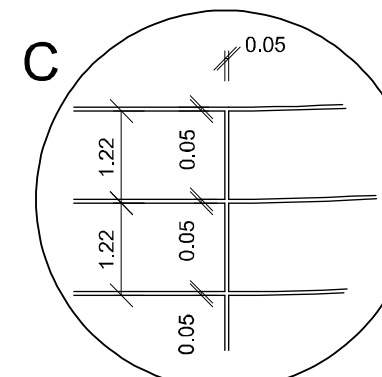
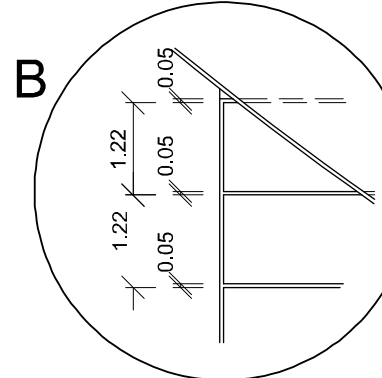
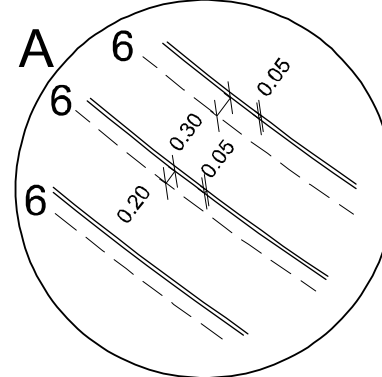
400m ATHLETIC TRACK LAYOUT
SCALE 1:500



SOUTHERN LAYOUT OF FIELD
FIELD LAYOUT
SCALE 1 : 500

LEGEND:

- 1 8 Lane oval track
- 2 Grass playing field
- 3 Shot put
- 4 Competition high jump with 5m x 4m landing mat
- 5 Discus/hammer throw
- 6 Javelin runway

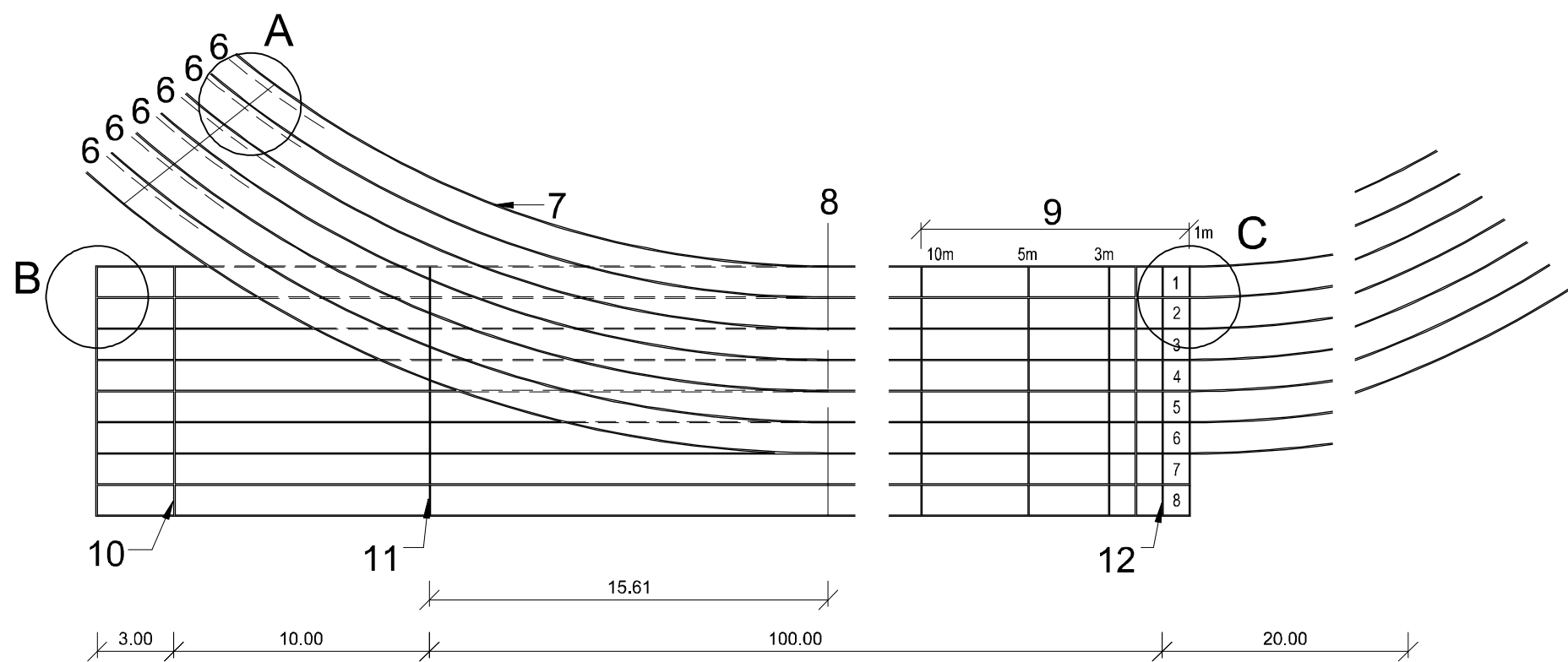


NOTES:

- The following maximum gradients apply:
 - 0.1% downward in the direction of running measured in a straight line between start and finish line.
 - 1% across the width of the track towards the inside lane.
- The 400m Standard track must have an obstacle-free zone of at least 1.00m wide on both sides. The obstacle-free zone must also be flush with the edge of the track.
- All lanes shall be marked by white lines. Lanes may be marked with numbers with a minimum height of 0.50m. All markings are 0.05m wide. Distances are measured from the edge of the finish line nearer to the start to the edge of the start line farther from the finish.
- Synthetic surfaces shall be installed so that there shall be no high spots or depressions beneath a 4m straight edge exceeding 6mm. Depressions beneath a 1m straight edge shall not exceed 3mm. There shall be no step-like irregularities greater than 1mm in height.
- On grass surfaces there shall be no bumps or depressions beneath a 3m straightedge exceeding 10mm, and beneath a 0.50m straightedge exceeding 8mm.

LEGEND

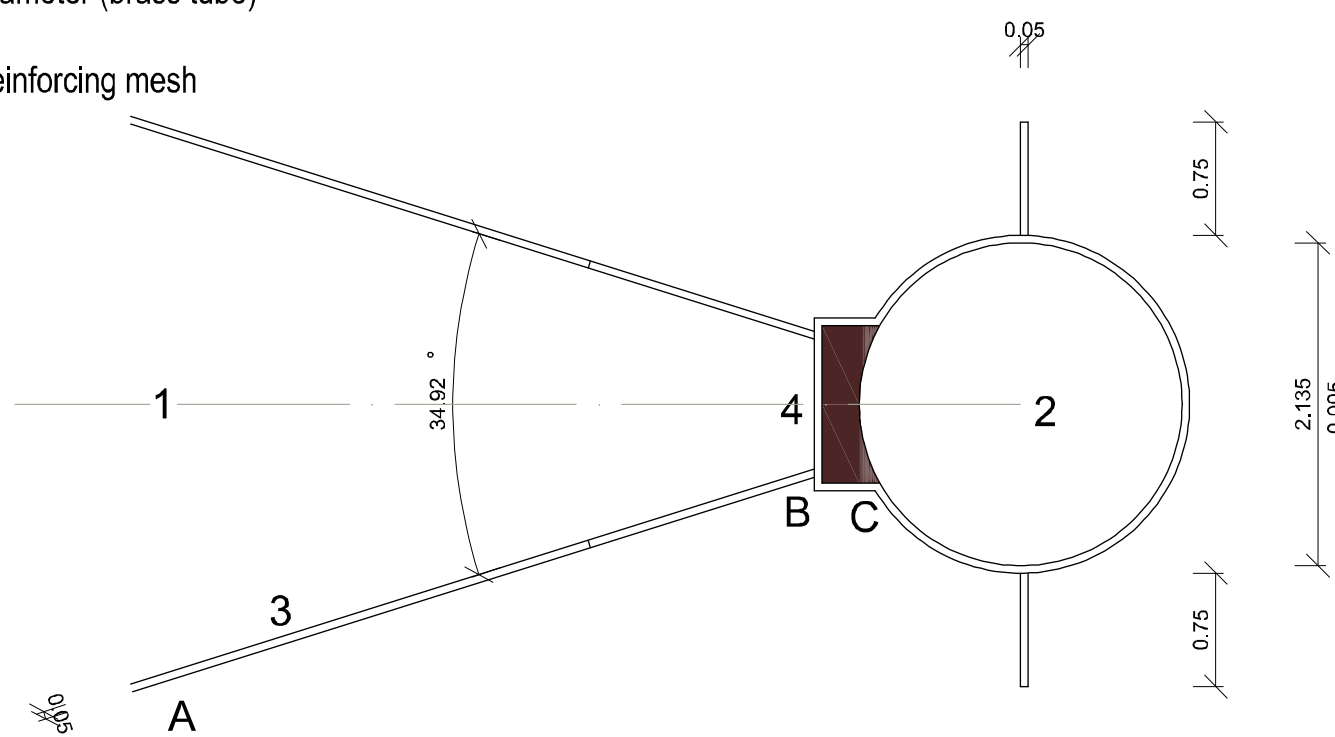
- 1 Stainless steel bolt
- 2 Socket covered with stainless steel lid
- 3 Stainless steel socket inserted into mortar in exact vertical position
- 4 Steel tube in concrete foundation
- 5 Gravel sand
- 6 Measurement line(line of running) for oval track
- 7 Inside edge of the track
- 8 Axis through semi-circle centre
- 9 Distance determination lines (optional)
- 10 Start line for 110m
- 11 Start line for 100m
- 12 Finish line



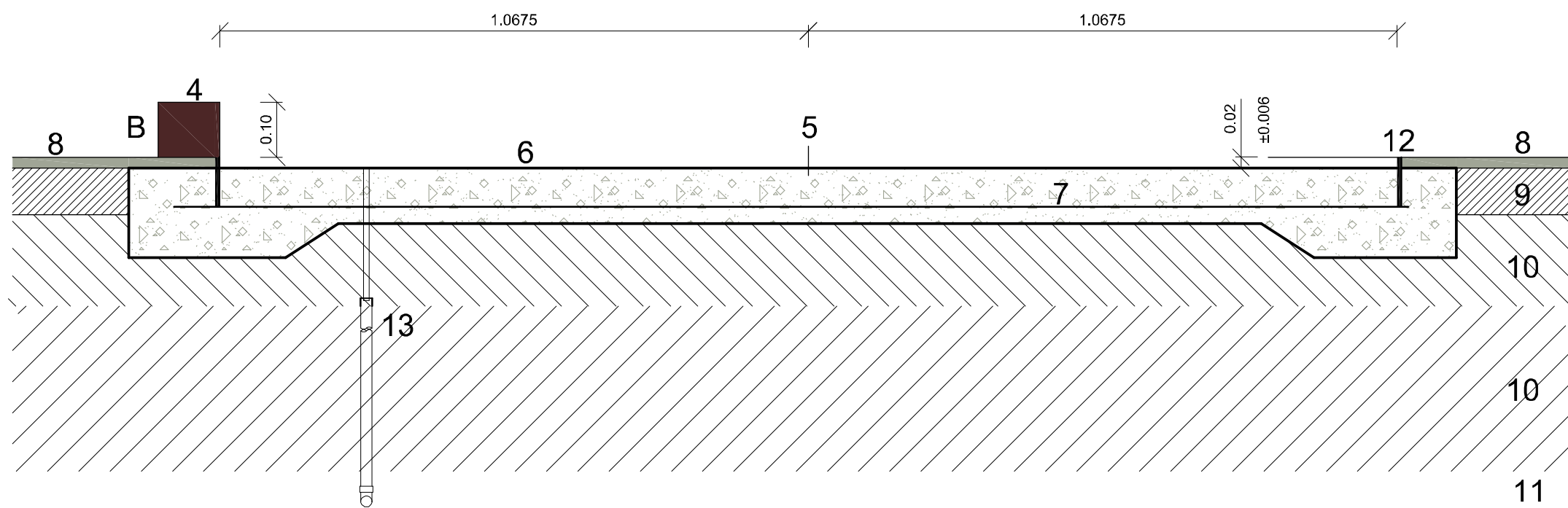
MARKING OF THE 400m STANDARD TRACK
SCALE 1:250

LEGEND

- 1 Landing sector
- 2 Trowing circle
- 3 Marking for the landing sector
- 4 Stop board
- 5 Centring hole 4mm diameter (brass tube)
- 6 Throw circle surface
- 7 Concrete base with reinforcing mesh
- 8 Synthetic surface
- 9 Asphaltic concrete
- 10 gravel base layer
- 11 Subgrade
- 12 Circular metal rim
- 13 Drainage pipe



SETTING OUT PLAN
SCALE 1:50



DETAIL SECTION
SCALE 1:10

SHOT PUT DETAIL
SCALE AS SHOWN

MARKING OF CENTRE OF SEMI-CIRCLE
SCALE 1:250

LAYOUT PLAN HIGH JUMP DETAIL
SCALE 1 : 500

G2

G1

G3

NOTE/NOTA :

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DRAWN GETEKEN	K. Mann
CHECKED NAGEGAAN	A. Coetzee
CLIENT KLIJNT	GLM
DATE DATUM	July 2024

PROJECT/PROJEC

CONSTRUCTION OF
SPORTS FACILITIES
IN DIBENG

CLIENT/KLIJNT

GAMAGARA
Local Municipality
Khomo Mo Lefatsheng

DRAWING DESCRIPTION/TEKENING BESKRYWING

GENERAL DETAILS 1

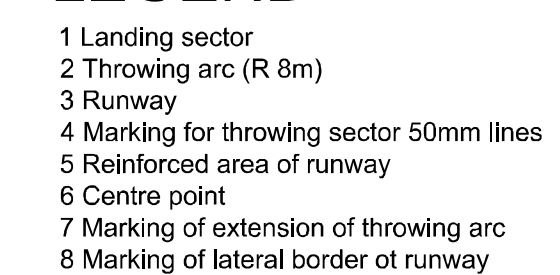
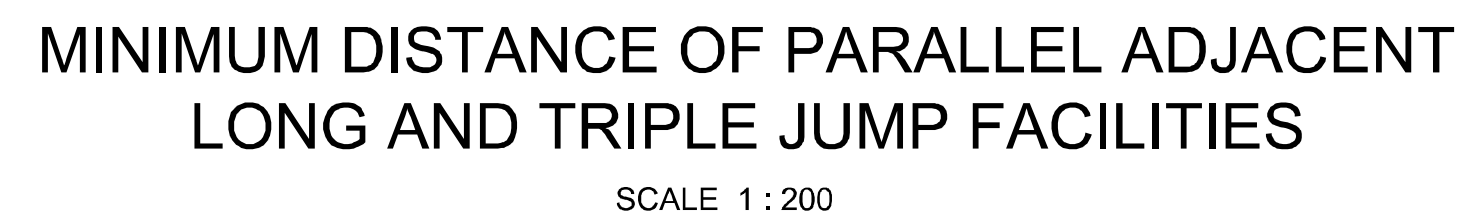
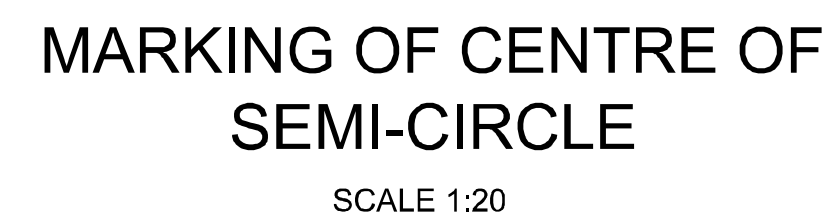
PAPER SIZE/PAPIER GROOTTE
A1

SCALE/SKAAL
As
Shown

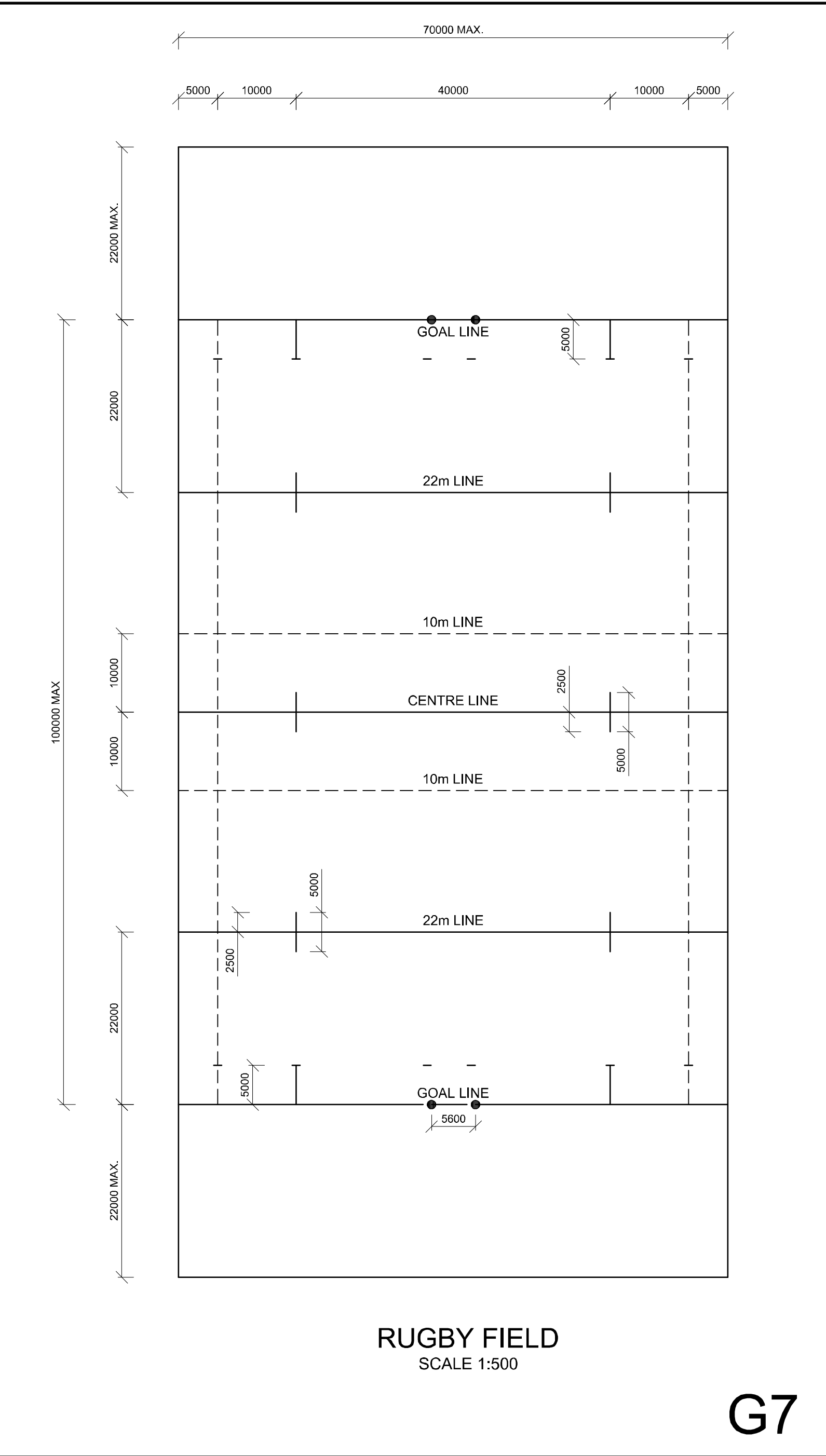
DRAWING No./TEKENING Nr.
3089/2/C/G/D/001

REV No.
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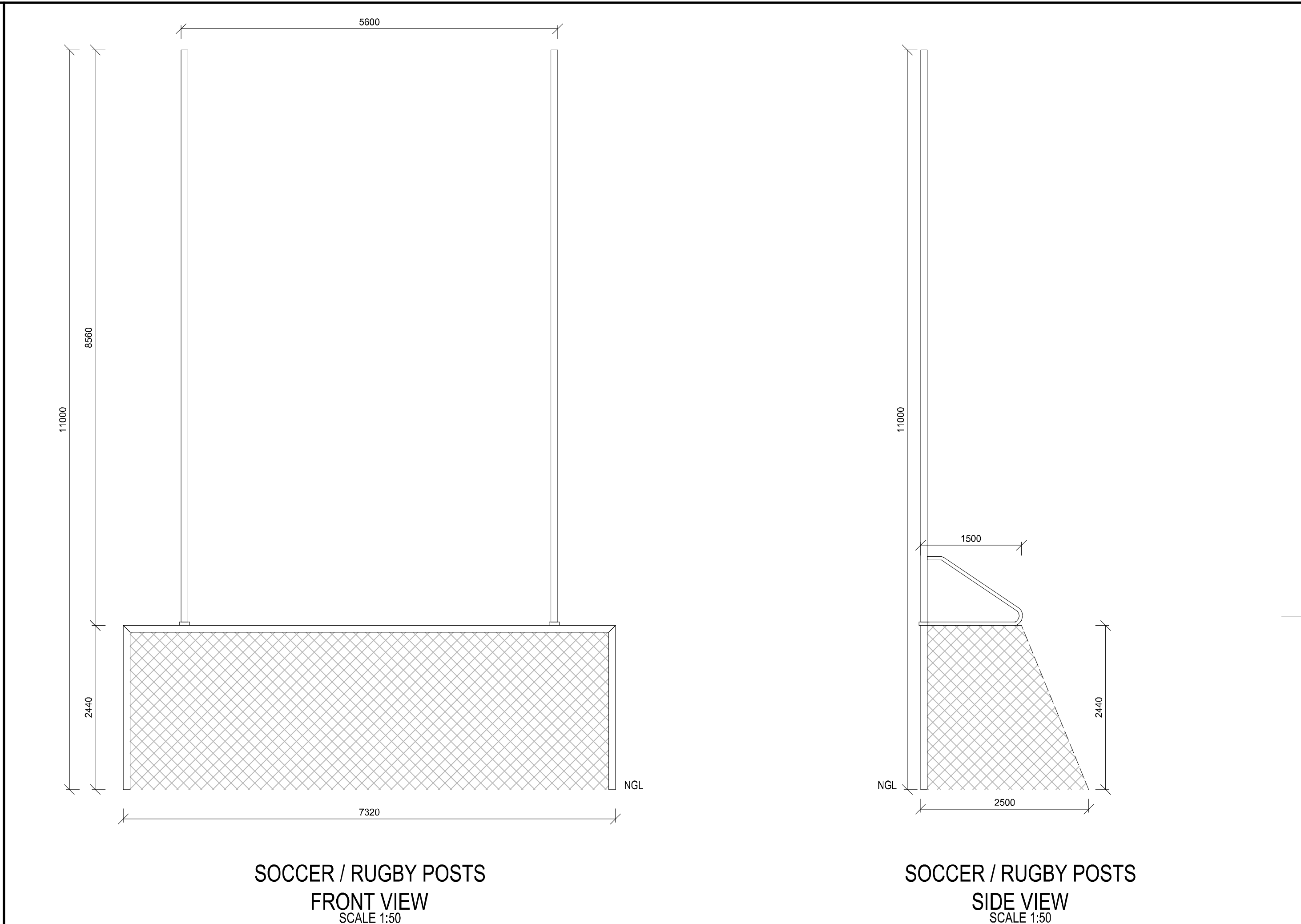
FOR TENDER



NOTE/NOTA : NO DIMENSIONS ARE TO BE SCALED OFF ANY DRAWINGS. ALL DIMENSIONS ARE TO BE RATIFIED ON SITE PRIOR TO ANY CONSTRUCTION. GEEN AFMETINGS MAG VAN TEKENINGE GESKAAL WORD NIE. ALLE AFMETINGS MOET OP TERREIN NAGEGAAN WORD VOOR KONSTRUKSIE.	A BEFORE CONTRACT COMMENCES. VOOR KONTRAK IN AANVANG NIEEM. A1 NA KONTRAK IN AANVANG GENEEM HET. COPYRIGHT IS VESTED IN MVD KALAHARI IN TERMS OF THE COPYRIGHT ACT. (ACT 98 OF 1978) OUTEURSREG IS GEVESTIG IN MVD KALAHARI KRAGTENS DIE WET OP OUTEURSREG. (WET 98 VAN 1978)				MVD Kalahari Consulting Engineers and Town Planning/Raadgewende Ingenieurs en Stadsbeplanning.



G7



NOTES :

RUGBY UNION PITCH

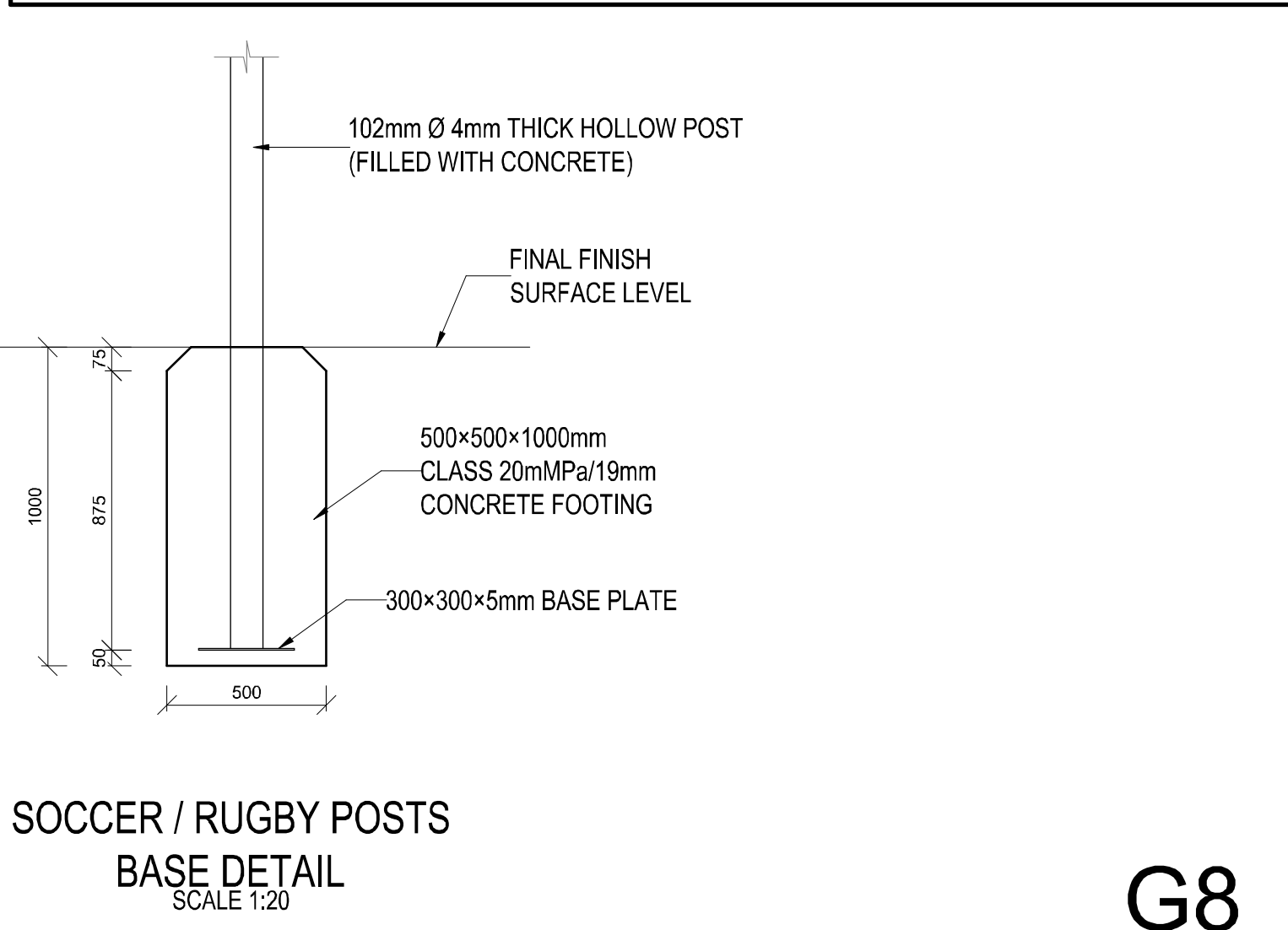
WIDTH OF LINES : UNSPECIFIED, TYPICALLY 50mm

EXTERNAL DIMENSIONS EXCLUDE WIDTH OF LINES, OTHER DIMENSIONS INDICATED ARE MEASUREMENTS BETWEEN LINES. THE DISTANCE FROM THE GOAL LINE TO THE DEAD-BALL LINE SHOULD BE LESS THAN 10m WHERE PRACTICABLE.

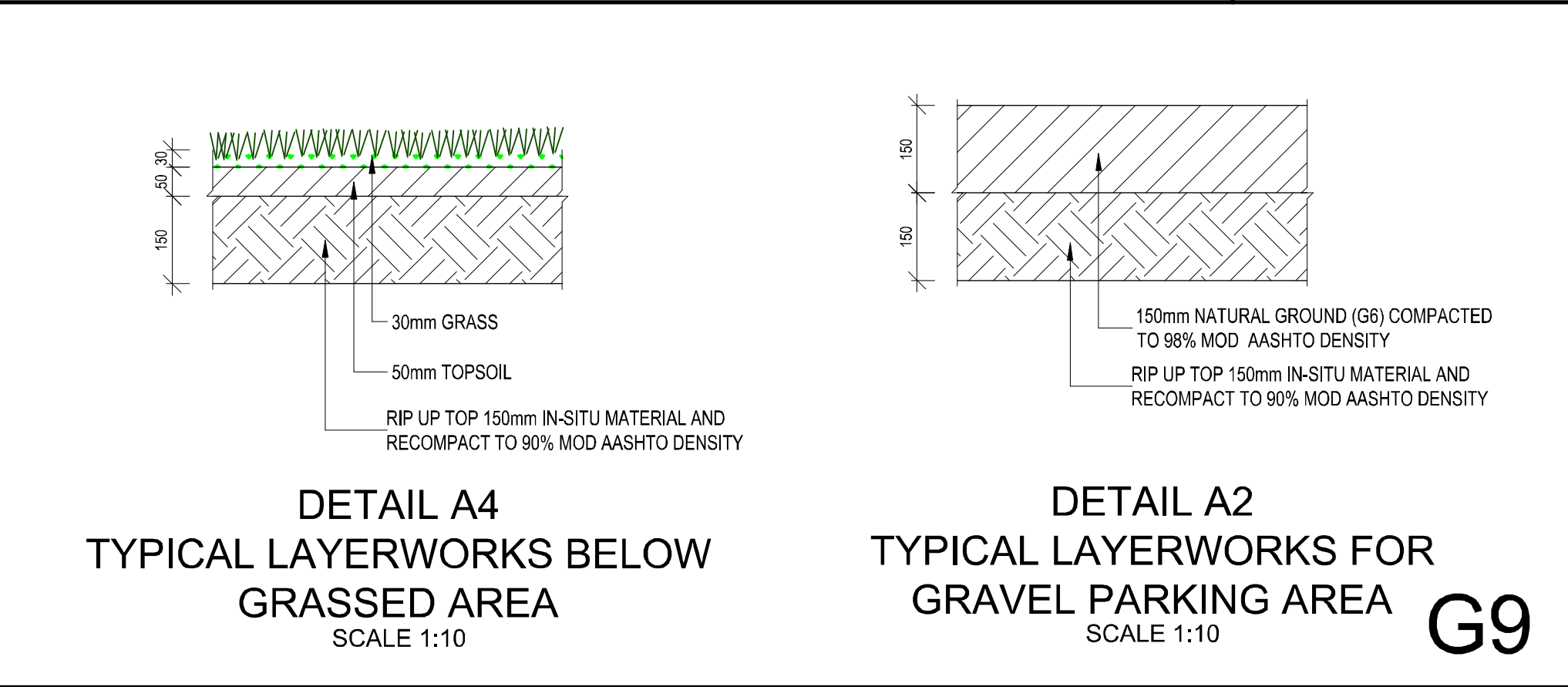
THE SIX SHORT LINES 5m IN FRONT OF AND PARALLEL TO THE GOAL LINES AT THE 5 METRES AND 15 METRES LINES, AND IN FRONT OF EACH GOAL POST ARE EACH 1m LONG.

THE GOAL DIMENSION OF 3.0m IS TAKEN FROM GROUND TO THE TOP EDGE OF THE CROSSBAR WHILST 5.6m IS THE MEASUREMENT BETWEEN THE INSIDE EDGES TO THE GOAL POSTS.

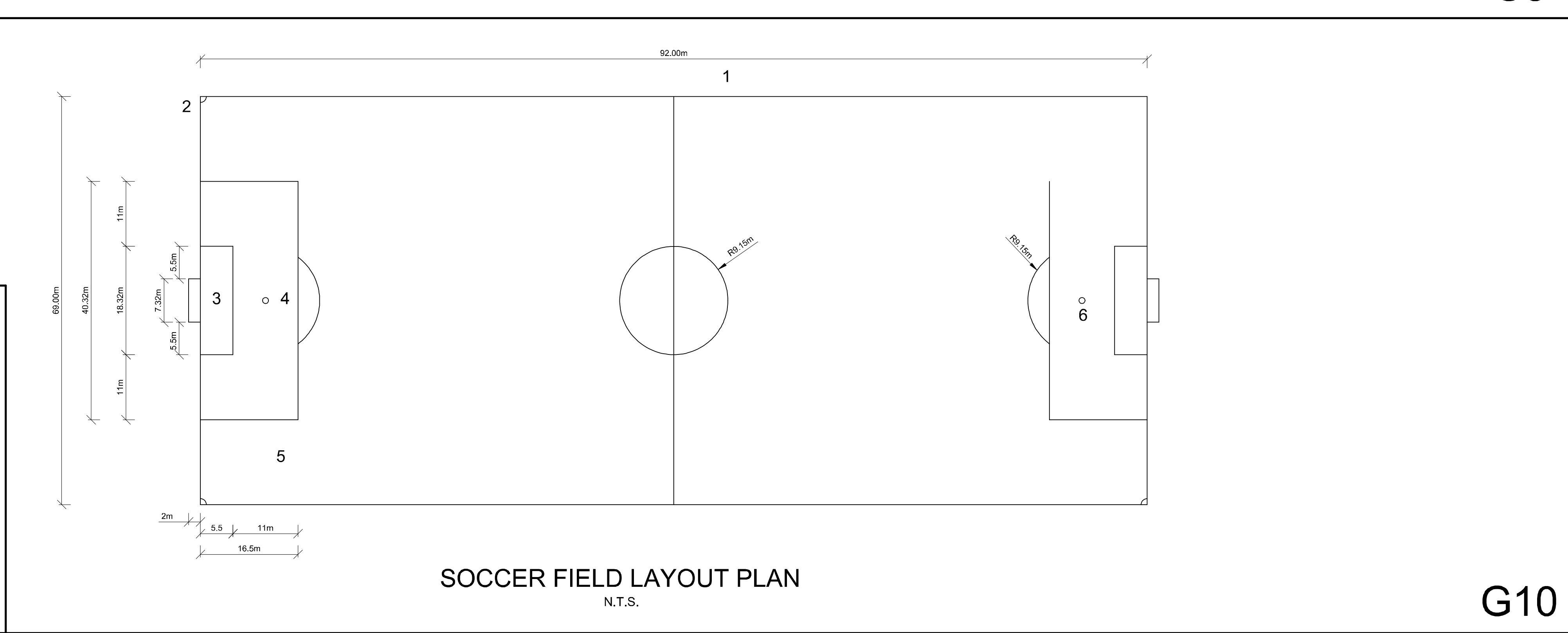
COLOUR OF LINES : UNSPECIFIED, TYPICALLY WHITE.



G8

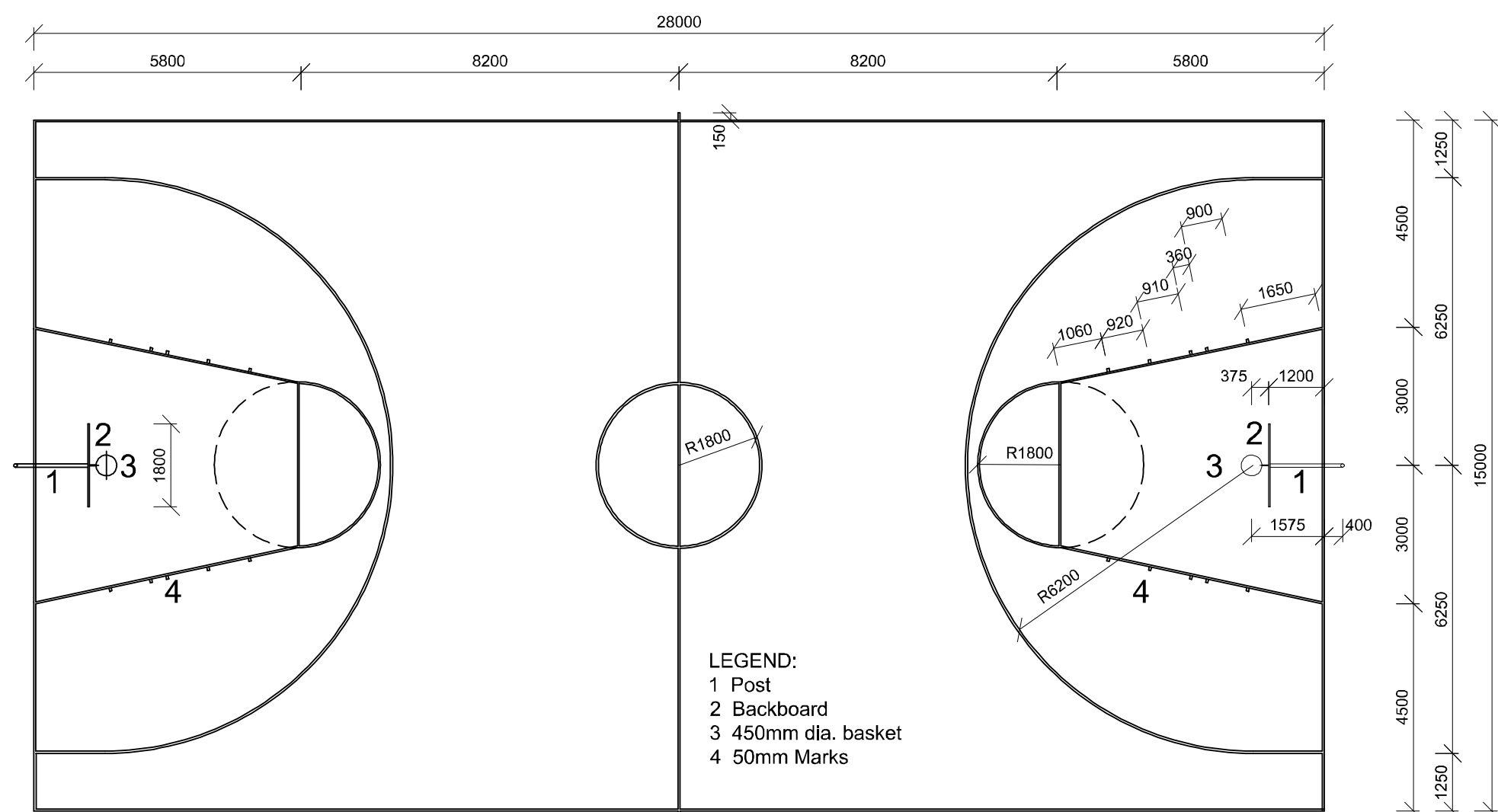


G9



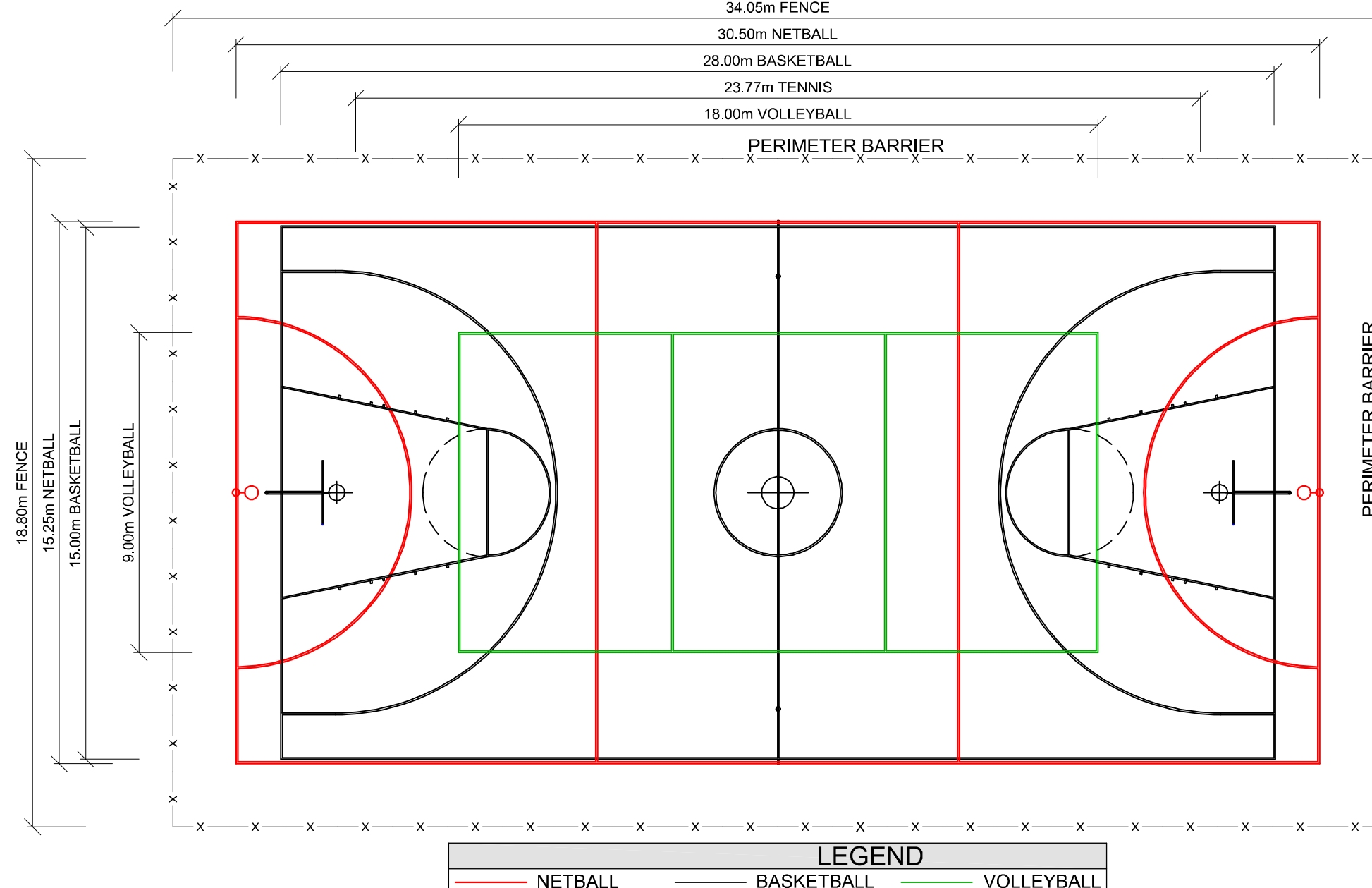
G10

NOTE/NOTA : NO DIMENSIONS ARE TO BE SCALED OFF ANY DRAWINGS. ALL DIMENSIONS ARE TO BE RATIFIED ON SITE PRIOR TO ANY CONSTRUCTION. GEEN AFMETINGS MAG VAN TEKENINGE GESKAAL WORD NIE. ALLE AFMETINGS MOET OP TERREIN NAGEGAAN WORD VOOR KONSTRUKSIE.		A BEFORE CONTRACT COMMENCES. VOOR KONTRAK IN AANVANG NEEM. A1 AFTER CONTRACT HAS COMMENCED. NA KONTRAK IN AANVANG GENEEM HET.		NO. NR.	DATE DATUM	AMENDMENTS WYSIGINGS	MVD Kalahari Consulting Engineers and Town Planning/Raadgewende Ingenieurs en Stadsbeplanning. Du Toitspanweg 186 / Du Toitspan Road Posbus / P.O. Box 580, Kimberley 8300 Tel: (053) 831 1889/90 E-Mail admin@mvdkalahari.co.za www.mvdkalahari.co.za Level 2 B-BBEE Contributor CESA Consulting Engineers South Africa			DESIGN ONTWERP A. Coetzee DRAWN GETEKEN K. Mann CHECKED NAGEGAAN A. Coetzee CLIENT KLIENT GLM DATE DATUM July 2024	PROJECT/PROJEK CONSTRUCTION OF SPORTS FACILITIES IN DIBENG		CLIENT/KLIENT  GAMAGARA Local Municipality KwaMama Local Municipality DRAWING DESCRIPTION/TEKENING BESKRYWING GENERAL DETAILS 3 PAPER SIZE/PAPIER GROOTTE A1 SCALE/SKAAL As Shown DRAWING No./TEKENING Nr. 3089/2/C/G/D/003 REV No. --		FOR TENDER
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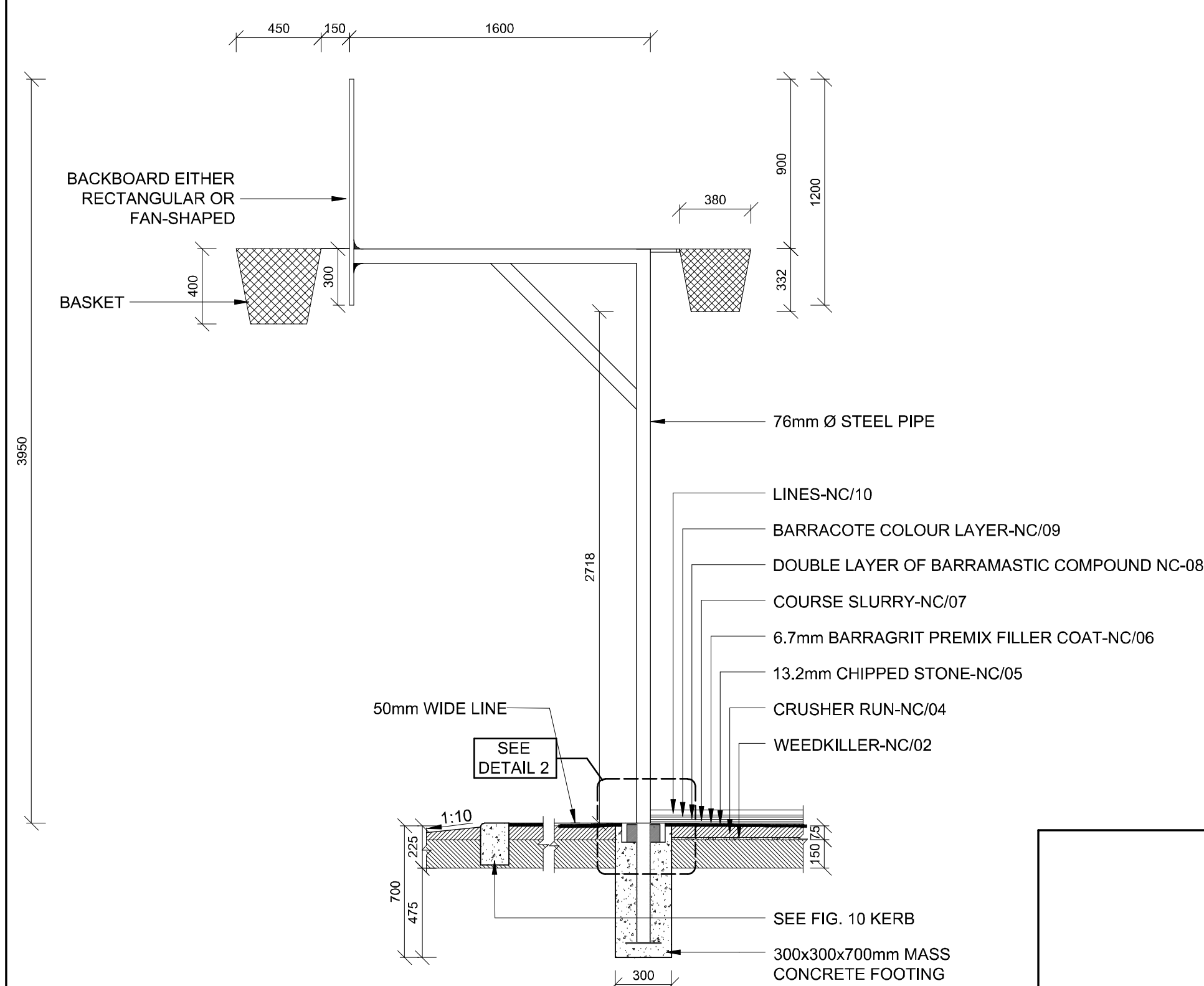
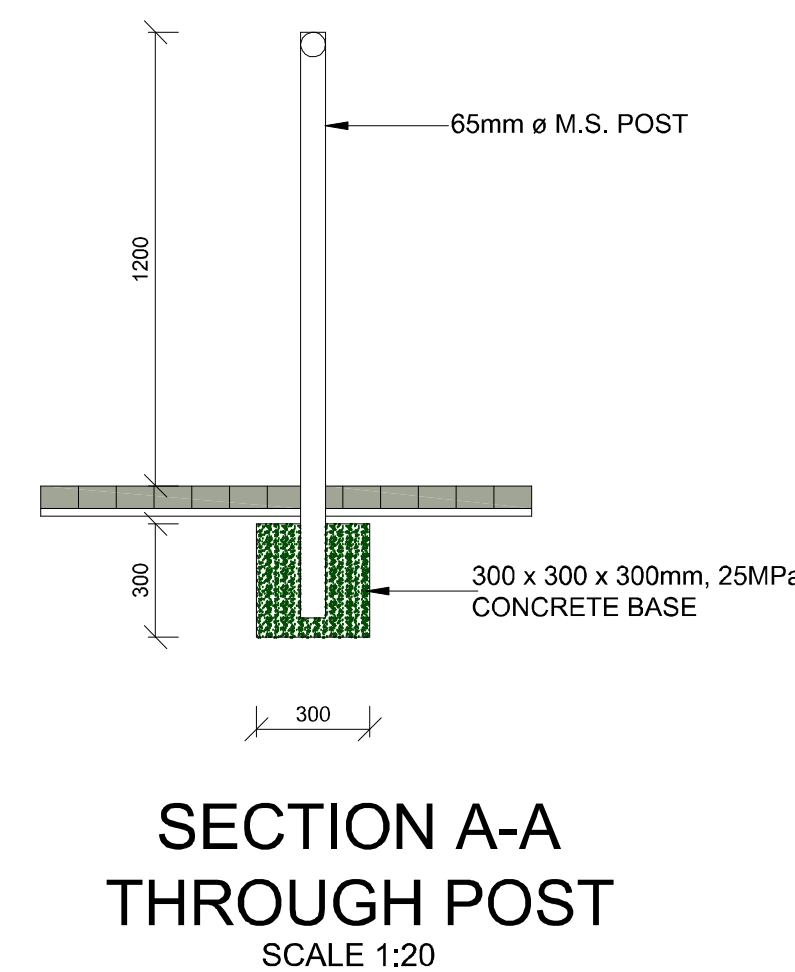
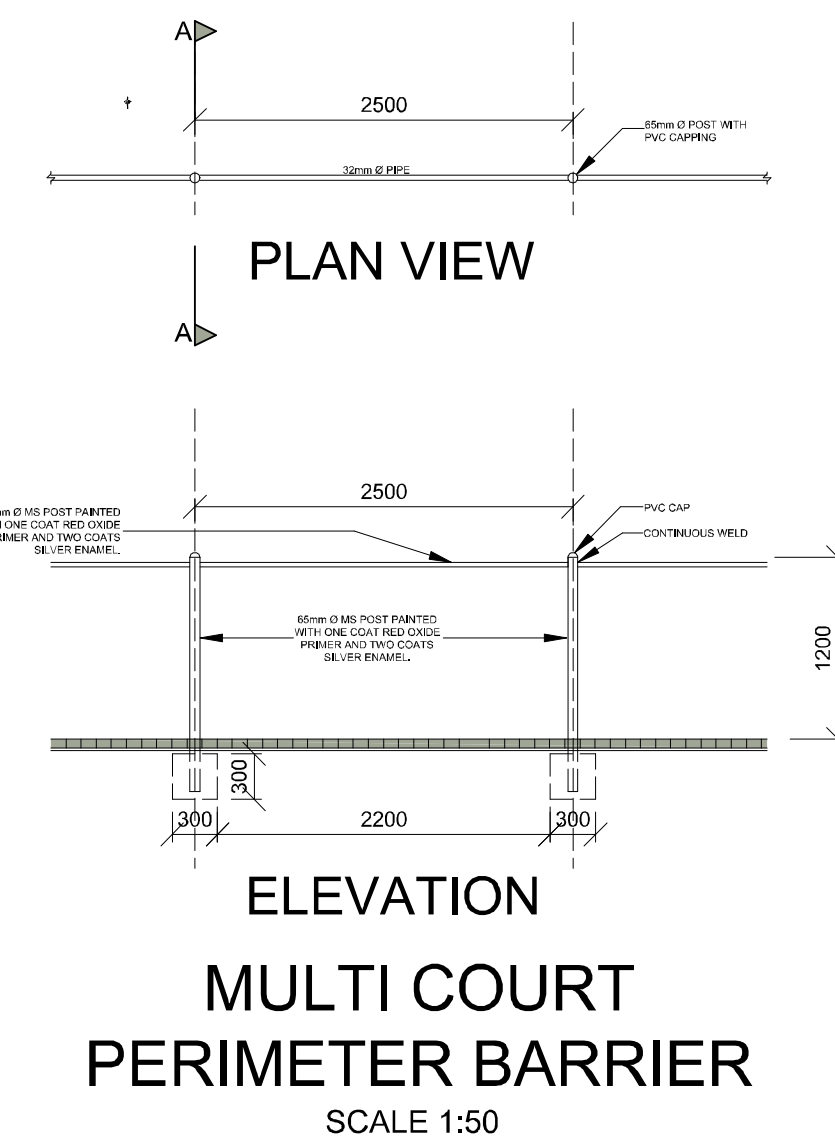


PAINTWORK ON BASKET BALL COURT
50mm WIDE LINES, PAINTED WITH
APPROVED BASKET BALL COURT PAINT
MIN. 2m CLEARANCE AROUND COURT

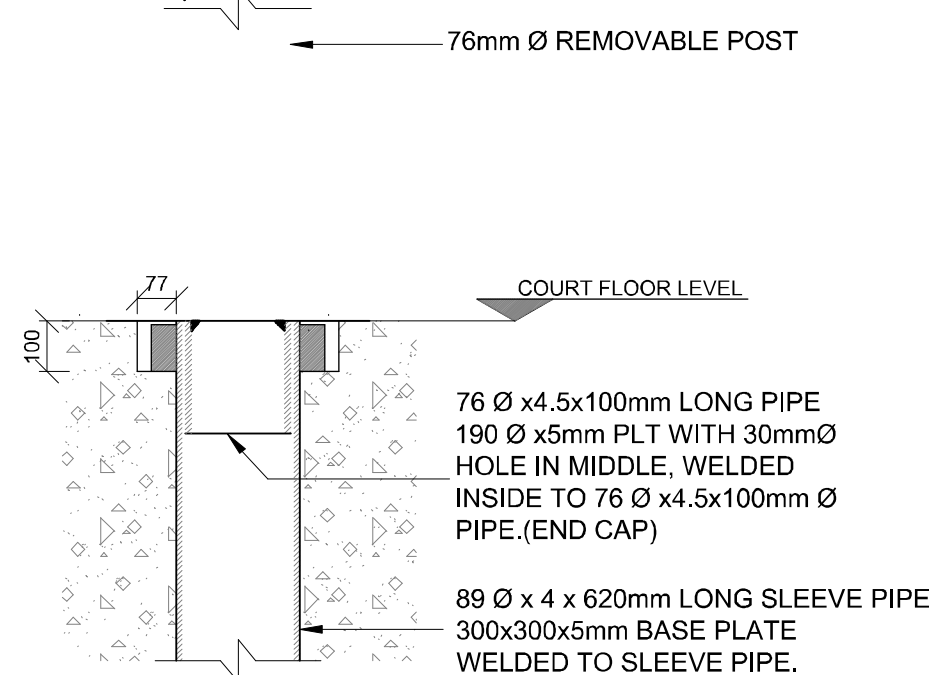
BASKETBALL COURT LAYOUT AND DIMENSIONS
SCALE 1 : 125



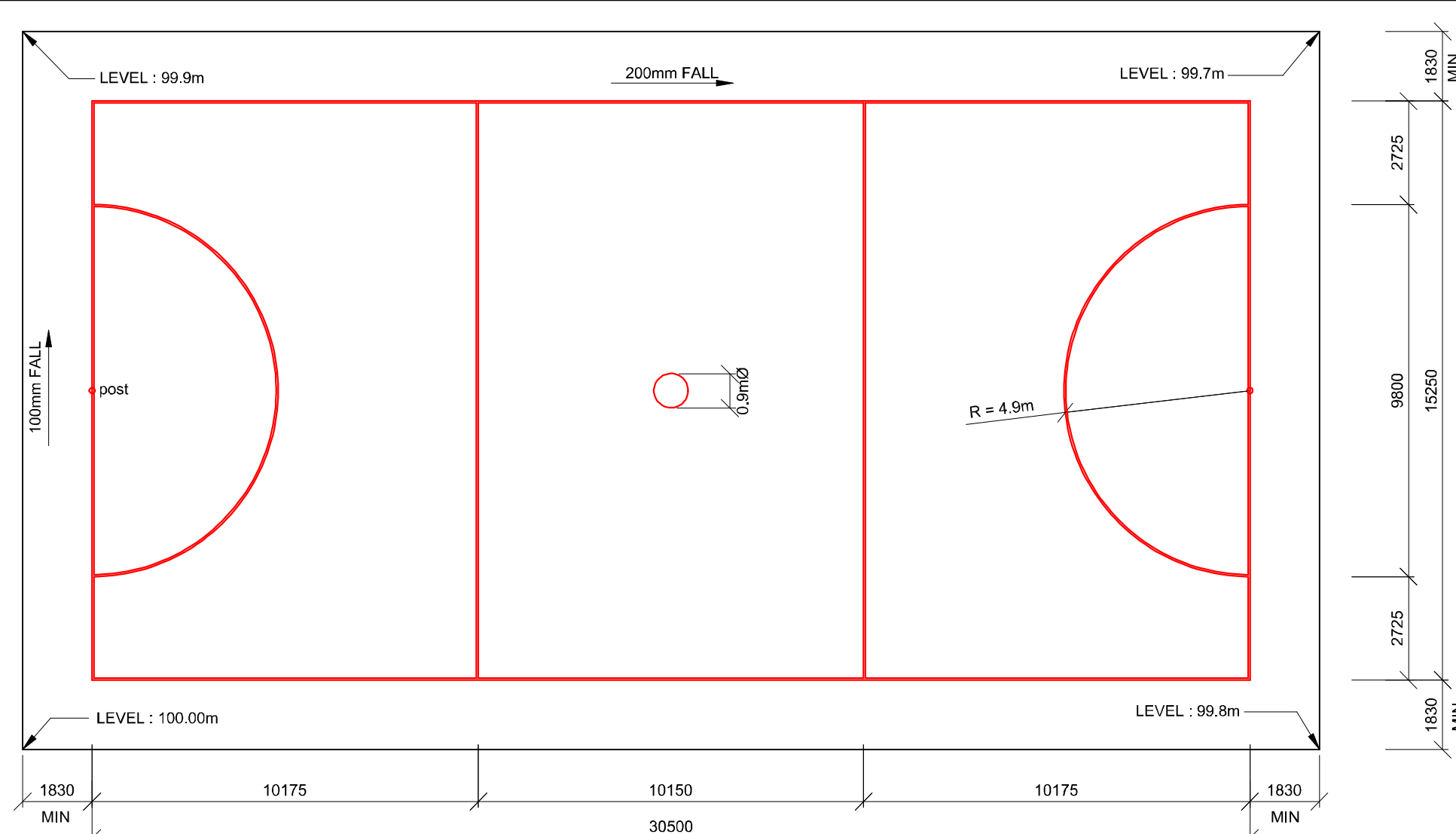
MULTI PURPOSE COURTS
SCALE 1 : 150



BACKBOARD & NET DETAIL
SCALE 1 : 25

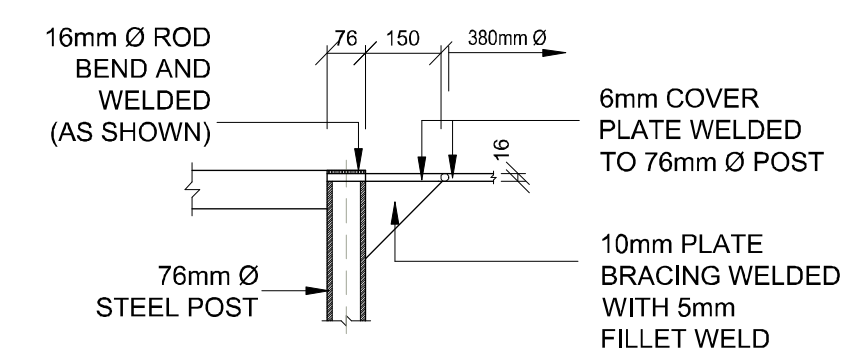


DETAIL 2
SCALE 1 : 15

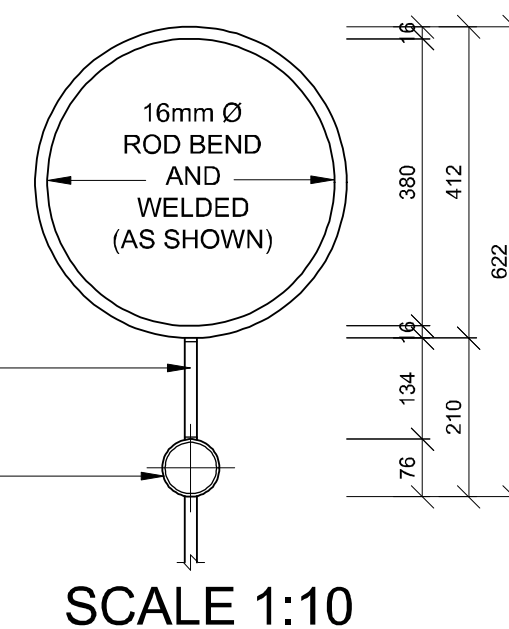


NETBALL COURT AND DIMENSIONS
SCALE 1 : 150

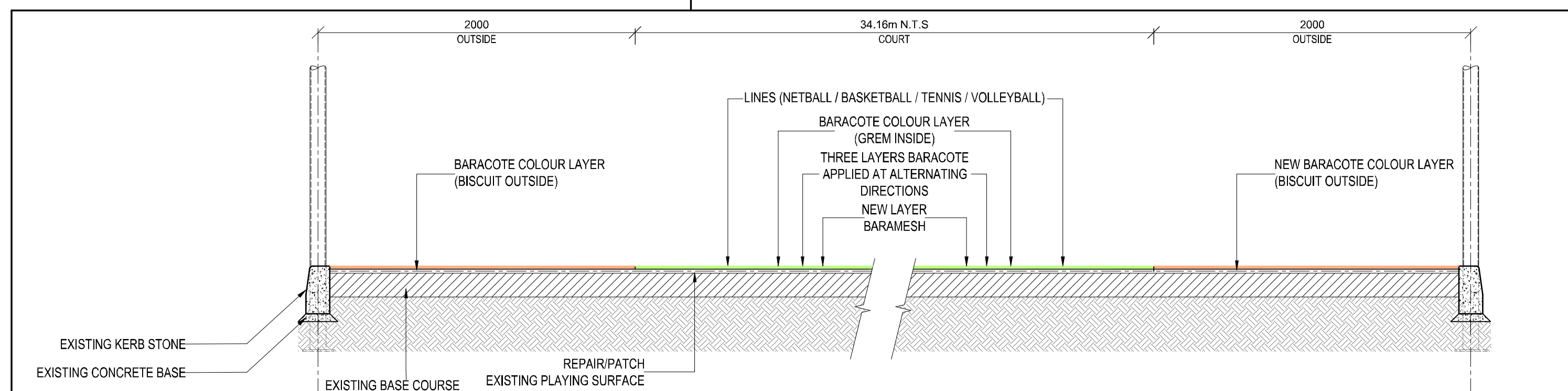
NOTE :
WIDTH OF LINES: 50mm MAXIMUM.
EXTERNAL DIMENSIONS INCLUDE WIDTH OF LINES, THE GOAL (SEMI) CIRCLES ARE MEASURED FROM OUTSIDE EDGE OF GOAL-LINE TO OUTSIDE EDGE OF LINE. THE CENTRE CIRCLE DIAMETER IS MEASURED BETWEEN THE OUTSIDE EDGES OF THE LINE.
COLOUR OF LINES: NOT SPECIFIED, TYPICAL WHITE FOR COMPETITION PLAY AND RED FOR RECREATIONAL PLAY.
SAFETY MARGIN/RUN-OFF SURROUNDING COURT: 1.83m MINIMUM WIDTH, 3.66m RECOMMENDED WIDTH.



ELEVATION
SCALE 1:15



SCALE 1:10



SECTION A-A
COURT LAYER WORK DETAIL
SCALE 1:25

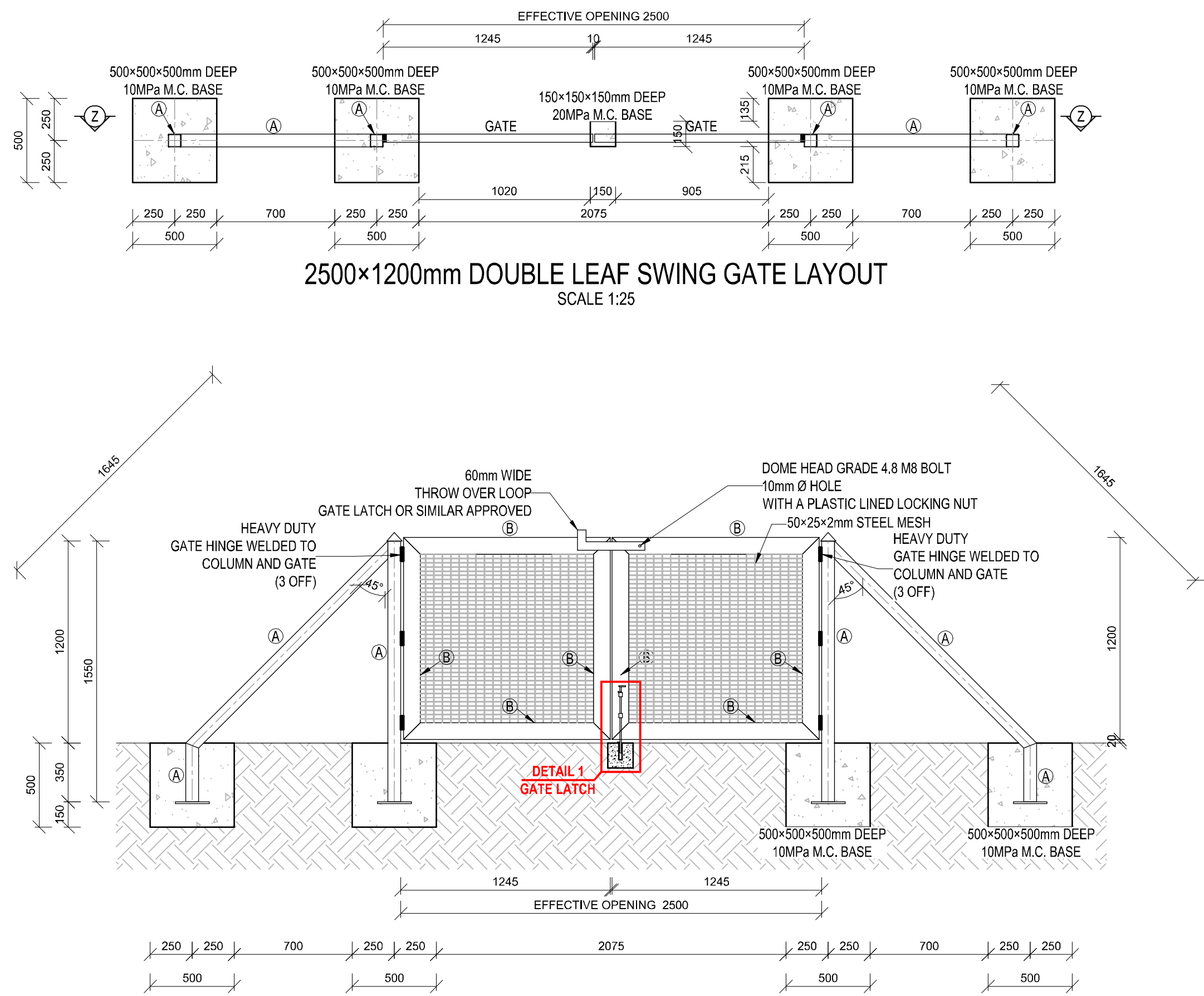
G12

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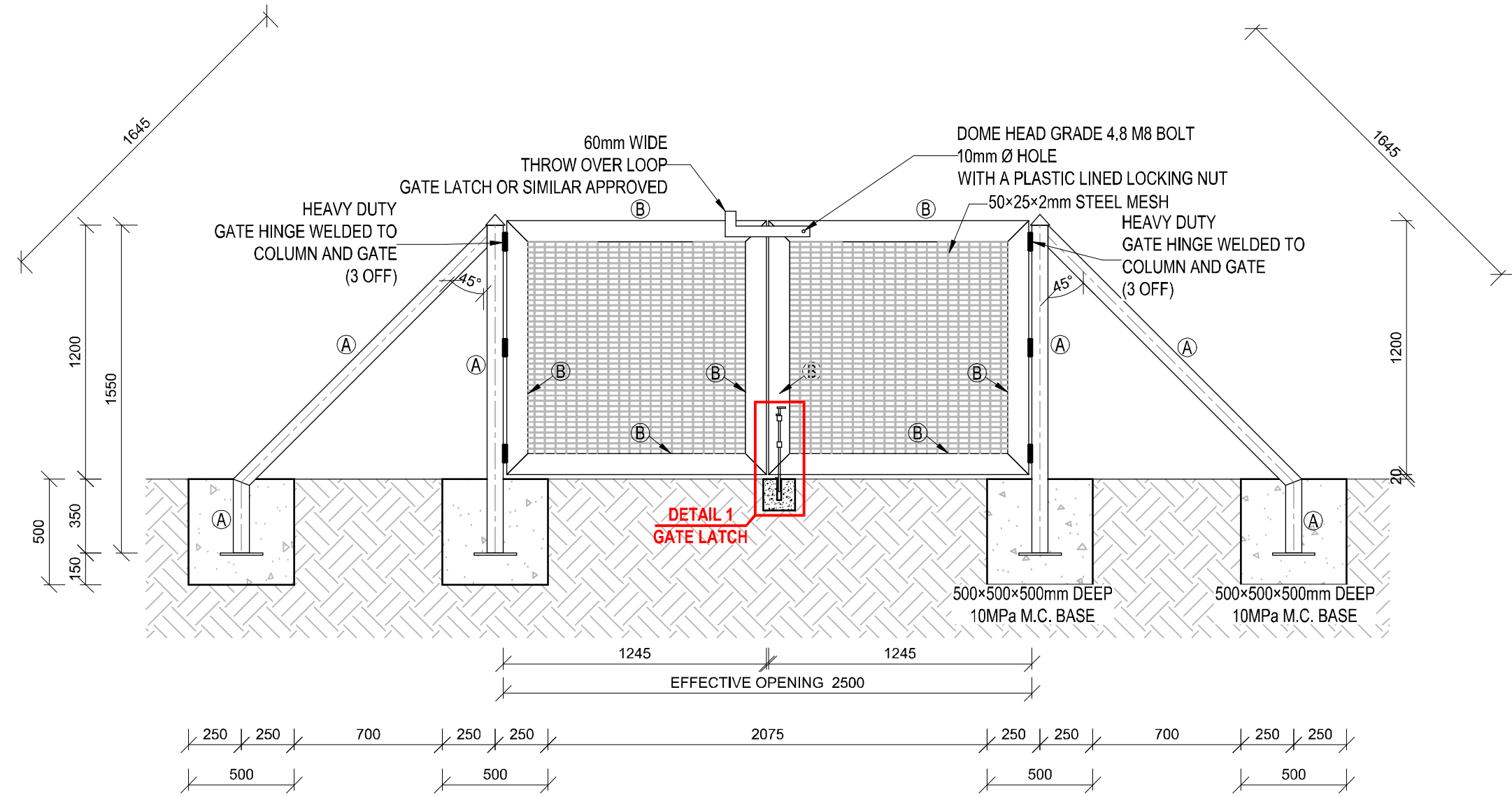


G15

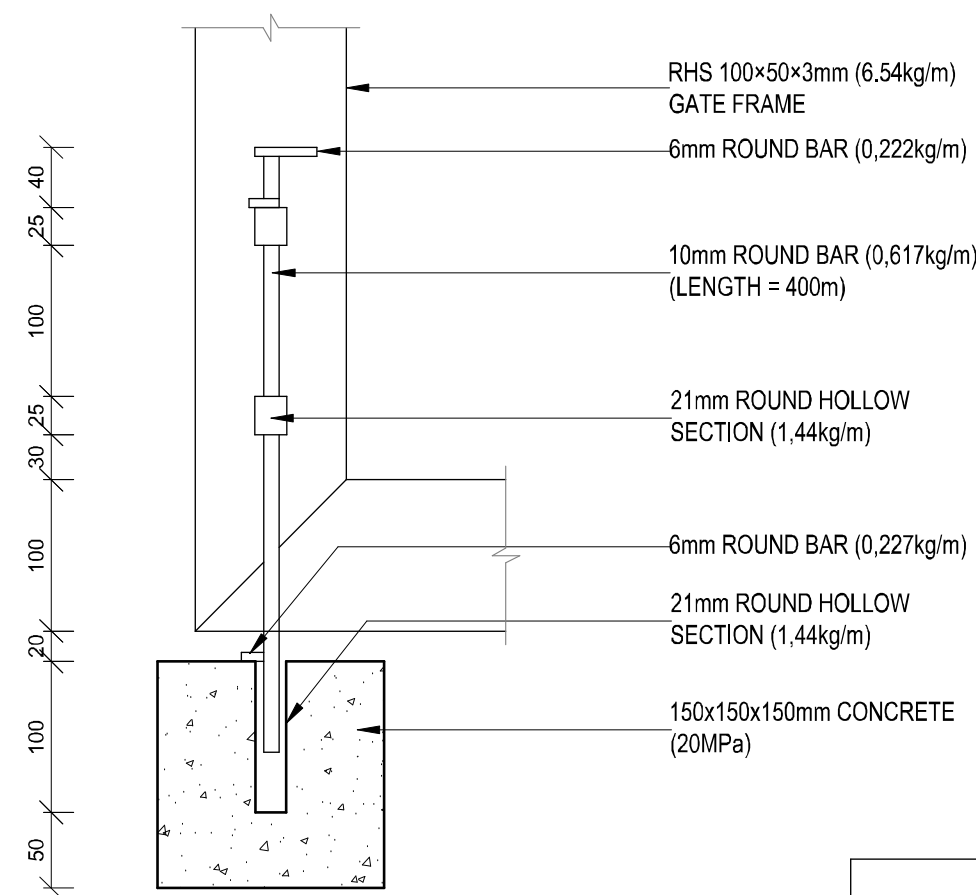
NOTE/NOTA : NO DIMENSIONS ARE TO BE SCALED OFF ANY DRAWINGS. ALL DIMENSIONS ARE TO BE RATIFIED ON SITE PRIOR TO ANY CONSTRUCTION. GEEN AFMETINGS MAG VAN TEKENINGE GESKAAL WORD NIE. ALLE AFMETINGS MOET OP TERREIN NAGEGAAN WORD VOOR KONSTRUKSIE.	A BEFORE CONTRACT COMMENCES. VOOR KONTRAK IN AANVANG NEEM. AFTER CONTRACT HAS COMMENCED. A1 NA KONTRAK IN AANVANG GENEEM HET.	NO. NR. DATE DATUM	AMENDMENTS WYSIGINGS	MVD Kalahari Consulting Engineers and Town Planning/Raadgewende Ingenieurs en Stadsbeplanning. Du Toitspanweg 186 / Du Toitspan Road Posbus / P.O. Box 580, Kimberley 8300 Tel: (053) 831 1889/90 E-Mail admin@mvdkalahari.co.za www.mvdgroup.org Level 1 B-BBEE Contributor CESA Consulting Engineers South Africa	DESIGN ONTWERP A. Coetzee DRAWN GETEKEN K. Mann CHECKED NAGEGAAN A. Coetzee CLIENT KLIENT GLM DATE DATUM October 2024	PROJECT/PROJEK CONSTRUCTION OF SPORTS FACILITIES IN DIBENG	CLIENT/KLIANT GAMAGARA Local Municipality Khama Mo Lajatsibeng DRAWING DESCRIPTION/TEKENING BESKRIVING MULTI COURT FENCE LAYOUT PAPER SIZE/PAPIER GROOTTE A1 SCALE/SKAAL As Shown DRAWING No./TEKENING Nr. 3089/2/C/G/D/005 REV No. --	FOR TENDER	
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2500x1200mm DOUBLE LEAF SWING GATE LAYOUT
SCALE 1:25



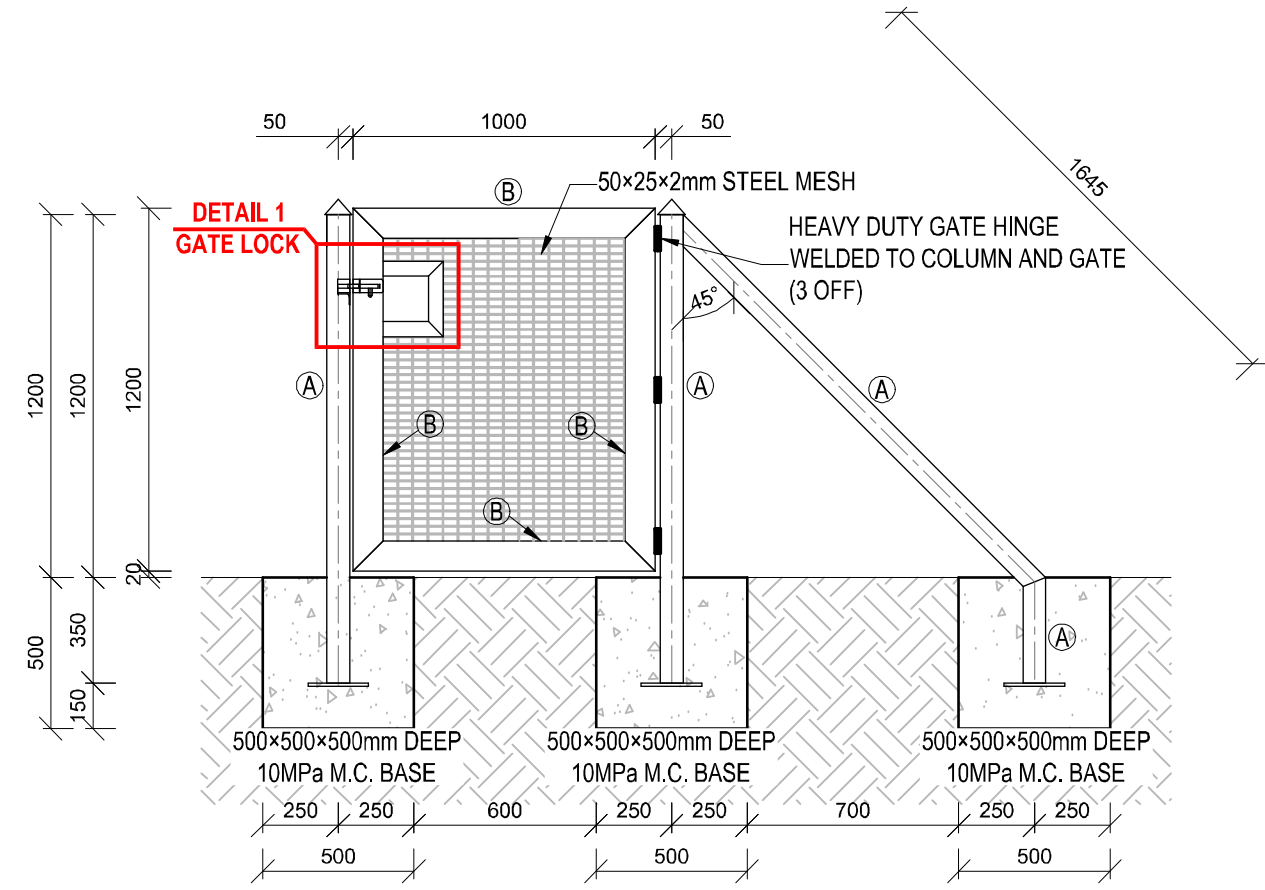
SECTION Z-Z
SCALE 1:25



DETAIL 1 - GATE LATCH
SCALE 1:5

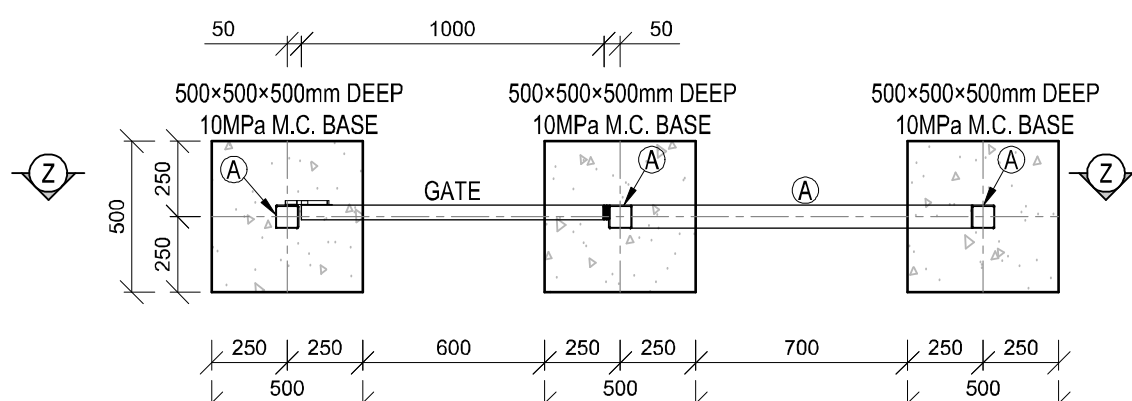
LEGEND	
(A)	SHS 76x76x3mm (6.632 kg/m)
(B)	RHS 100x50x3mm (6.54 kg/m)
NOTE: ALL STRUCTURAL STEEL OF FRAME TO BE WELDED. ALL STEELWORK BELOW GROUND TO BE PAINTED WITH SIKA-BLACKSEAL LASTIC OR SIMILAR APPROVED BITUMEN COATING.	

G16



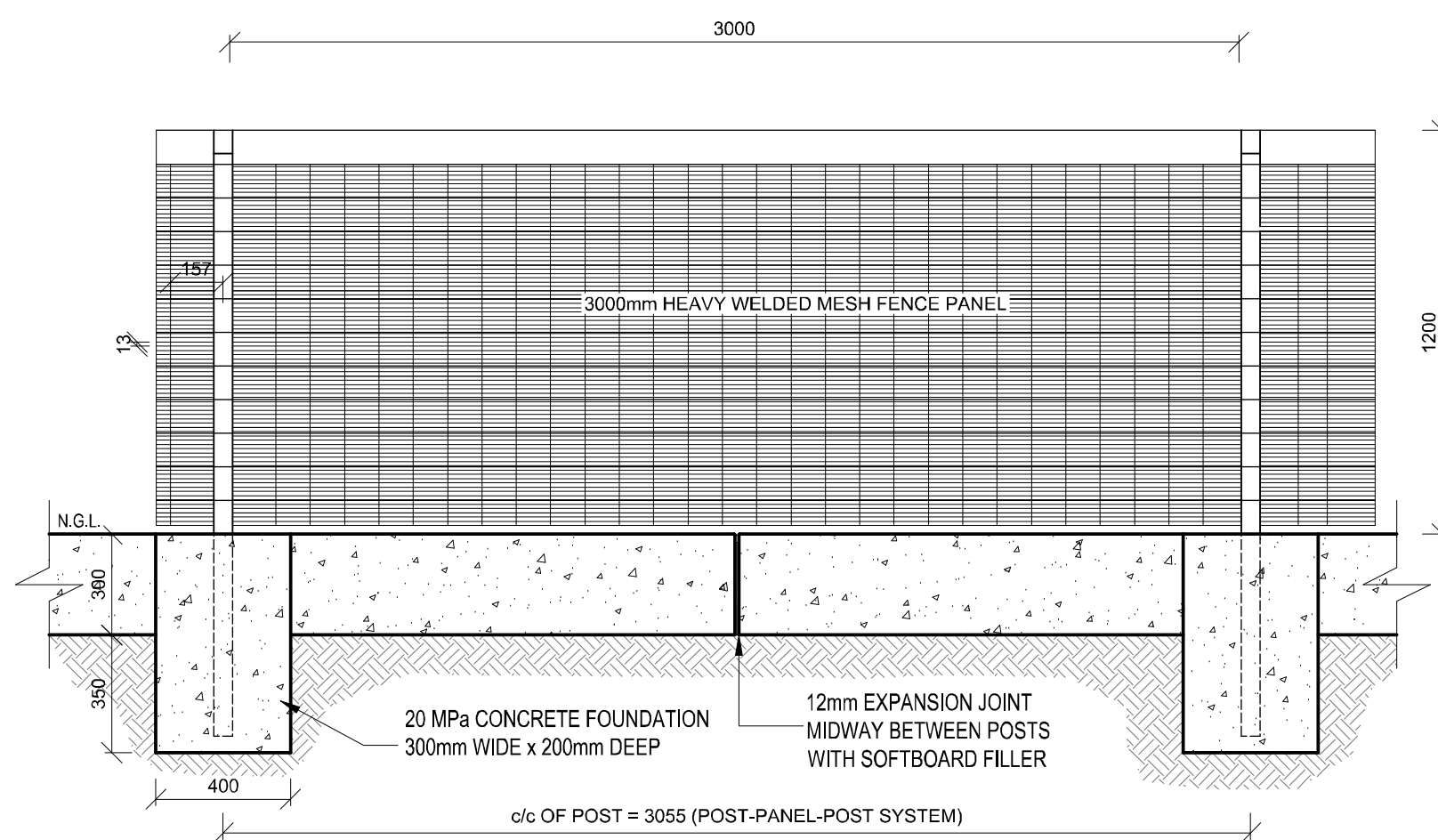
SECTION Z-Z
SCALE 1:25

LEGEND	
(A)	SHS 76x76x3mm (6.632 kg/m)
(B)	RHS 100x50x3mm (6.54 kg/m)
NOTE: ALL STRUCTURAL STEEL OF FRAME TO BE WELDED. ALL STEELWORK BELOW GROUND TO BE PAINTED WITH SIKA-BLACKSEAL LASTIC OR SIMILAR APPROVED BITUMEN COATING.	



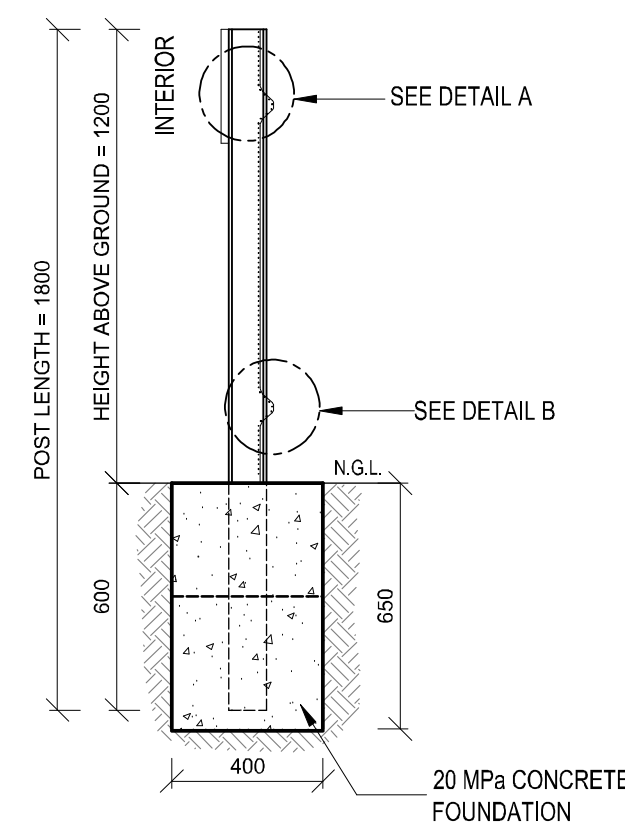
1000x1200mm SINGLE LEAF SWING GATE LAYOUT
SCALE 1:25

G17

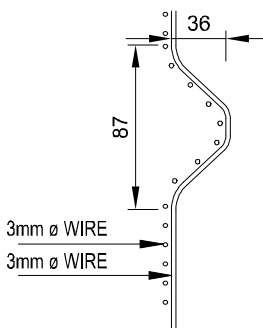


EXTERIOR ELEVATION

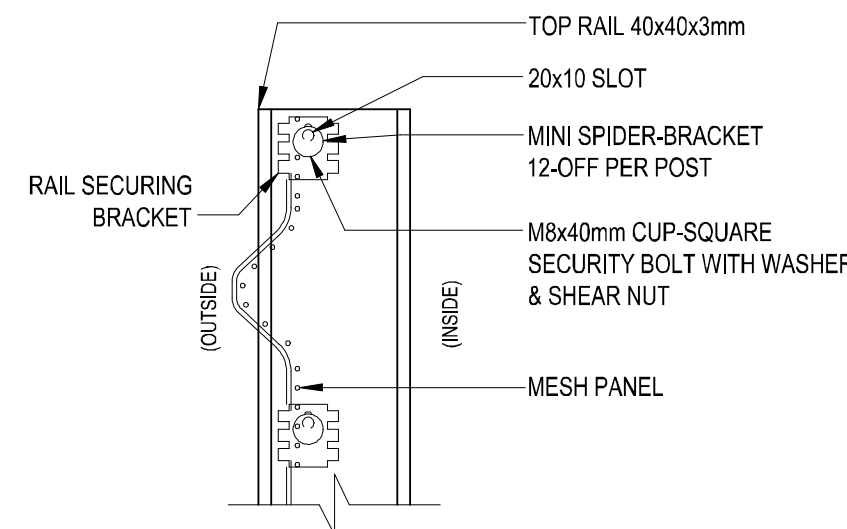
FENCE LAYOUT
SCALE 1:20



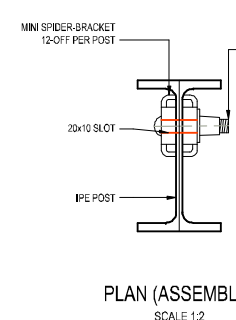
SECTION VIEW



SEE DETAIL B
SCALE 1:5



SEE DETAIL A
SCALE 1:5



G18

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A1 NA KONTRAK IN AANVANG GENEEM HET.

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NO. NR.

DATE DATUM

AMENDMENTS WYSIGINGS

AMENDMENTS WYSIGINGS

MVD Kalahari

Consulting Engineers and Town Planning/Raadgewende Ingenieurs en Stadsbeplanning.

Du Toitspanweg 186 / Du Toitspan Road
Posbus / P.O. Box 580, Kimberley 8300
Tel: (053) 831 1889/90

E-Mail admin@mvdkalahari.co.za
www.mvdkalahari.co.za
Level 2 B-BBEE Contributor

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Consulting Engineers South Africa

DESIGN ONTWERP
DRAWN GETEKEN

CHECKED NAGEGAAN
CLIENT KLIENT

DATE DATUM

A. Coetzee

K. Mann

A. Coetzee

GLM

July 2024

PROJECT/PROEJ

CONSTRUCTION OF
SPORTS FACILITIES
IN DIBENG

CLIENT/KLIENT

GAMAGARA
Local Municipality
Khumo Mo Lefateng

DRAWING DESCRIPTION/TEKENING BESKRYWING
SECURITY FENCE LAYOUT :
SECTION AND DETAILS 1

PAPER SIZE/PAPIER GROOTTE
A1

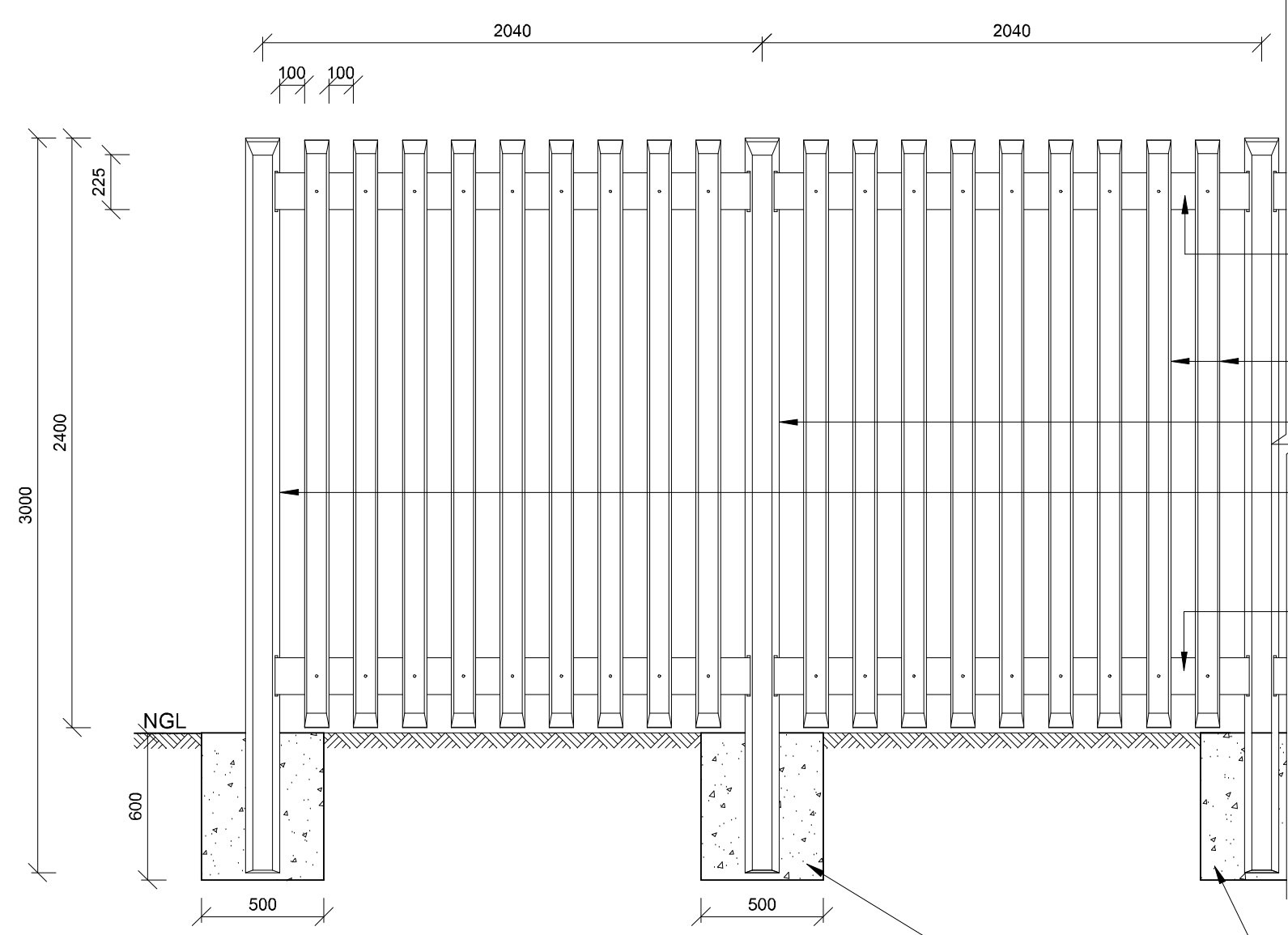
SCALE/SKAAL
As
Shown

DRAWING No./TEKENING Nr.
3089/2/C/G/D/006

REV No.

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FOR TENDER

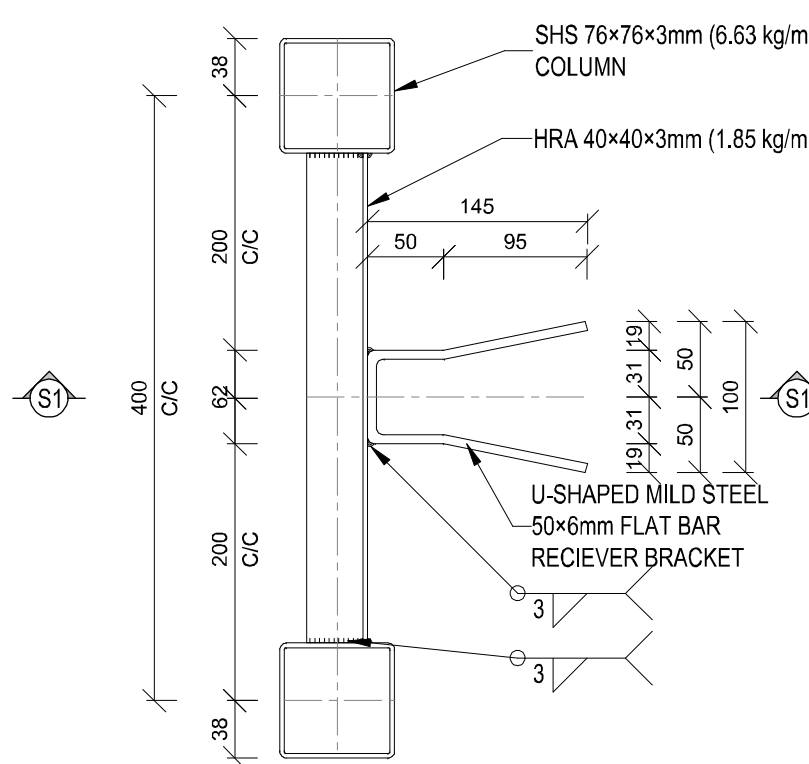


"PALISADE" CONCRETE FENCING

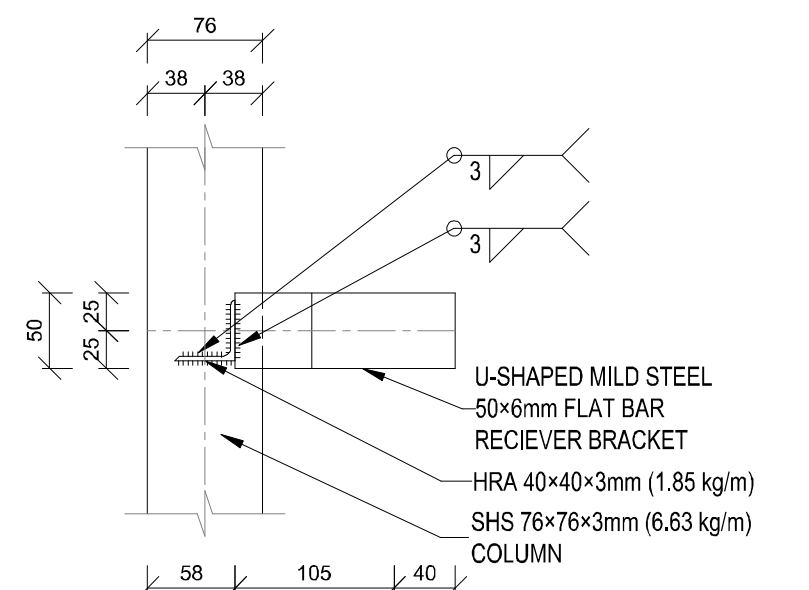
SCALE 1:25

'PALISADE' PRECAST CONCRETE RAILINGS
'PALISADE' PRECAST CONCRETE POLES
'PALISADE' PRECAST CONCRETE POSTS
'PALISADE' PRECAST CONCRETE CORNER POST
'PALISADE' PRECAST CONCRETE RAILINGS

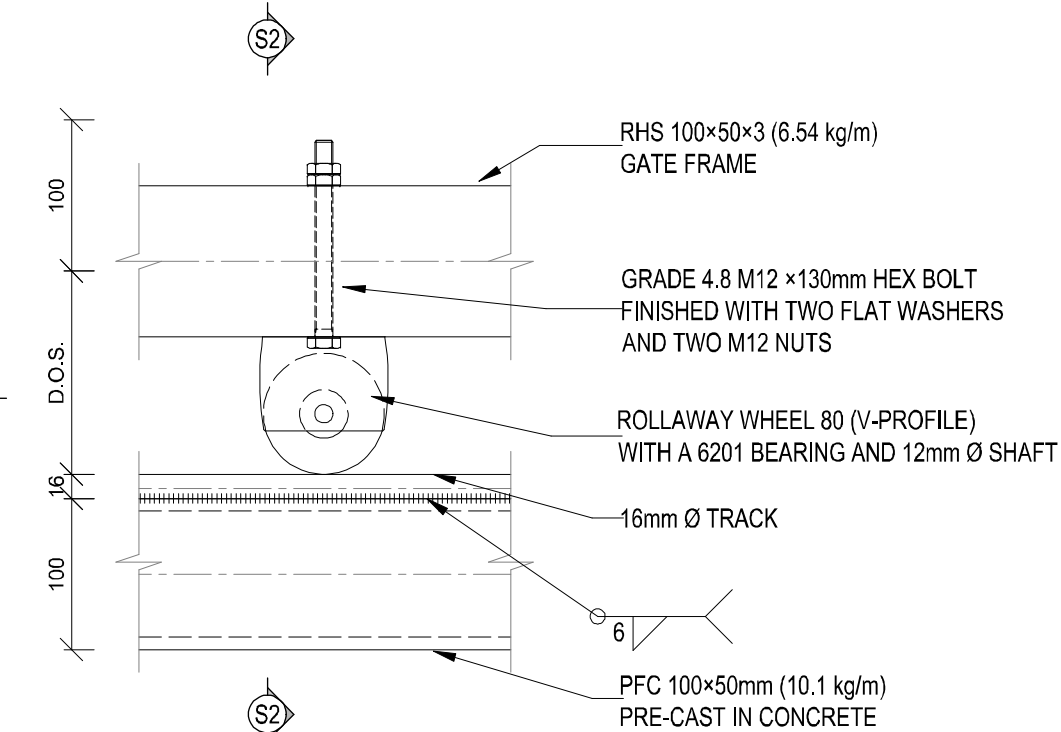
500x500x600mm 20MPa CONCRETE FOOTING



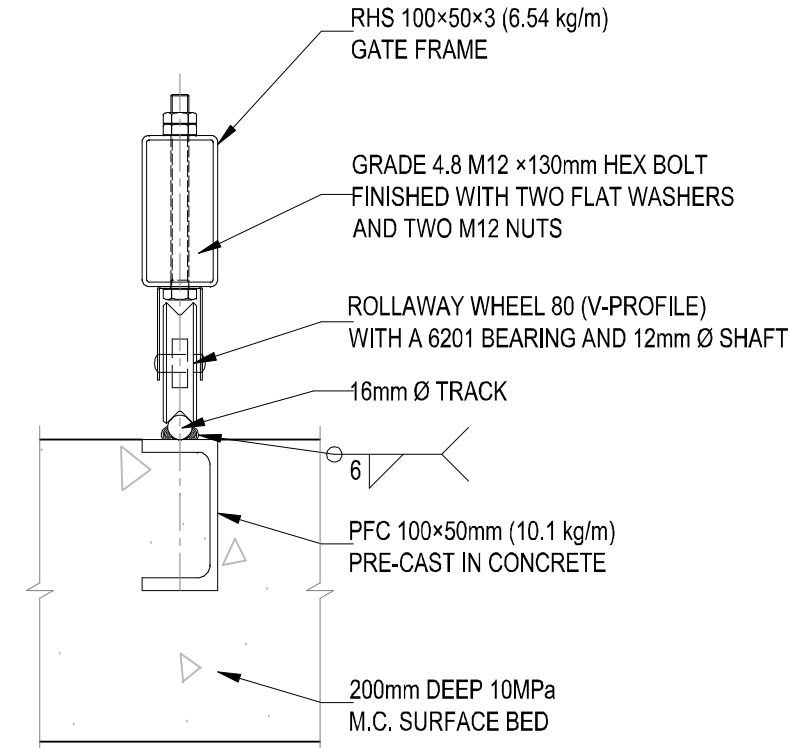
DETAIL 1 - RECIEVER BRACKET
SCALE 1:5



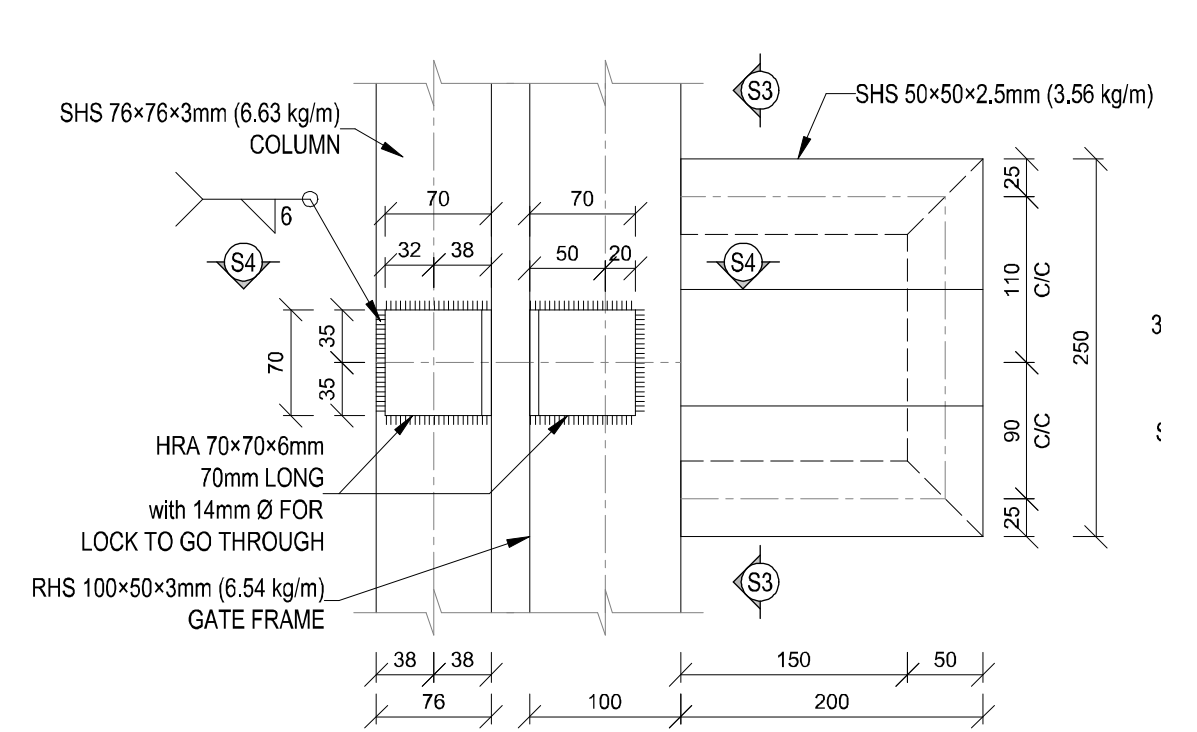
SECTION S1-S1
SCALE 1:5



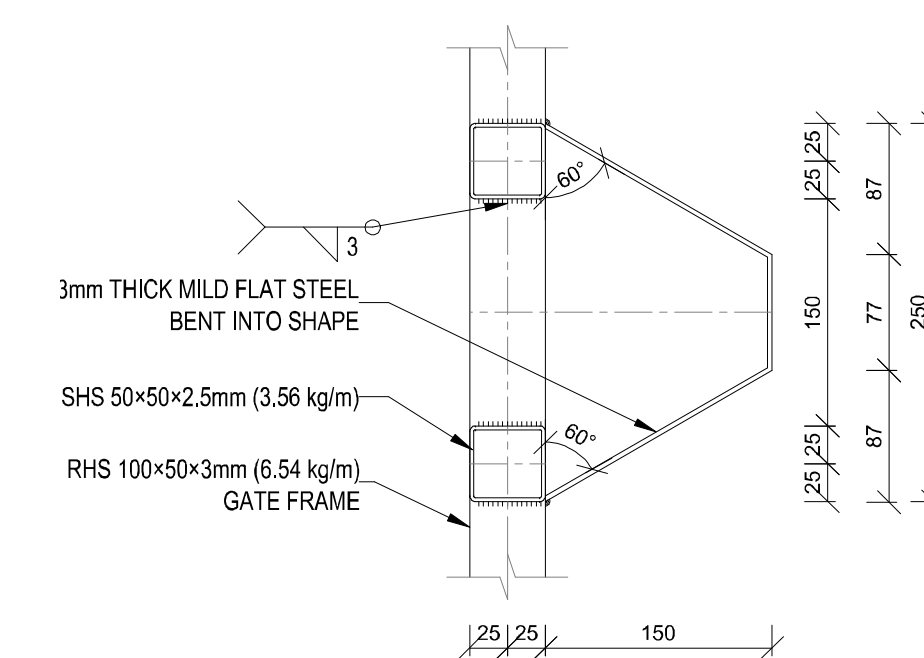
DETAIL 2 - GUIDE RAIL
SCALE 1:5



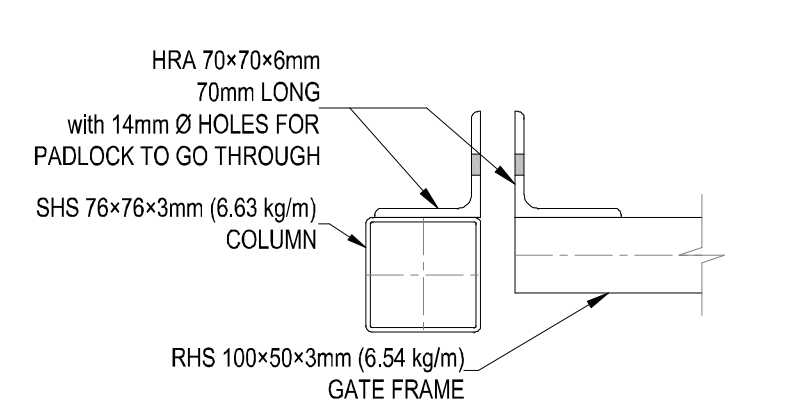
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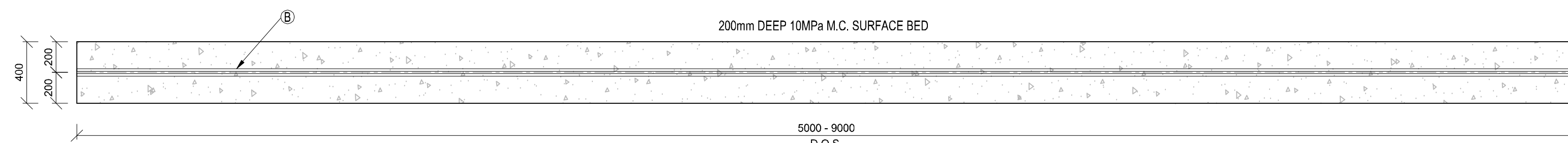
DETAIL 3 - GATE LOCK
SCALE 1:5



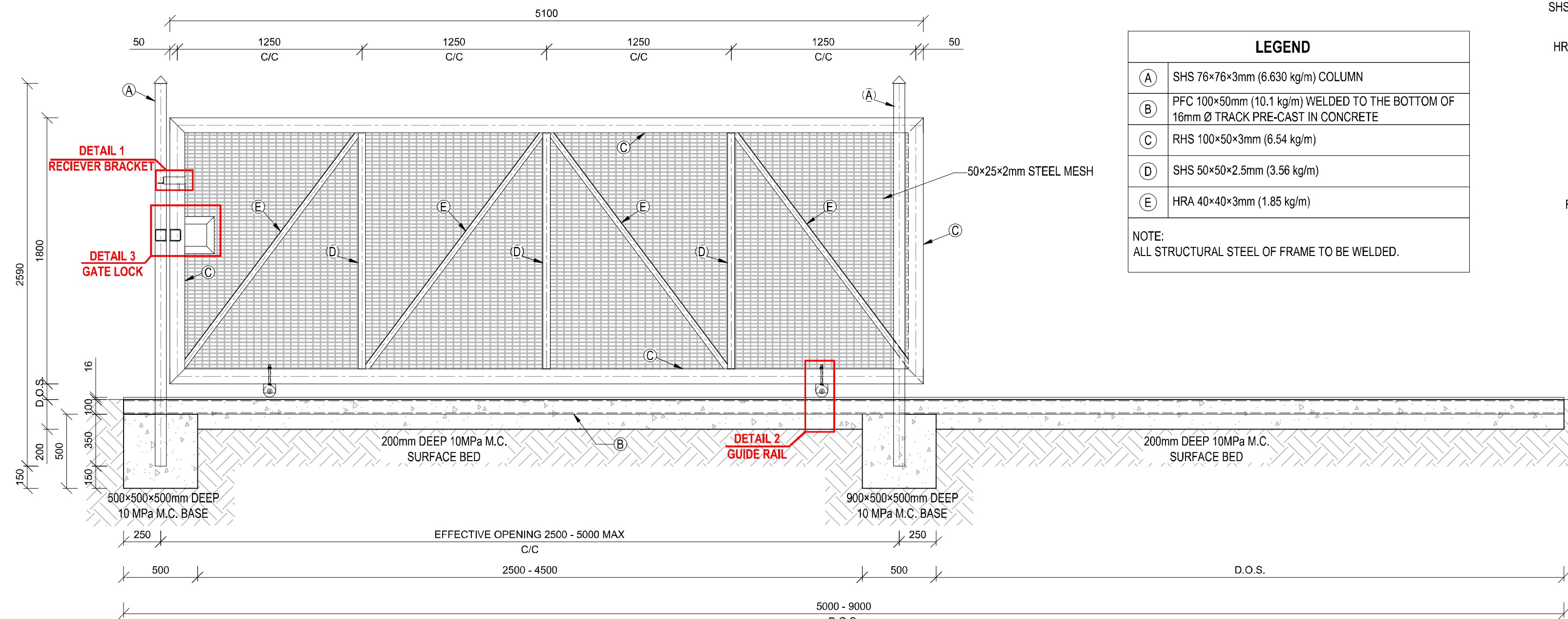
SECTION S3-S3
SCALE 1:5



SECTION S4-S4
SCALE 1:5

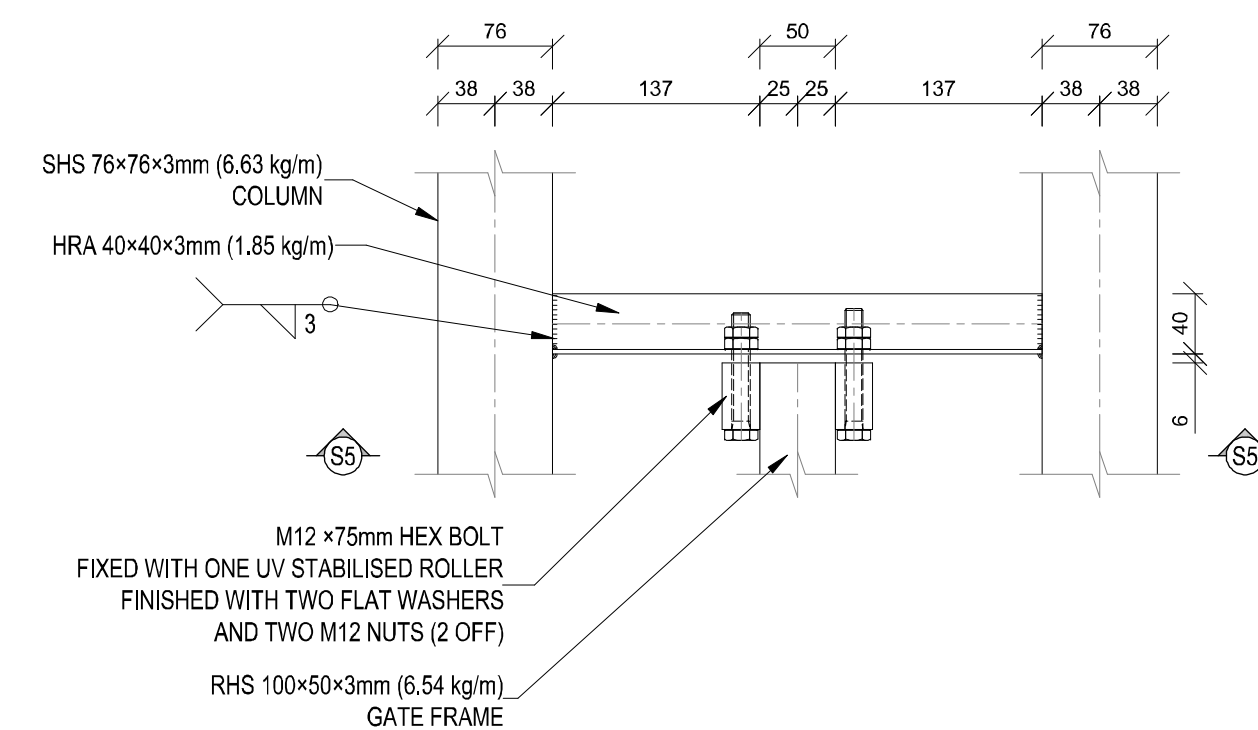


SURFACE BED LAYOUT
SCALE 1:25

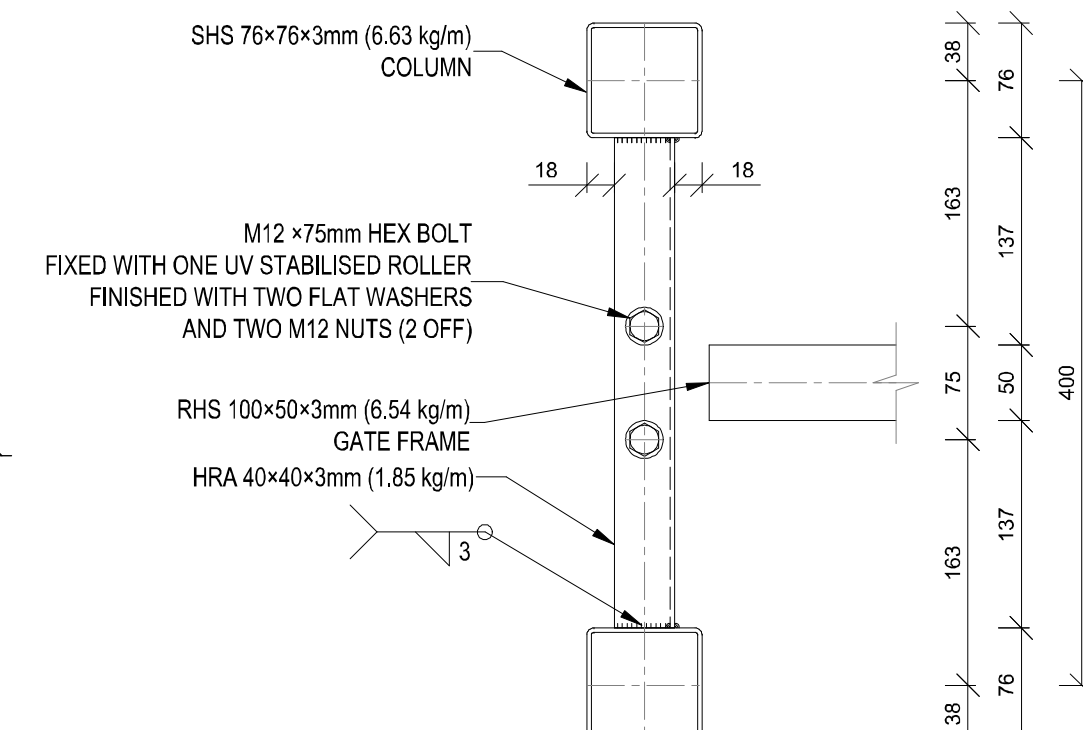


EXIT GATE - PLAN VIEW
SCALE 1:25

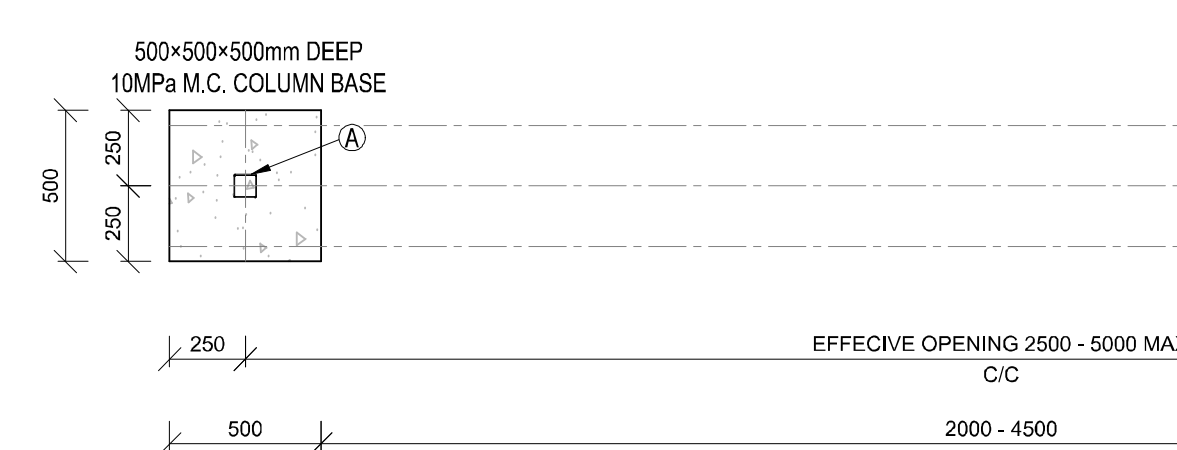
LEGEND	
(A)	SHS 76x76x3mm (6.630 kg/m) COLUMN
(B)	PFC 100x50mm (10.1 kg/m) WELDED TO THE BOTTOM OF 16mm Ø TRACK PRE-CAST IN CONCRETE
(C)	RHS 100x50x3mm (6.54 kg/m)
(D)	SHS 50x50x2.5mm (3.56 kg/m)
(E)	HRA 40x40x3mm (1.85 kg/m)
NOTE: ALL STRUCTURAL STEEL OF FRAME TO BE WELDED.	



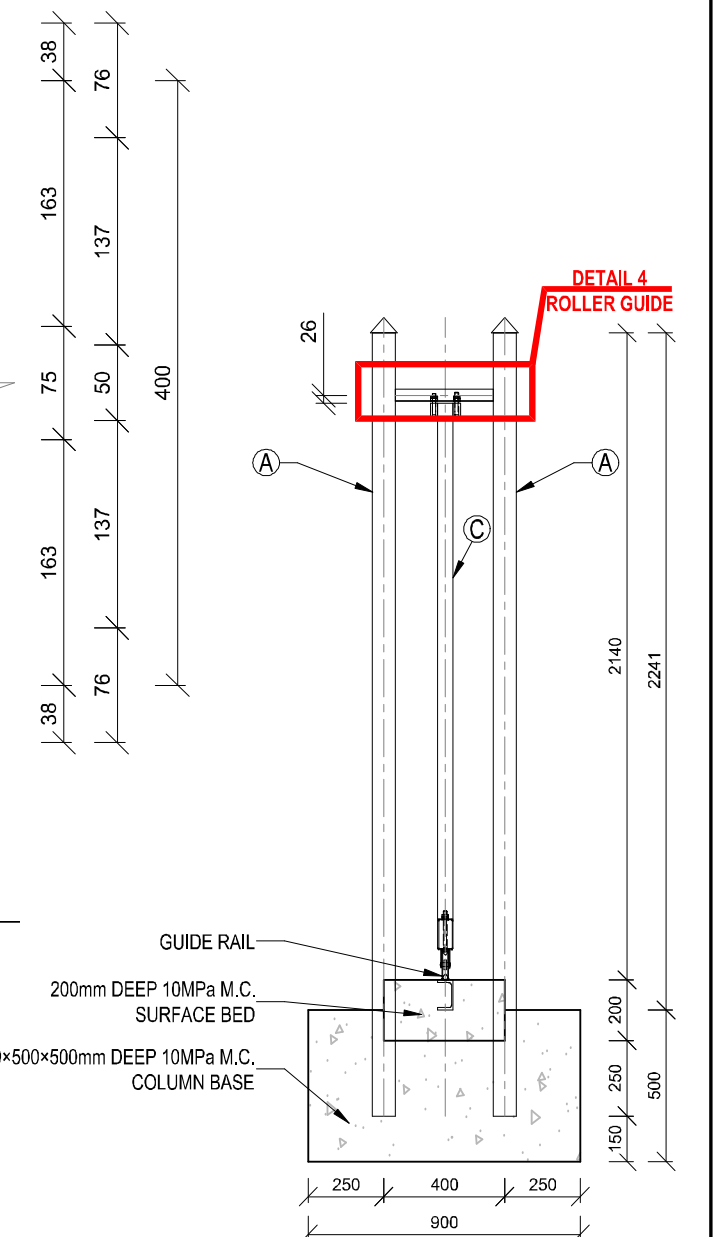
DETAIL 4 - ROLLER GUIDE
SCALE 1:5



SECTION S5-S5
SCALE 1:5



COLUMN AND COLUMN BASE LAYOUT
SCALE 1:25



SECTION Z-Z
SCALE 1:20

G20

NOTE/NOTA :

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NO. NR.	DATE DATUM	AMENDMENTS WYSIGINGS

MVD Kalahari

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Du Toitspanweg 188 / Du Toitspan Road
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www.mvdgroup.org
Level 1 B-BBEE Contributor

CESA
Consulting Engineers South Africa

DESIGN ONTWERP	A. Coetzee
DRAWN GETEKEN	K. Mann
CHECKED NAGEGAAN	A. Coetzee
CLIENT KLIJNT	GLM
DATE DATUM	July 2024

PROJECT/PROEJ

CONSTRUCTION OF
SPORTS FACILITIES
IN DIBENG

CLIENT/KLIJNT

GAMAGARA
Local Municipality
Khomo Mo Lefatshe

DRAWING DESCRIPTION/TEKENING BESKRYWING
SECURITY FENCE LAYOUT :
SECTION AND DETAILS 2

PAPER SIZE/PAPIER GROOTTE
A1

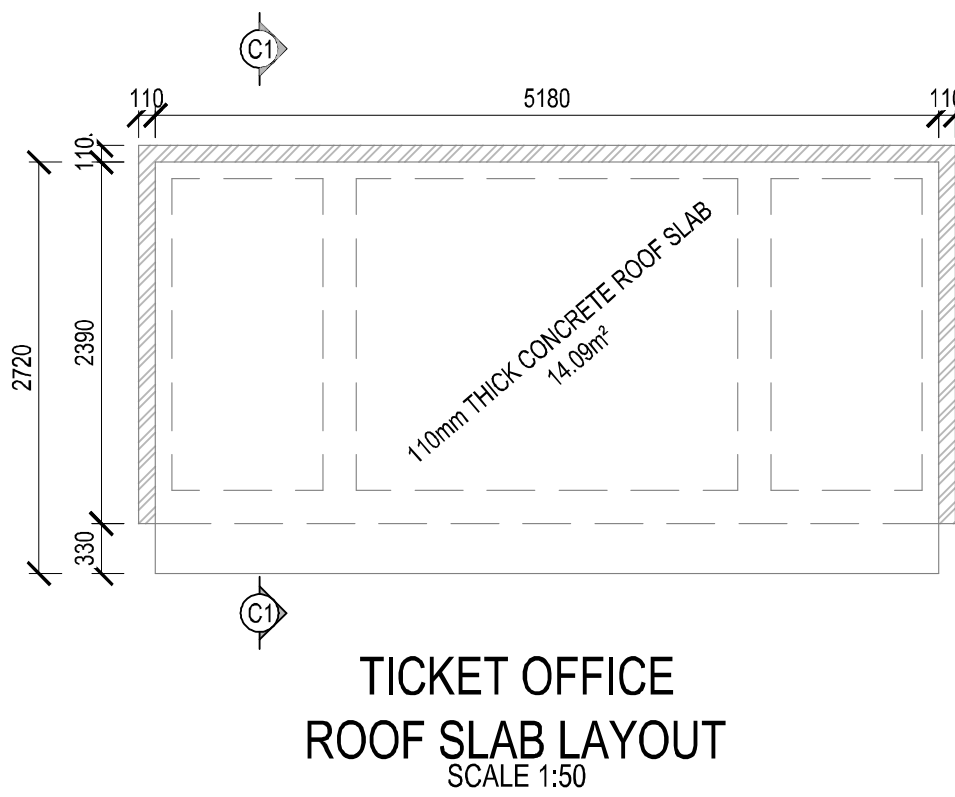
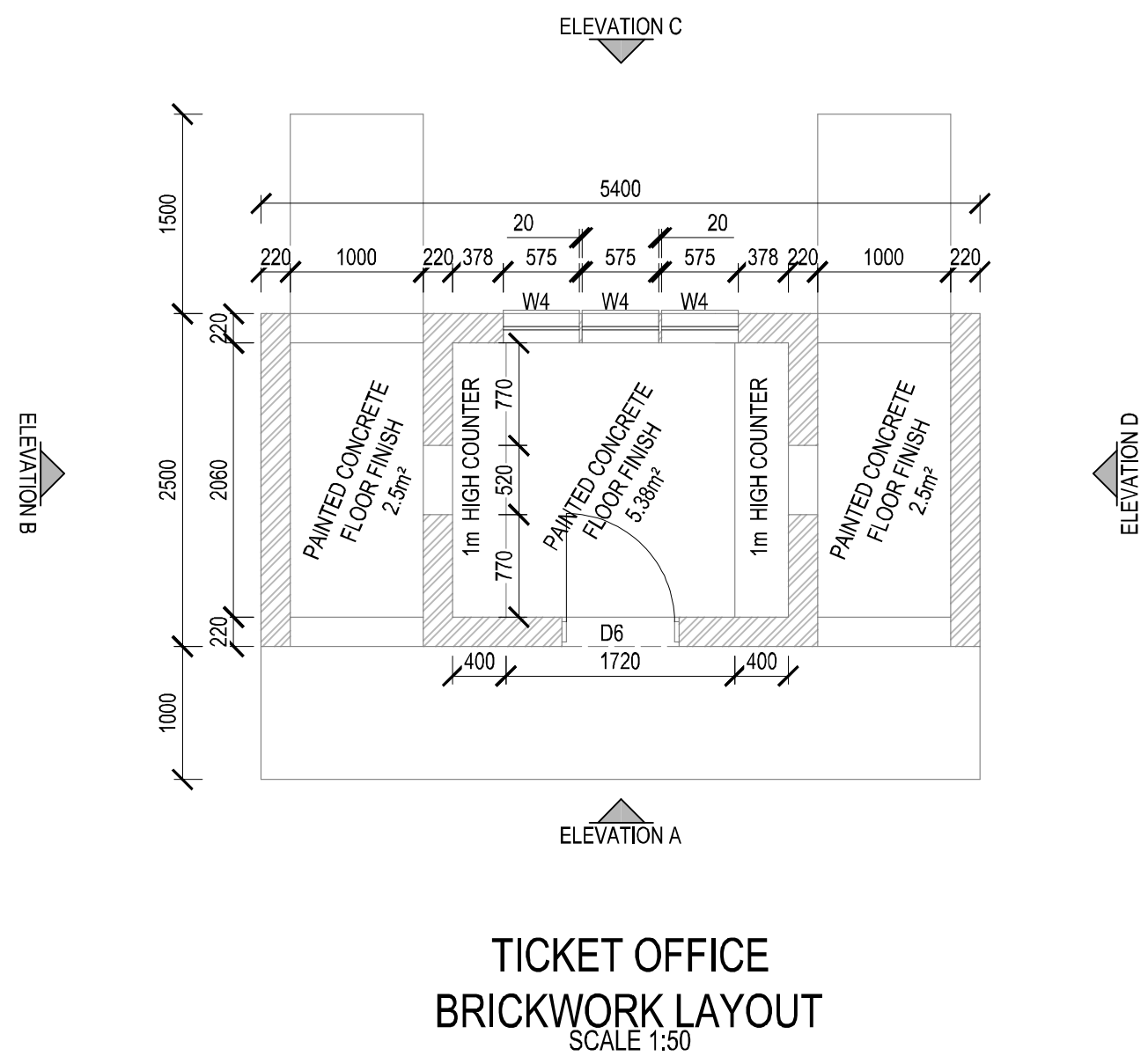
SCALE/SKAAL
As Shown

DRAWING No./TEKENING Nr.
3089/2/C/G/D/007

REV No.

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FOR TENDER

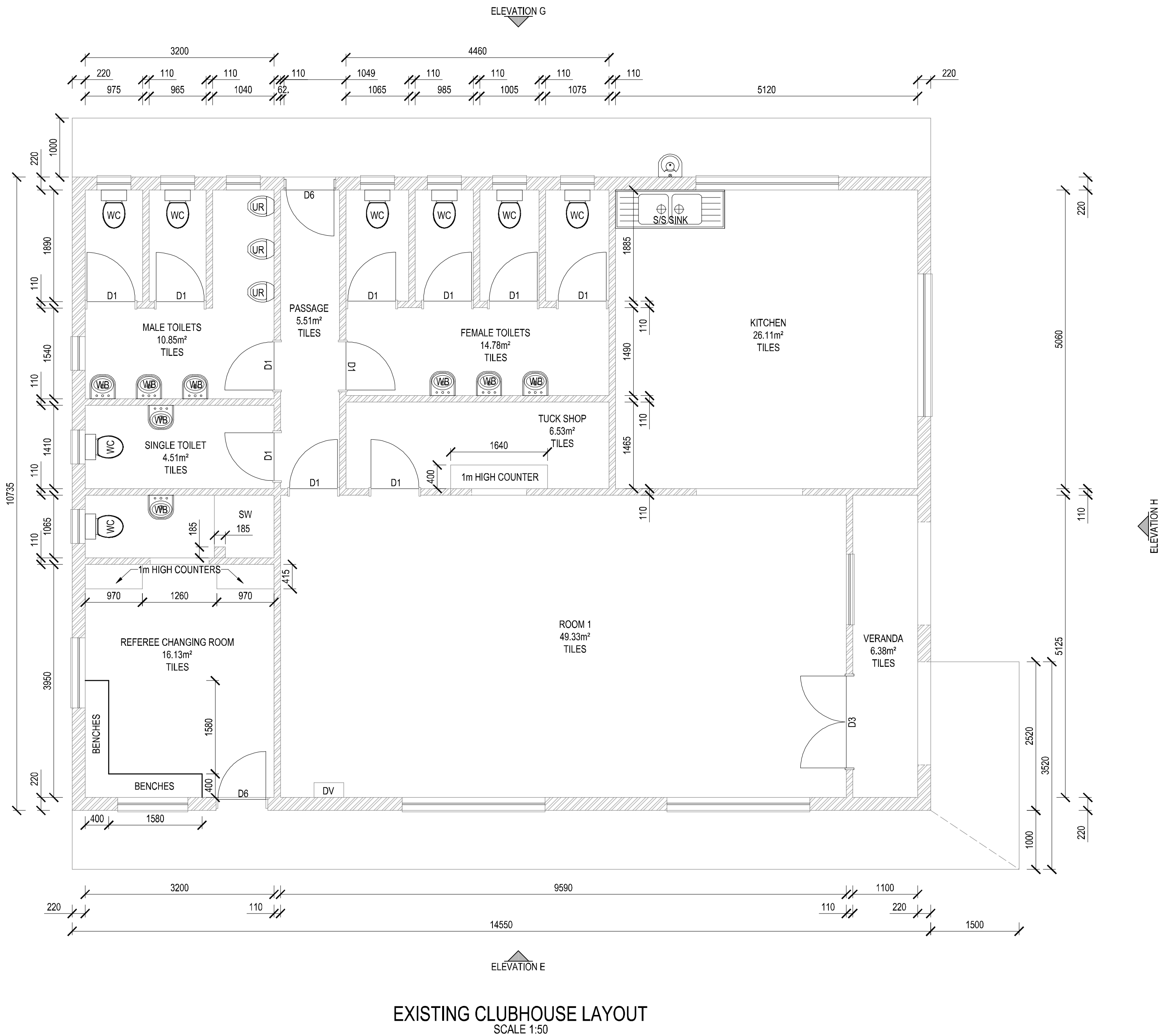


WINDOW SCHEDULE

ID	W1	W2	W3	W4
QUANTITY	2	5	6	2
W x H SIZE	575x575	940x680	510x680	1200x1200
HEAD HEIGHT	2040	2040	2040	2040

DOOR SCHEDULE

ID	D1		D2	D3	D4	D5	D6		D7
QUANTITY	10	8	1	1	1	1	4	4	1
DOOR SWING	L	R	L		L	R	L	R	R
WALL OPENING W × H SIZE	877 × 2040	877 × 2040	800 × 1445	1620 × 2040		1000 × 2040	877 × 2040	877 × 2040	1250 × 1940



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DESIGN ONTWERP J. du Plessis

DRAWN GETEKEN W. Louw

CHECKED NAGEGAAN J. du Plessis

CLIENT KLIENT G.M.L.

DATE DATUM October 2024

PROJECT/PROEJ

DEBEN:
CONSTRUCTION OF
SPORTS FACILITIES
IN DIBENG

CLIENT/KLIENT

GAMAGARA
Local Municipality
Khomo Mo Lefateng

DRAWING DESCRIPTION/TEKENING BESKRYWING
TICKET OFFICE AND CLUBHOUSE
ARCHITECT LAYOUT

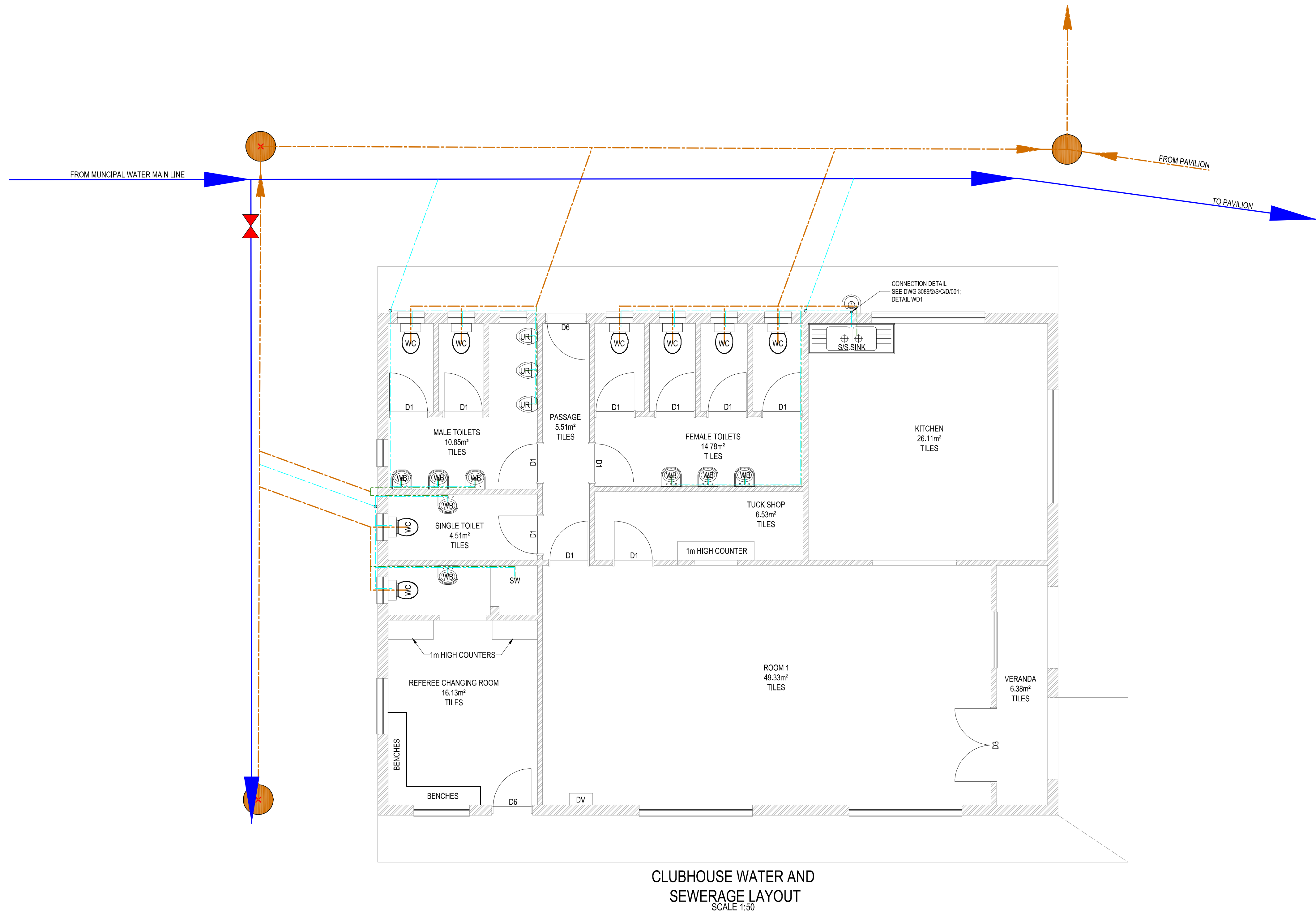
PAPER SIZE/PAPIER GROOTTE
A1

SCALE/SKAAL
A/S

DRAWING No./TEKENING Nr.
3089/2/A/B/L/001

REV No.
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DRAWN GETEKEN	W. Louw
CHECKED NAGEGAAN	J. du Plessis
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DATE DATUM	October 2024

PROJECT/PROEJ

DEBEN:
CONSTRUCTION OF
SPORTS FACILITIES
IN DIBENG

CLIENT/KLIENT



DRAWING DESCRIPTION/TEKENING BESKRYWING

CLUBHOUSE
WATER AND SEWERAGE LAYOUT

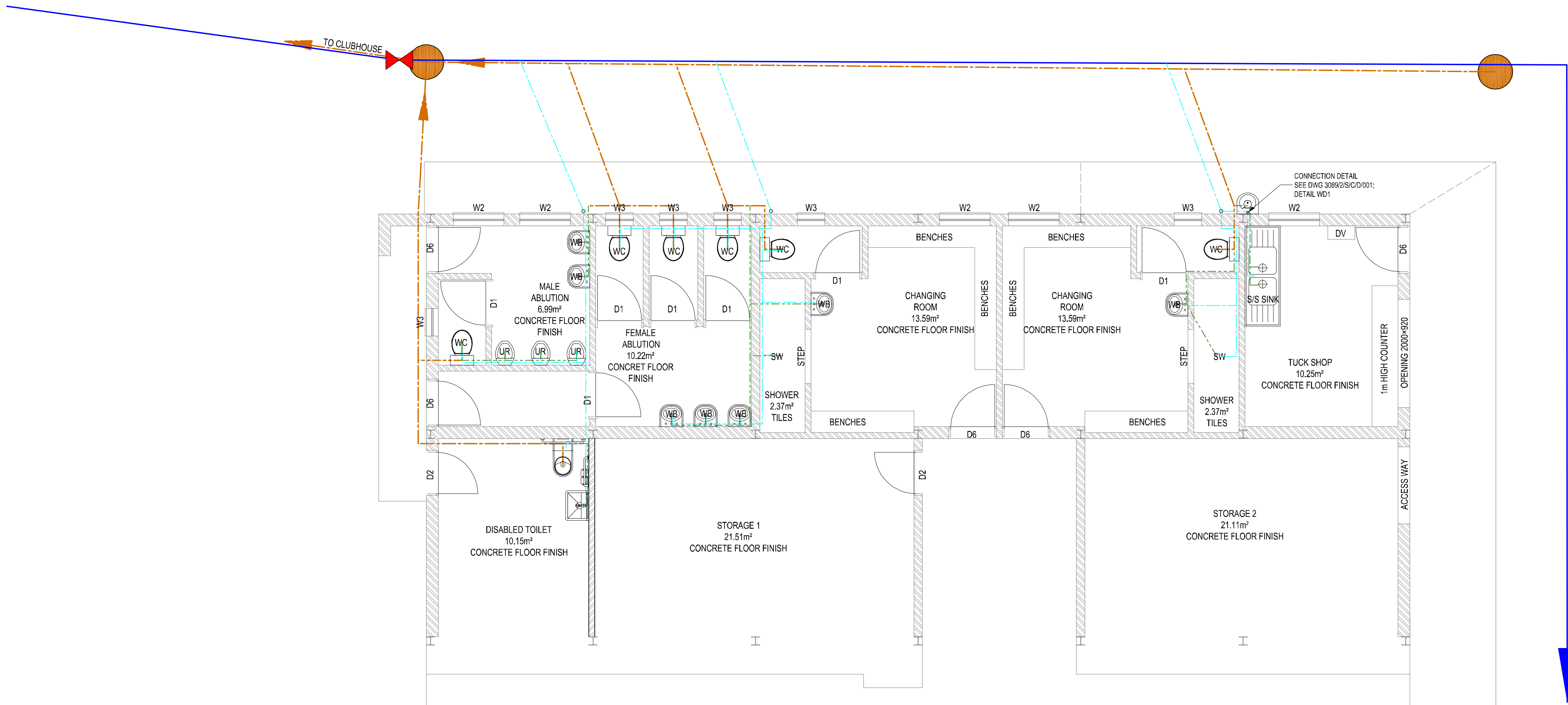
PAPER SIZE/PAPIER GROOTTE
A1

SCALE/SKAAL
1:50

DRAWING No./TEKENING Nr.
3089/2/A/W/L/001

REV No.
--

FOR TENDER



PAVILION WATER AND
SEWERAGE LAYOUT
SCALE 1:50

LEGEND	
	110mm Ø SEWER LINE
	50mm Ø SEWER LINE
	50mm Ø WATER LINE
	NEW 110mm THICK BRICKWORK
	NEW 450x250mm DEEP STRIP FOOTING
	5mm THICK METAL SHEETING TO BE REPLACED
	GULLY

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-	-	-

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SPORTS FACILITIES
IN DIBENG

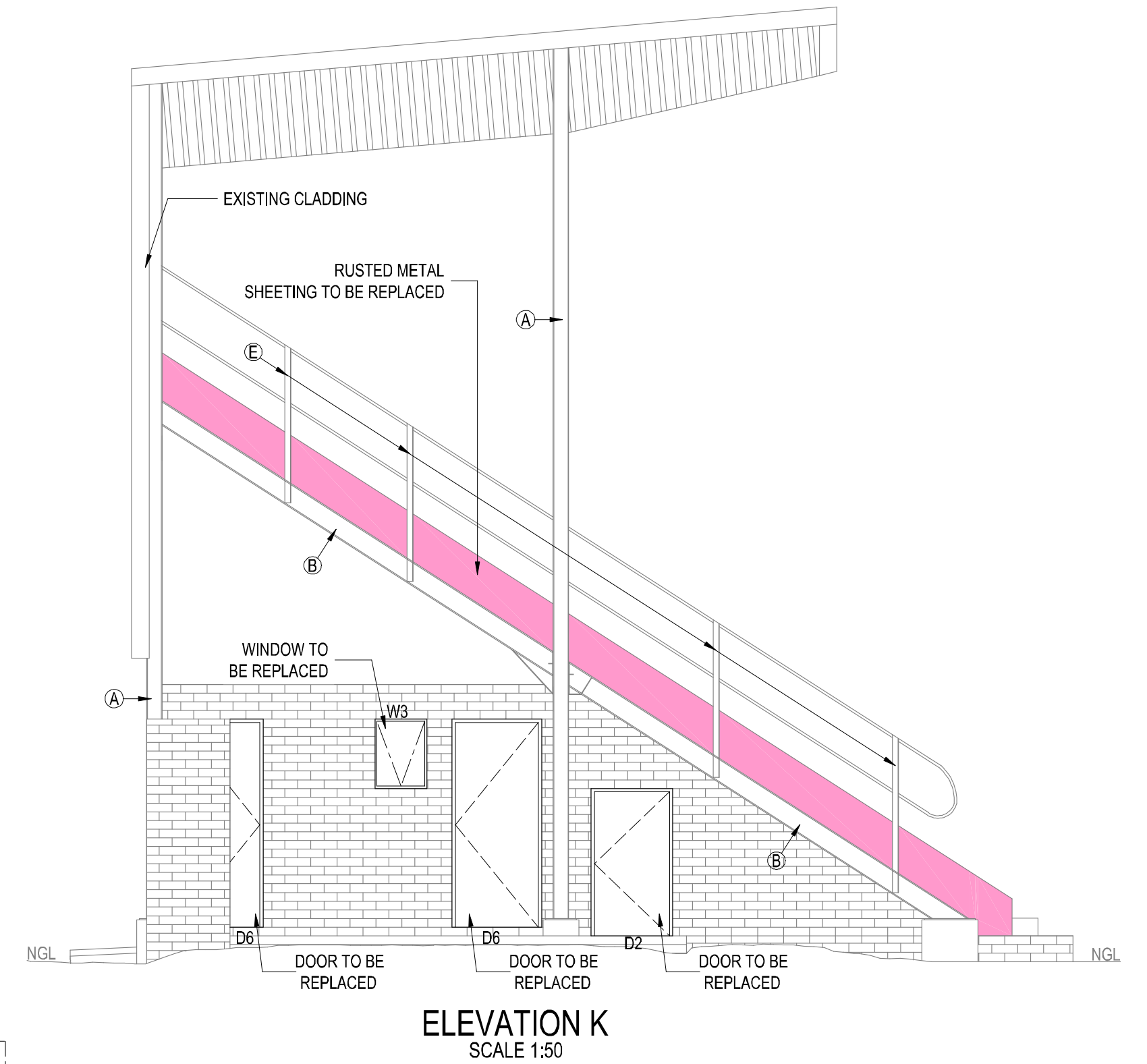
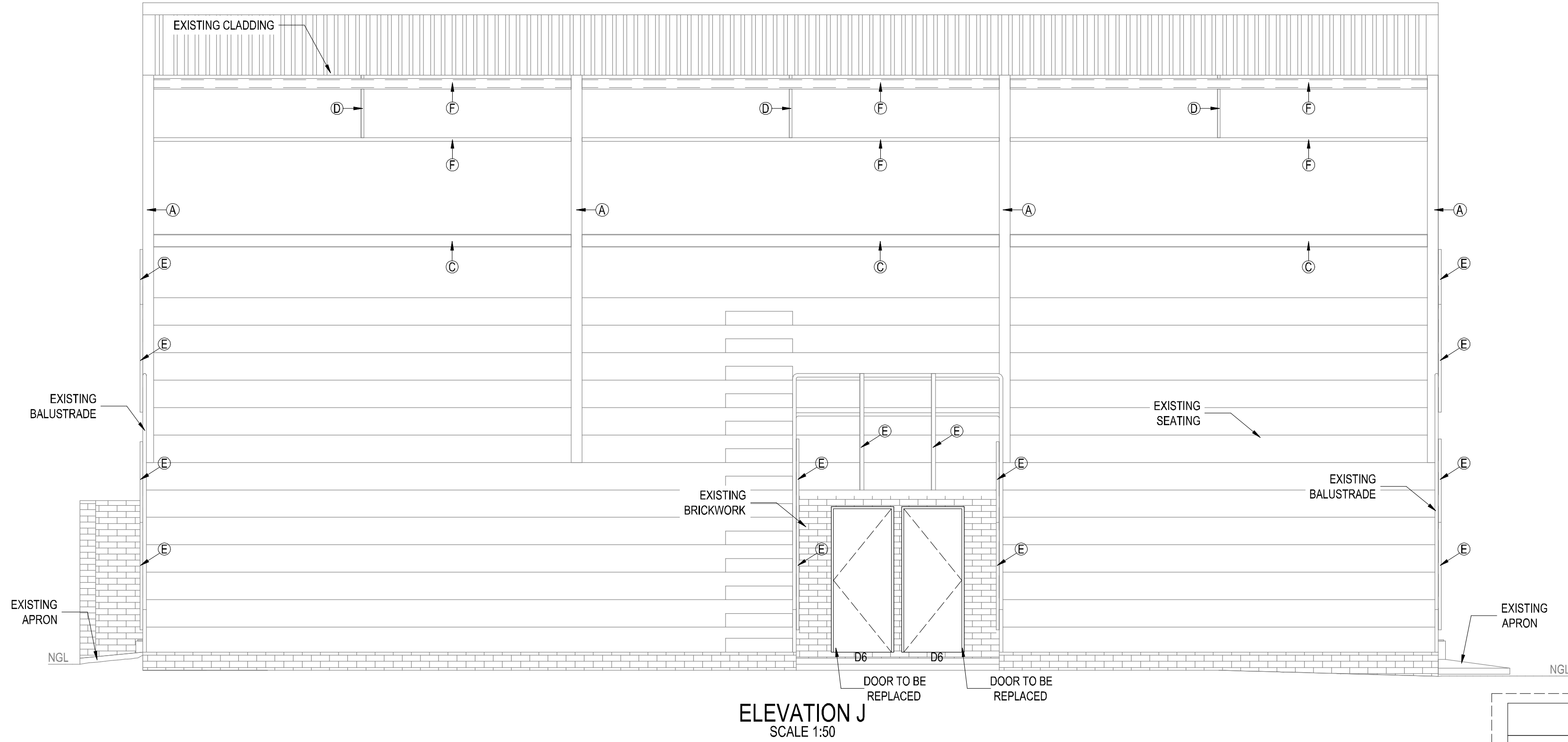
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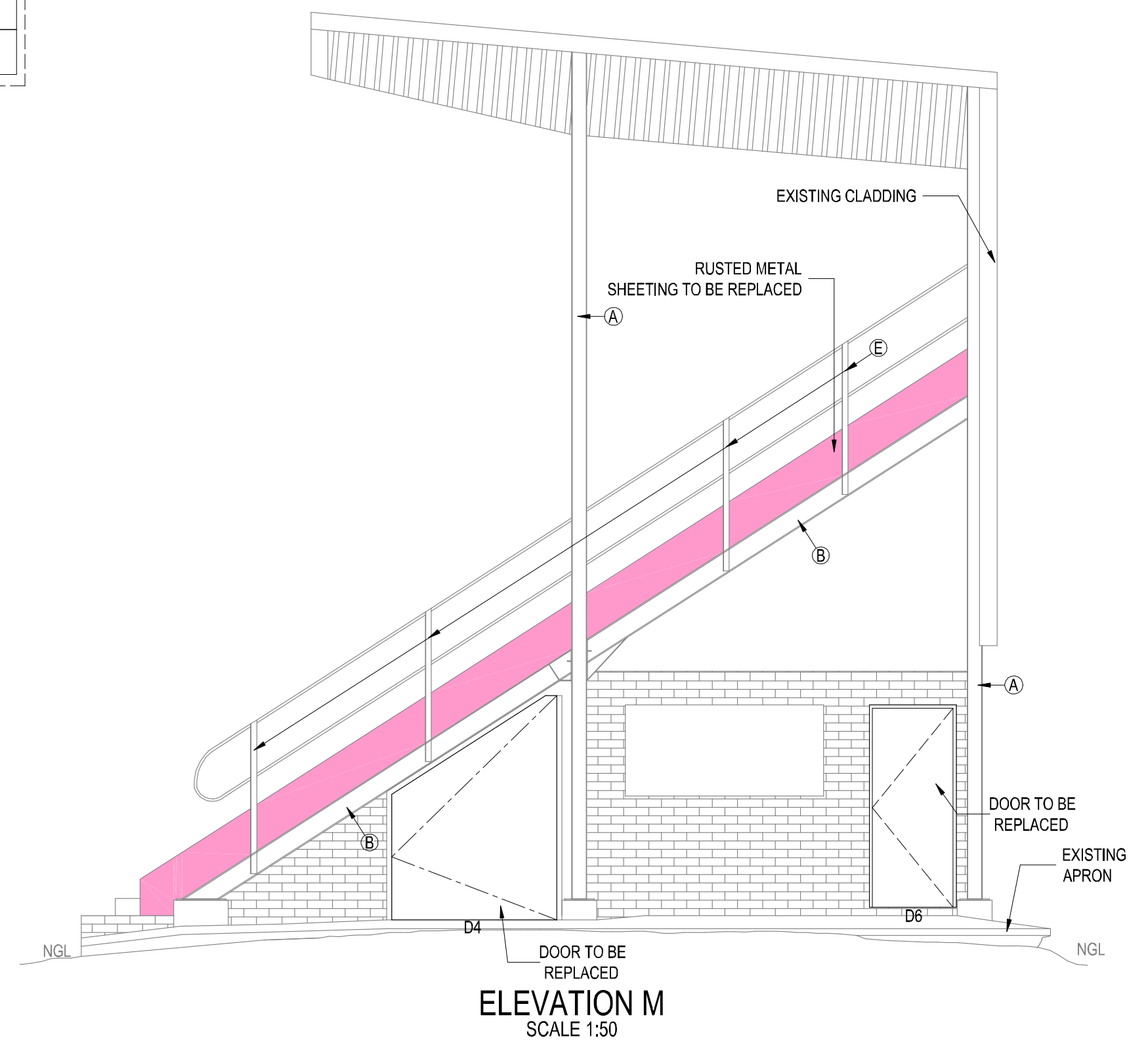
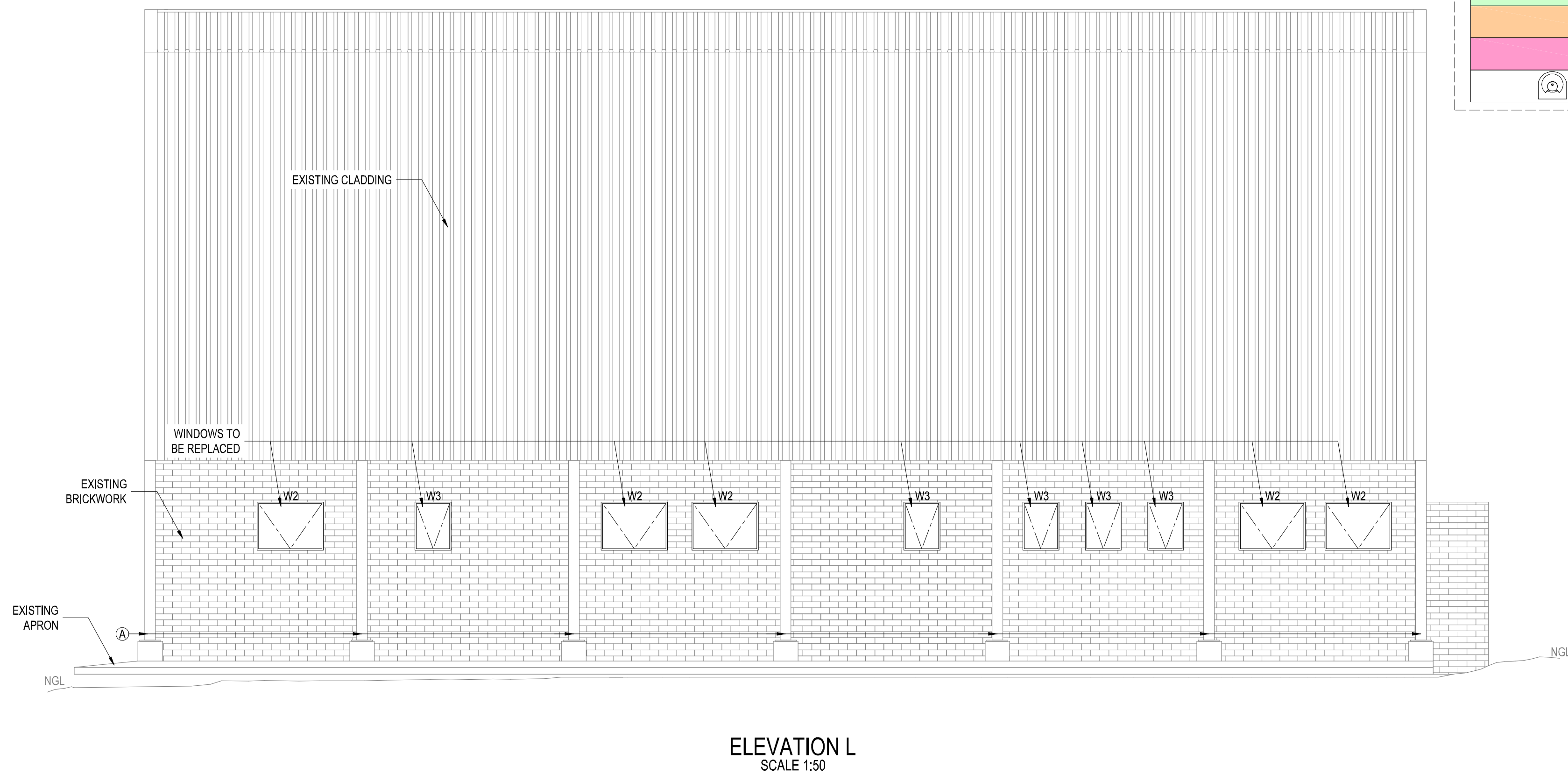
DRAWING DESCRIPTION/TEKENING BESKRYWING
PAVILION
WATER AND SEWERAGE LAYOUT

PAPER SIZE/PAPIER GROOTTE	SCALE/SKAAL	DRAWING No./TEKENING Nr.	REV No.
A1	1:50	3089/2/A/W/L/002	--

FOR TENDER



LEGEND	
	110mm Ø SEWER LINE
	50mm Ø SEWER LINE
	50mm Ø WATER LINE
	NEW 110mm THICK BRICKWORK
	NEW 450x250mm DEEP STRIP FOOTING
	5mm THICK METAL SHEETING TO BE REPLACED
	GULLY



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CLIENT KLIENT	G.M.L.
DATE DATUM	October 2024

PROJECT/PROJEK

CLIENT/KLIENT

DEBEN:
CONSTRUCTION OF
SPORTS FACILITIES
IN DIBENG

GAMAGARA
Local Municipality
Khumo Mo Lefateng

DRAWING DESCRIPTION/TEKENING BESKRYWING

PAPER SIZE/PAPIER GROOTTE

SCALE/SKAAL

DRAWING No./TEKENING Nr.

REV No.

PAVILION ELEVATION LAYOUT

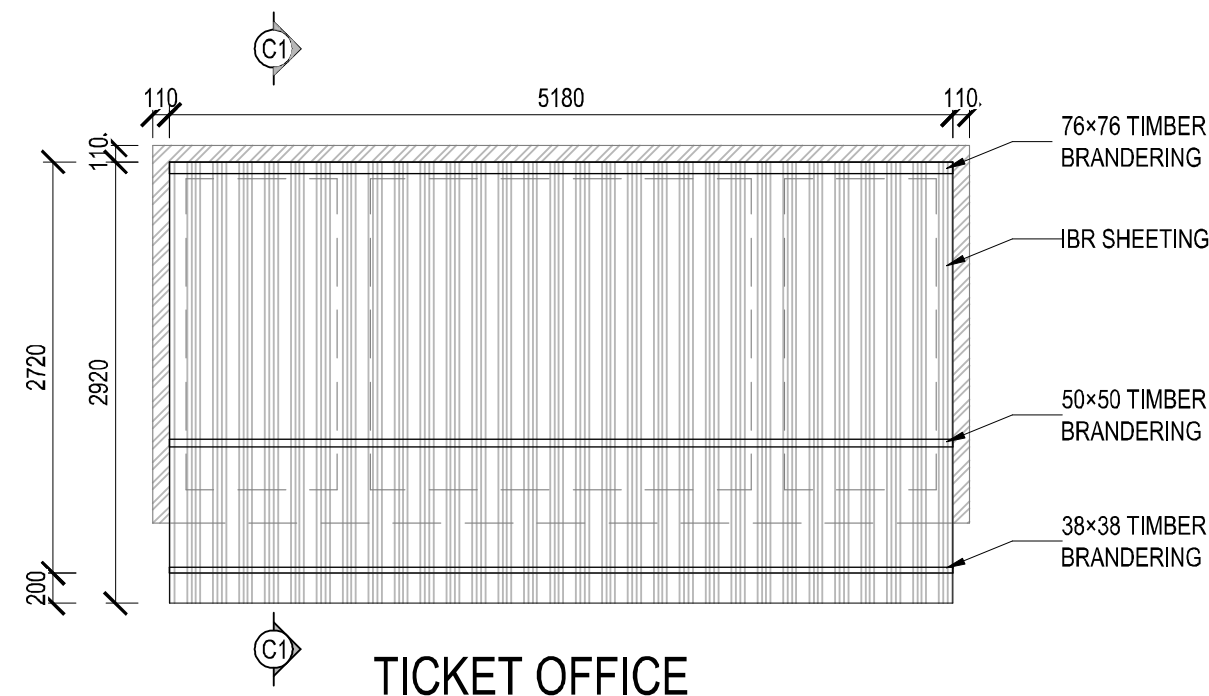
A1

1:50

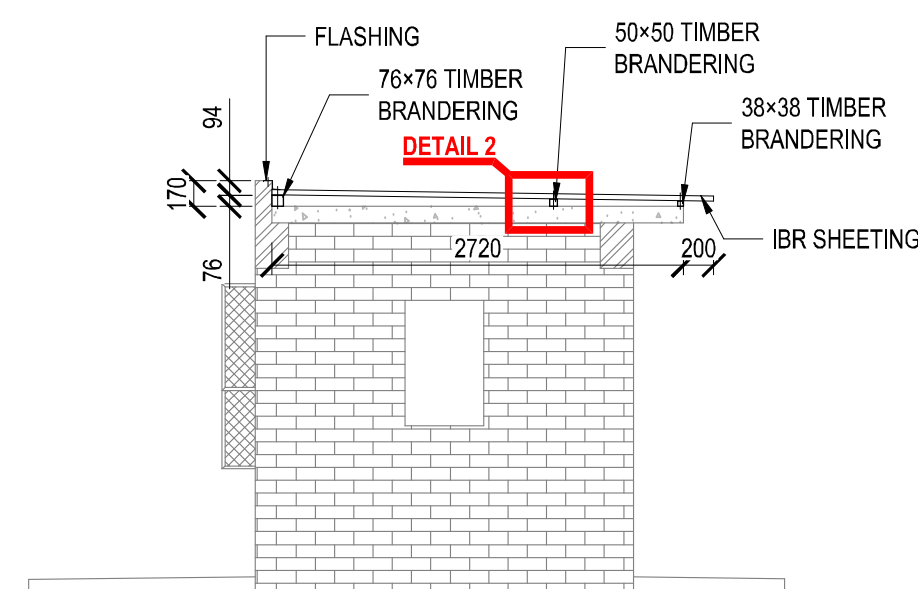
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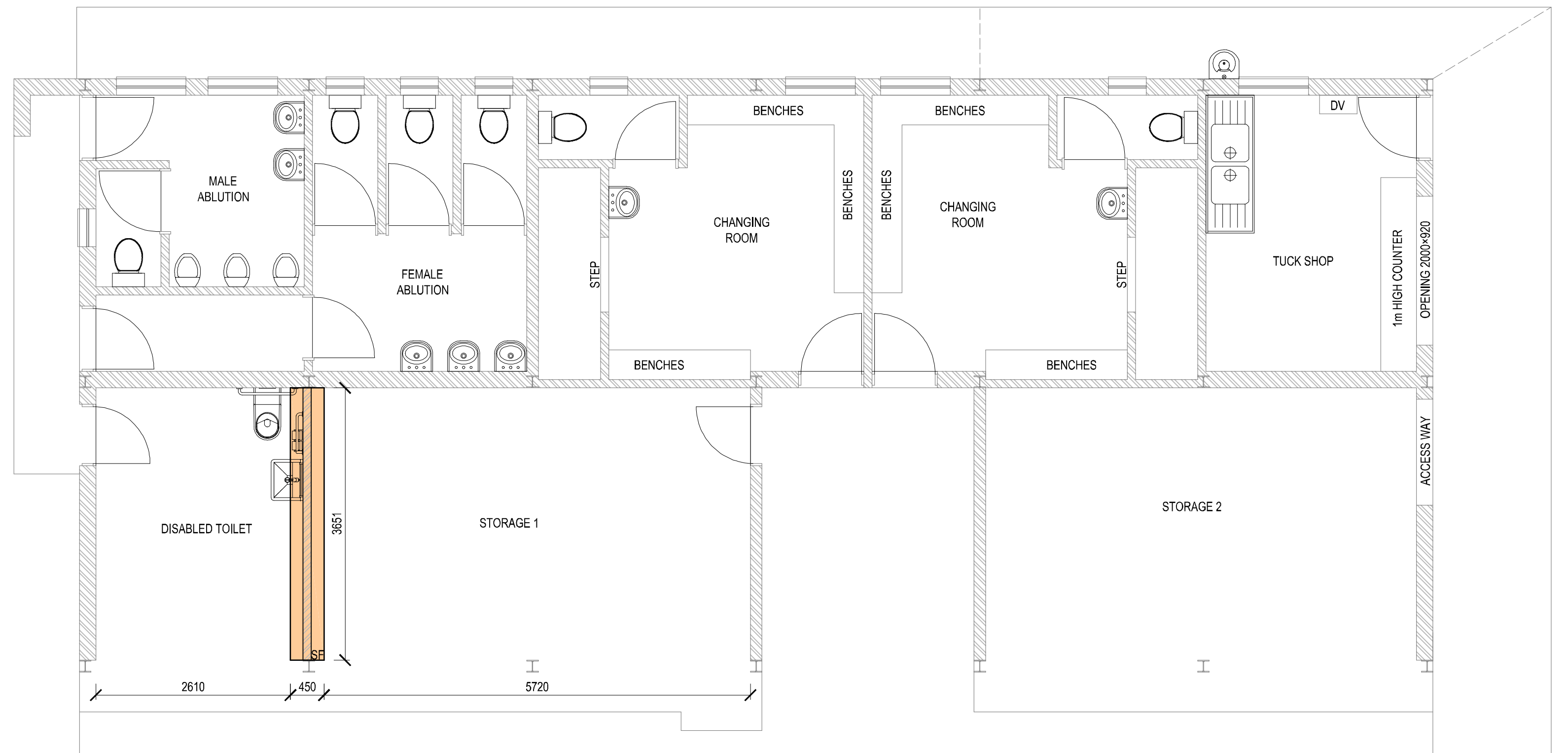
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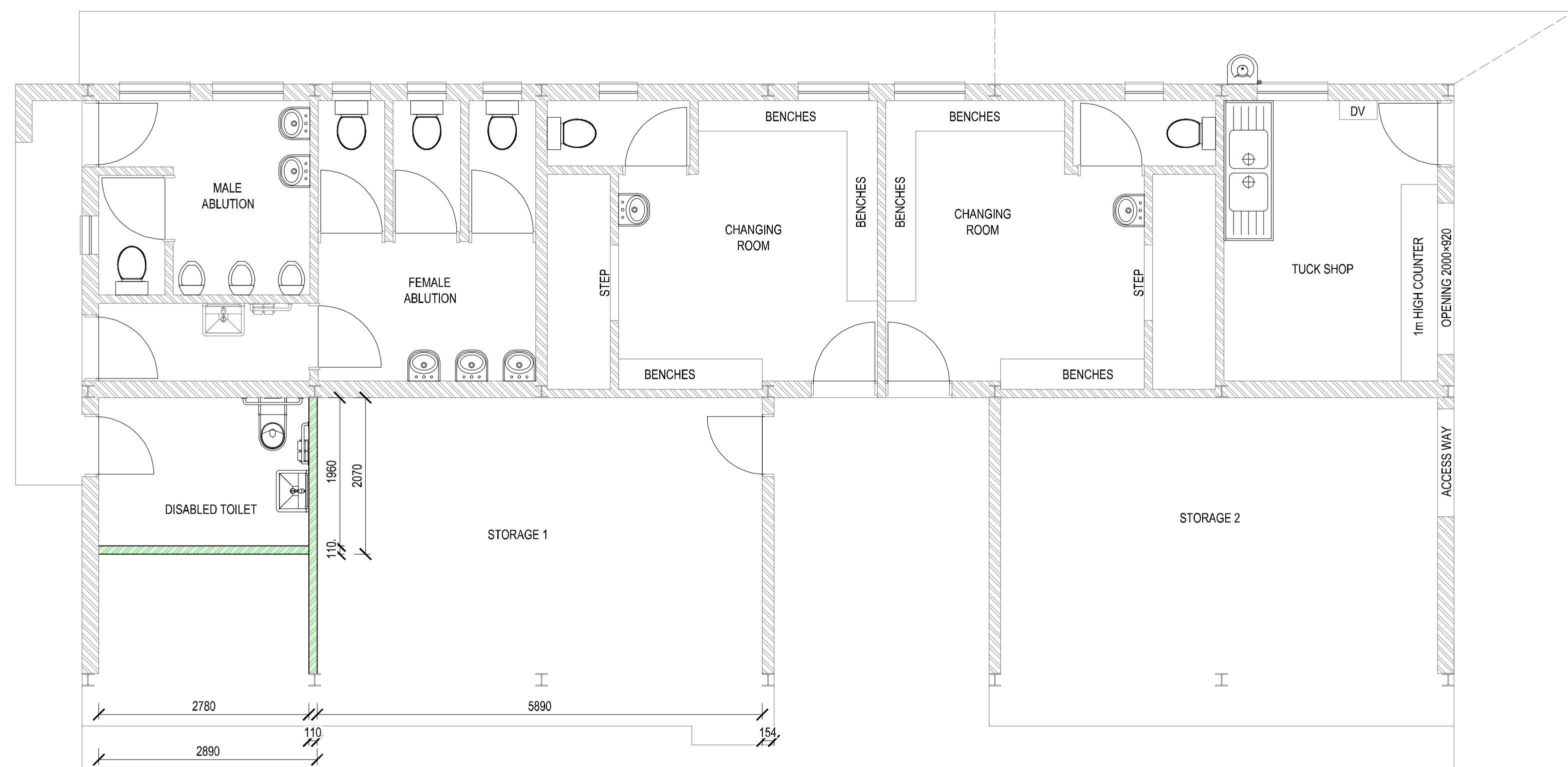
TICKET OFFICE
ROOF LAYOUT
SCALE 1:50



SECTION C1-C1
TICKET OFFICE
SCALE 1:50



PAVILION FOUNDATION LAYOUT
SCALE 1:50



PAVILION BRICKWORK LAYOUT
SCALE 1:50

LEGEND	
	110mm Ø SEWER LINE
	50mm Ø SEWER LINE
	50mm Ø WATER LINE
	NEW 110mm THICK BRICKWORK
	NEW 450x250mm DEEP STRIP FOOTING
	5mm THICK METAL SHEETING TO BE REPLACED
	GULLY

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DRAWN GETEKEN	W. Louw	
CHECKED NAGEGAAN	J. du Plessis	
CLIENT KLIENT	G.M.L.	
DATE DATUM	October 2024	

PROJECT/PROJEK

DEBEN:
CONSTRUCTION OF
SPORTS FACILITIES
IN DIBENG

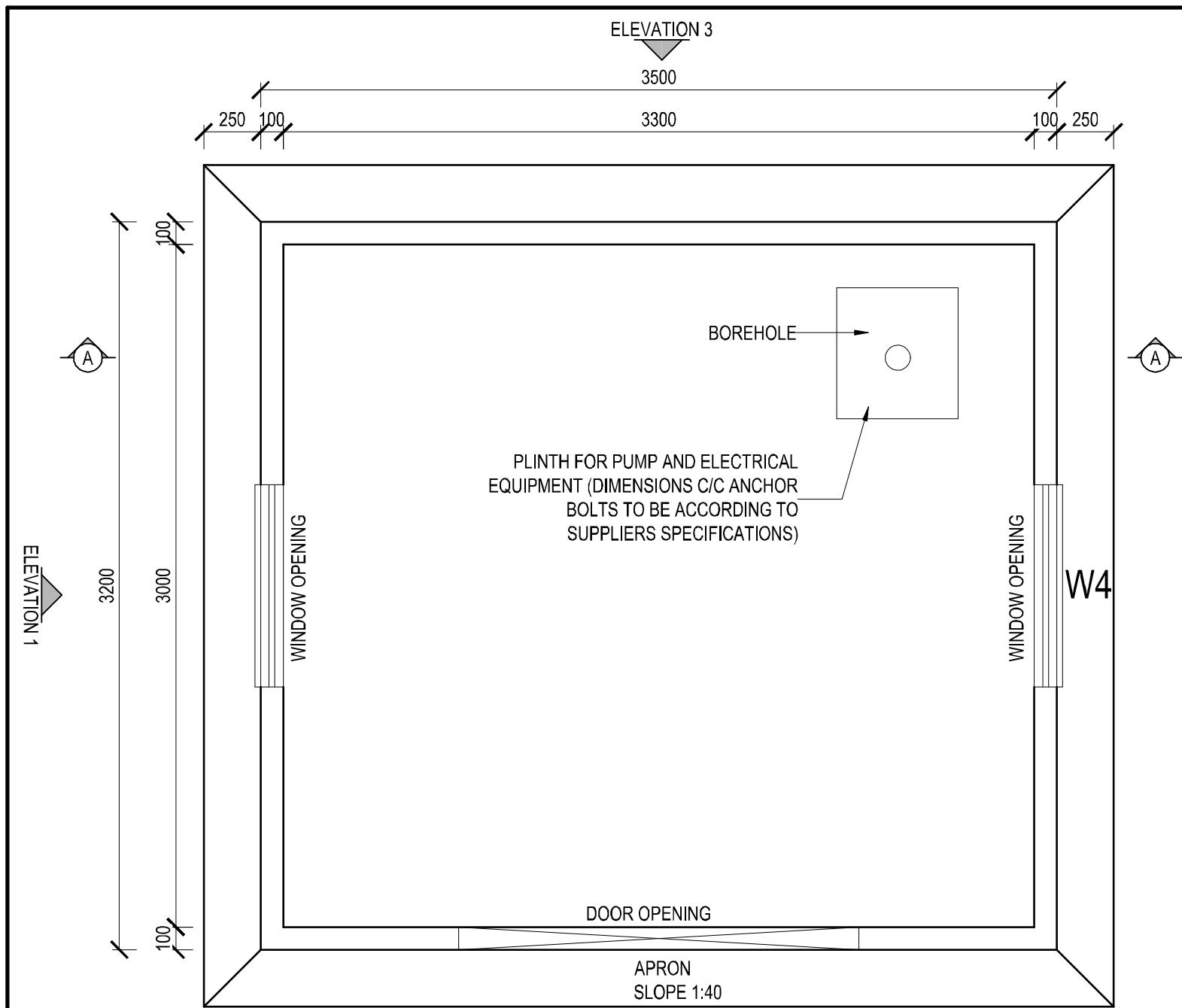
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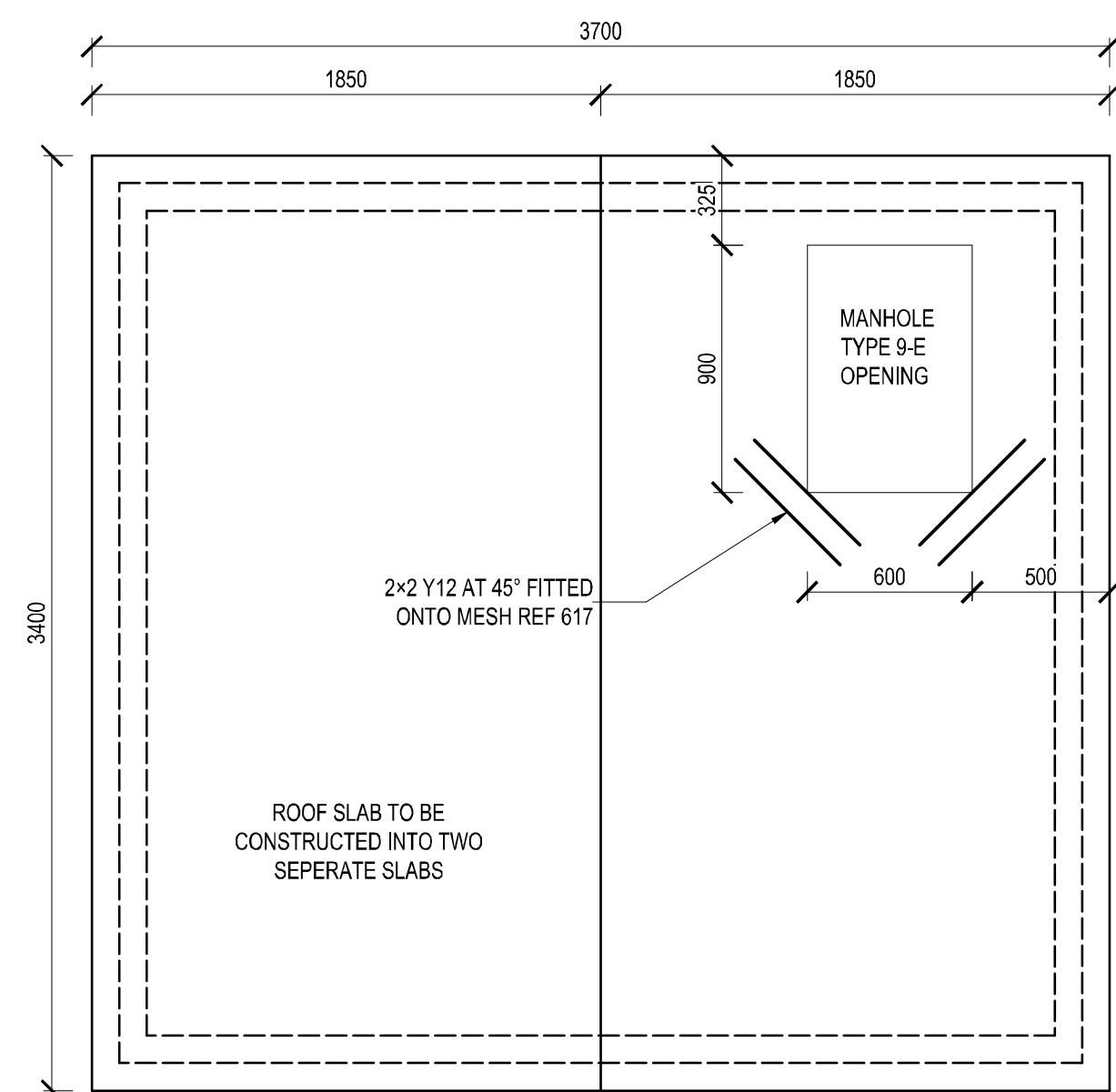
DRAWING DESCRIPTION/TEKENING BESKRYWING
TICKET OFFICE ROOF LAYOUT AND PAVILION
BRICKWORK AND FOUNDATION LAYOUT

PAPER SIZE/PAPIER GROOTTE	SCALE/SKAAL	DRAWING No./TEKENING Nr.	REV No.
A1	A/S	3089/2/S/C/L/001	--

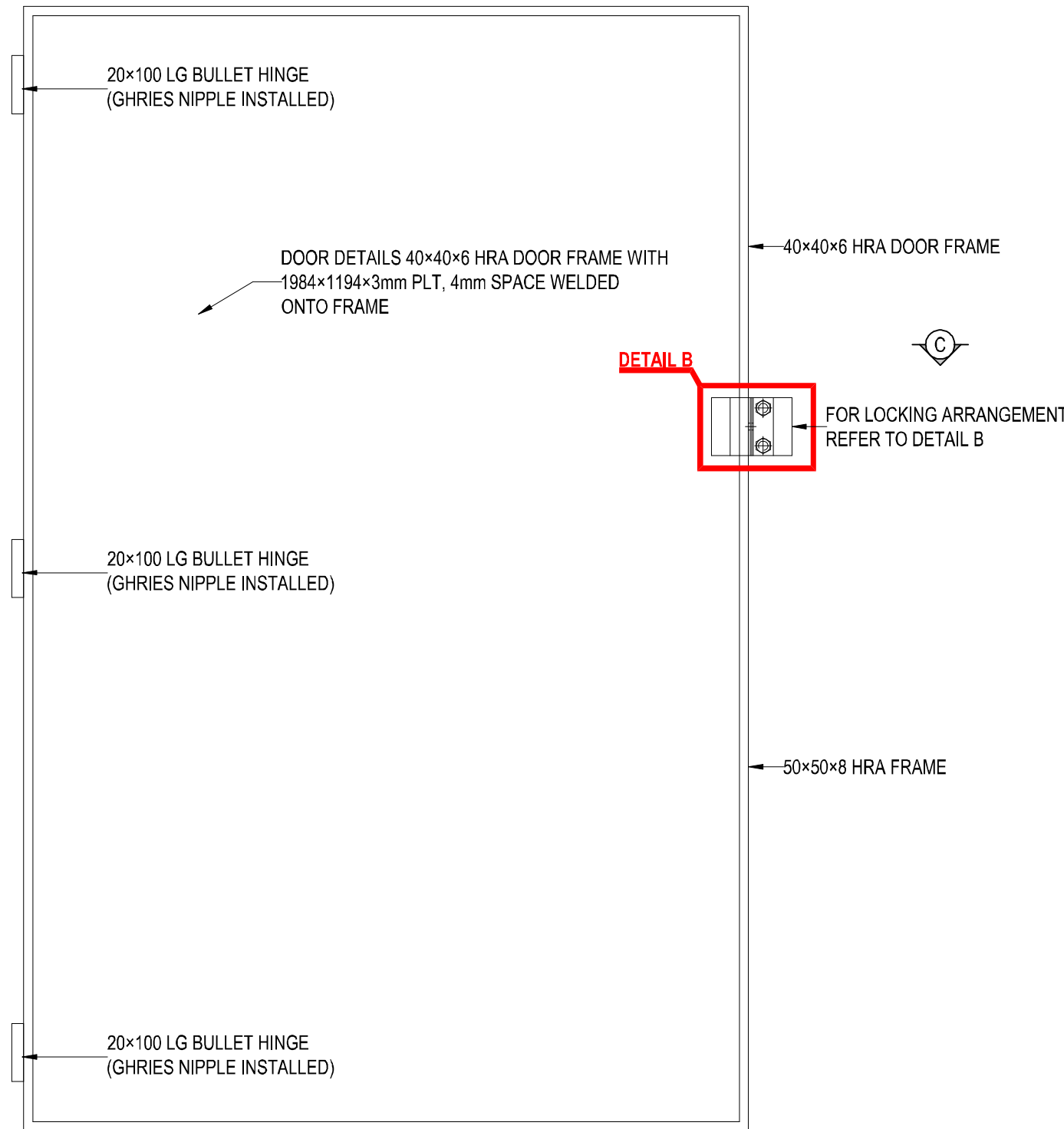
FOR TENDER



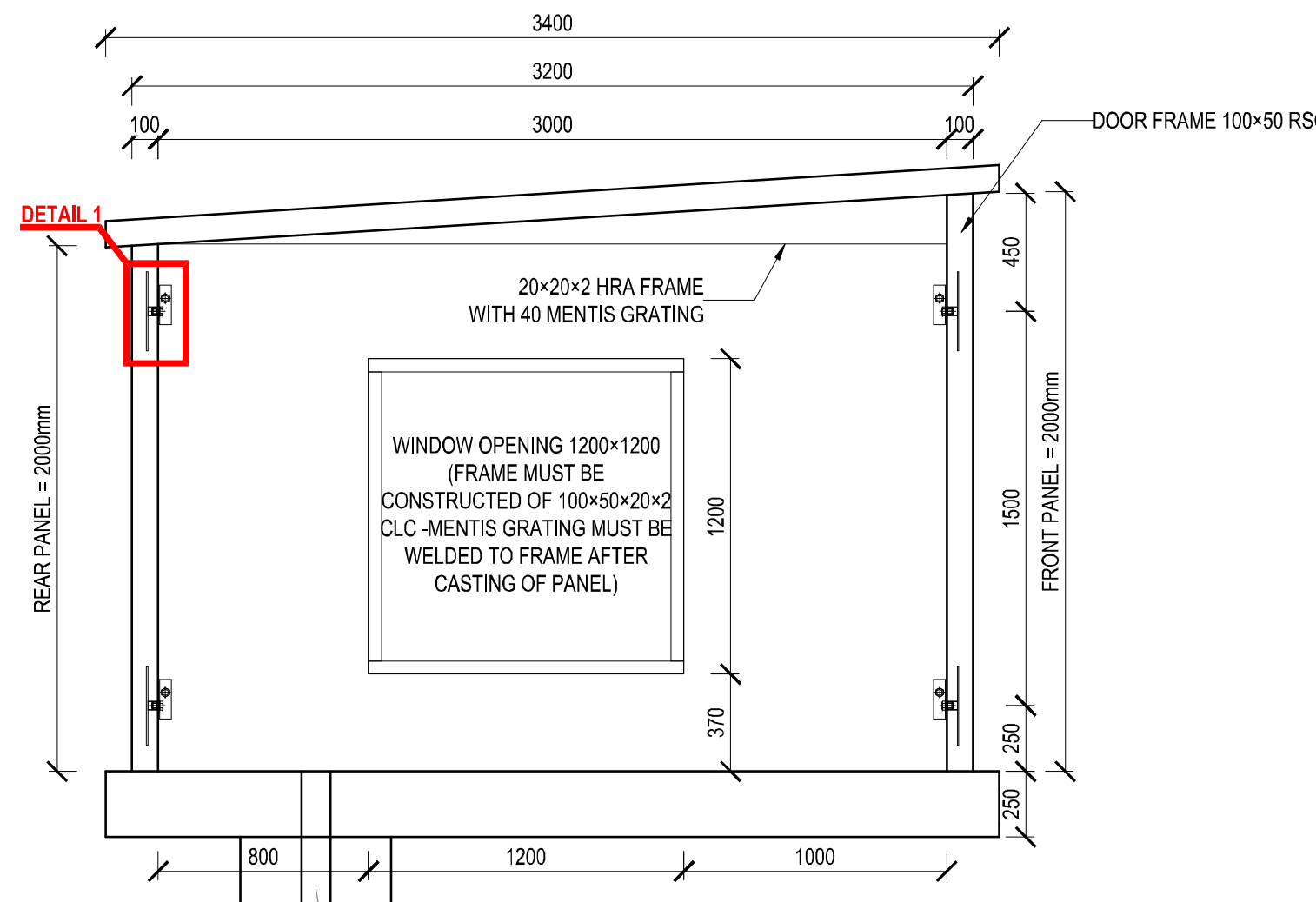
PUMPHOUSE
FLOOR LAYOUT
SCALE 1:25



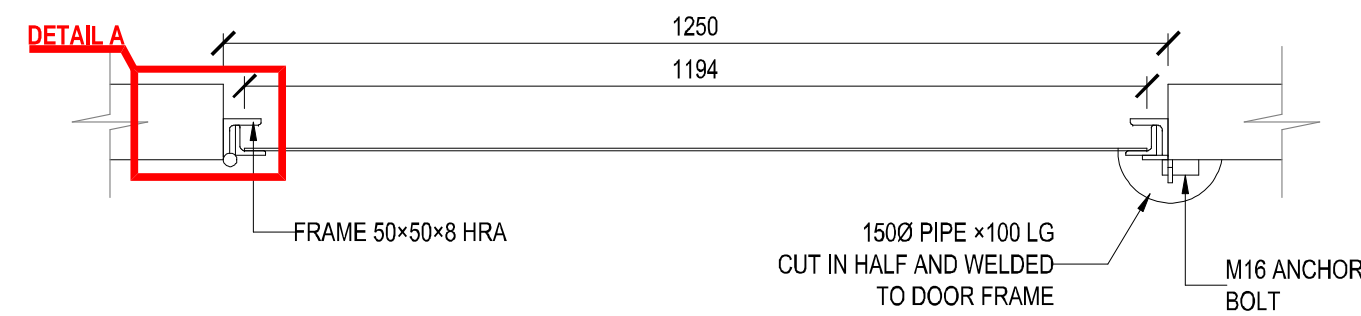
PUMPHOUSE
ROOF SLAB
SCALE 1:25



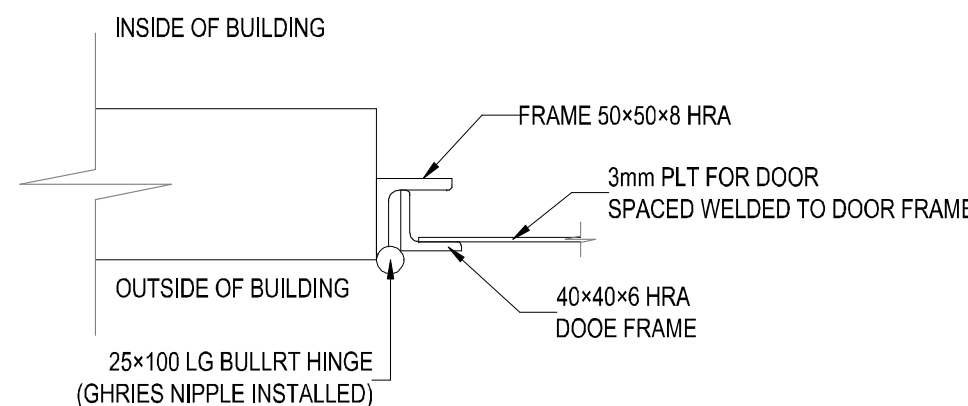
DOOR DETAIL
SCALE 1:10



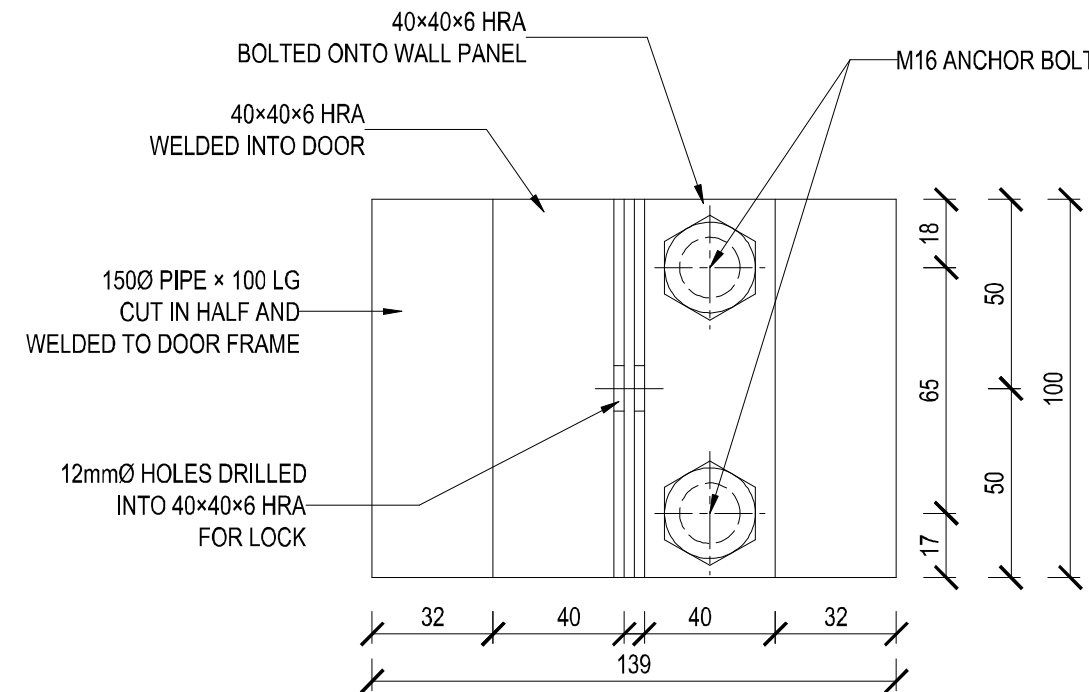
ELEVATION 1
SCALE 1:25



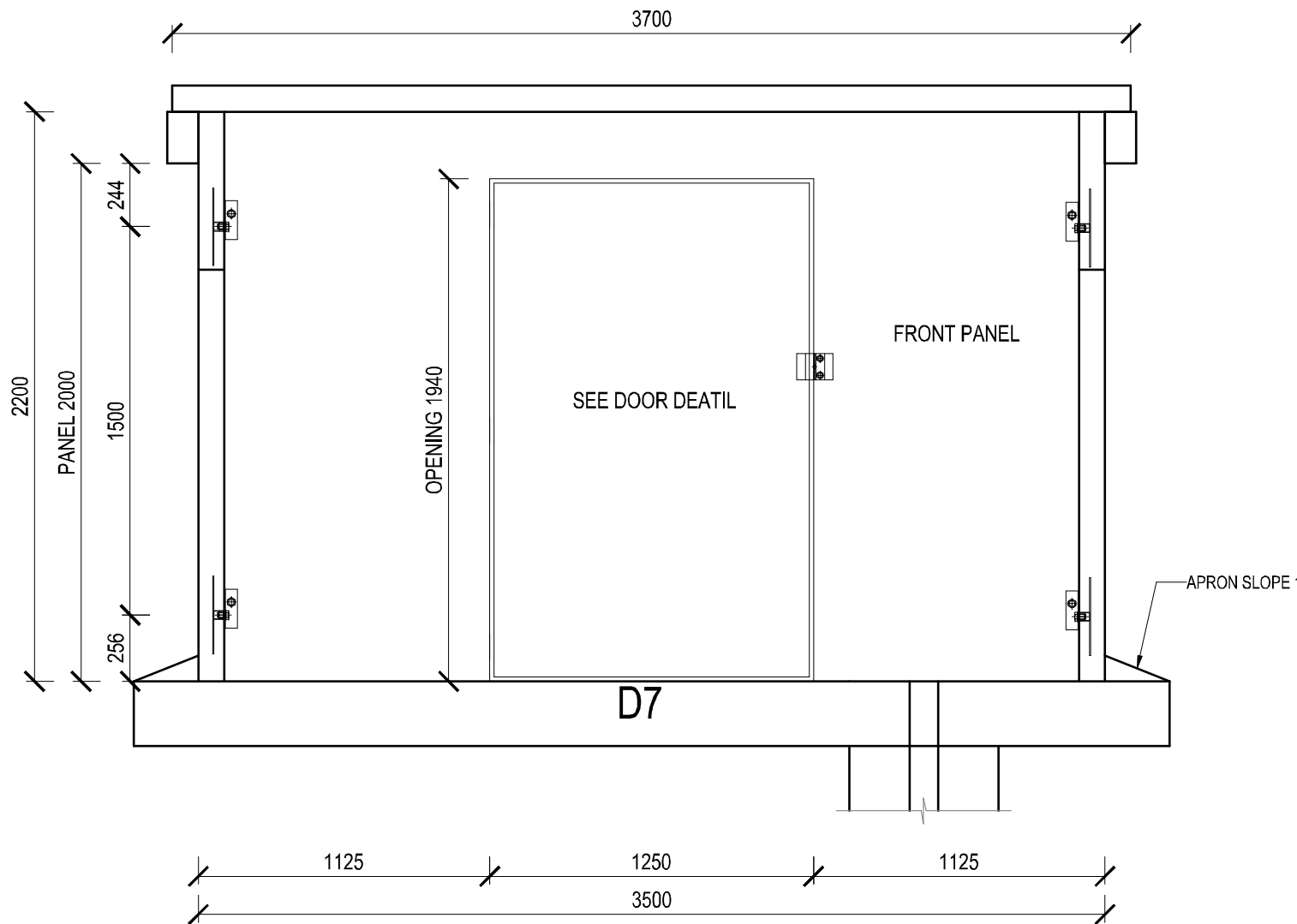
SECTION C-C
SCALE 1:10



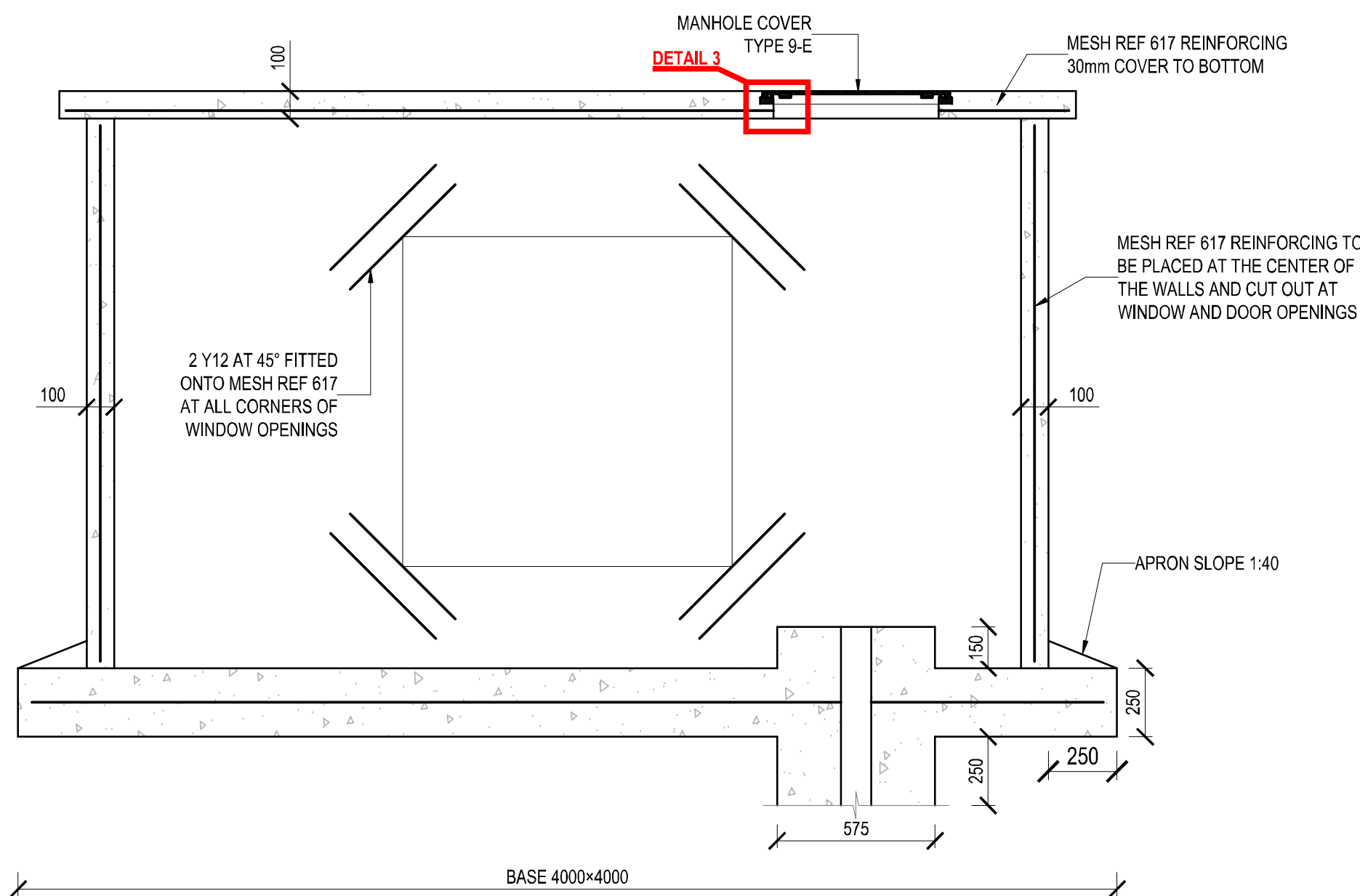
DETAIL A
SCALE 1:5



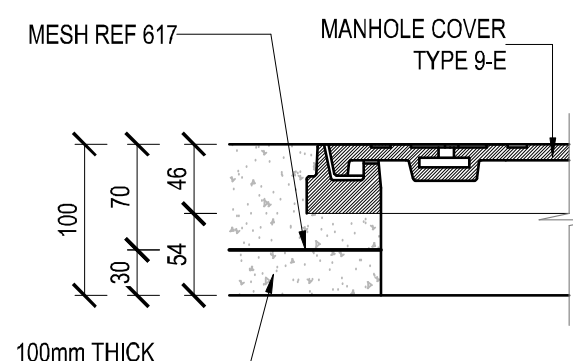
DETAIL B
SCALE 1:2



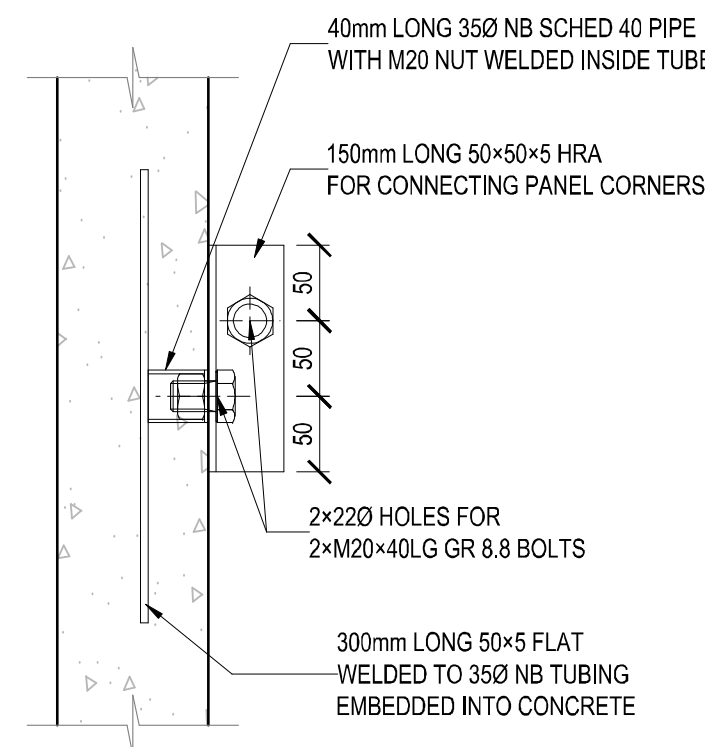
ELEVATION 2
SCALE 1:25



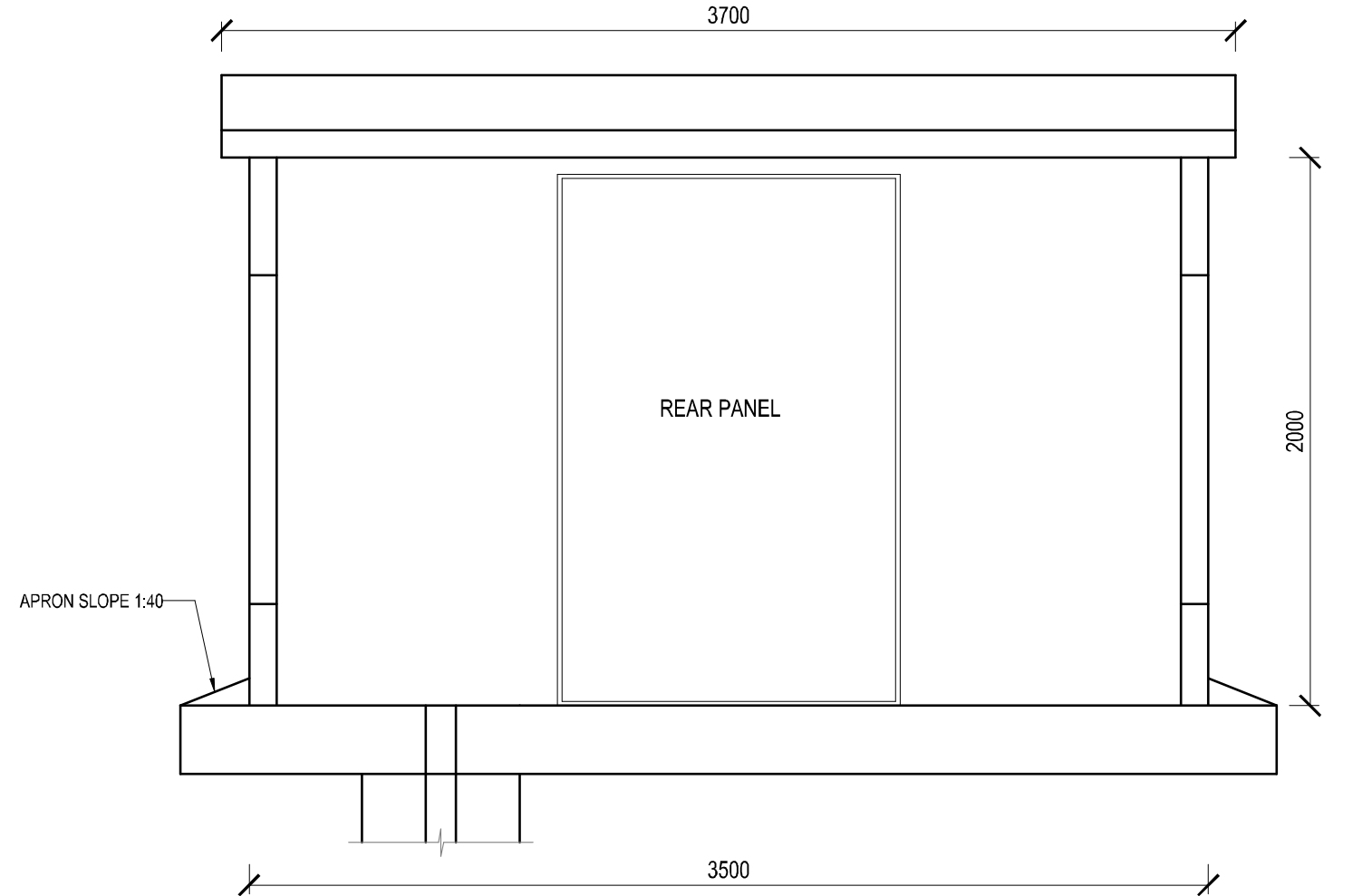
SECTION A-A
SCALE 1:20



DETAIL 3
SCALE 1:5



DETAIL 1
SCALE 1:5



ELEVATION 3
SCALE 1:25

MEMBER	No OF	BARS PER MEMB	DIA.	LENGTH	TOTAL NUM-BER	MARK	S C	BENDING				
								A	B	C	D	E/r
PUMPHOUSE	1	24	Y12	550	24	A	20	(540)				
	8	10	12	16	20	25	32	40	TOT			
R												
Y												
TOT												
MVD Kalahari								Date	2024/10/02			
Raadgewende Ingenieurs en Stadsbeplanning								Det. by	W LOUW			
Consulting Engineers and Town Planning								Ref Dwg	3089-2-S-C-L-004			
								Job No	3089-2			
								Revision				
								Schedule No	PM			

COVER TO REINFORCEMENT = 50mm TOP, BOTTOM AND SIDES
CONCRETE STRENGTH = 25 MPa

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SPORTS FACILITIES
IN DIBENG

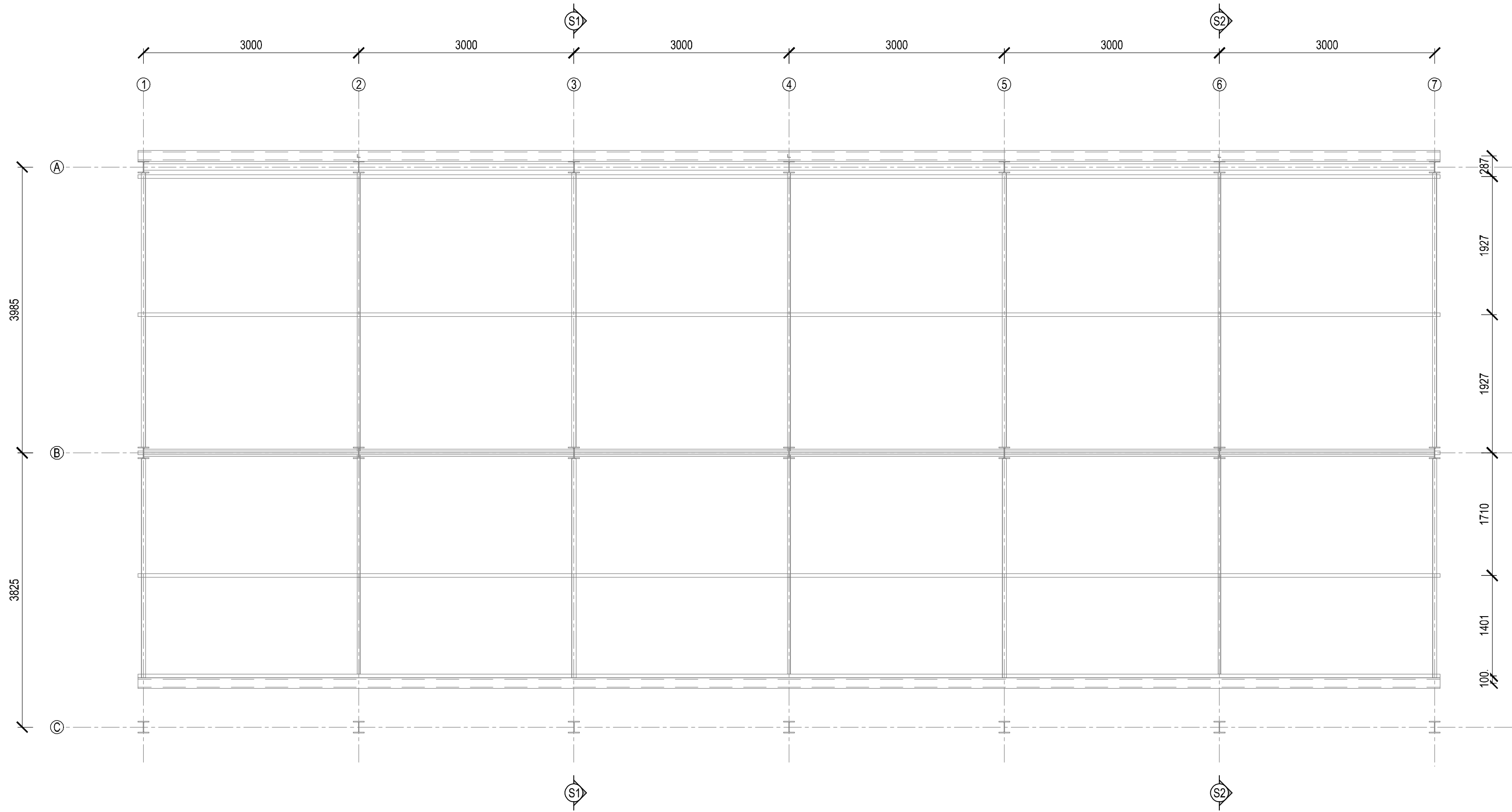
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GAMAGARA
Local Municipality
Khomo Mo Lefatsheng

DRAWING DESCRIPTION/TEKENING BESKRYWING
PUMPHOUSE LAYOUT, ELEVATION,
SECTION AND DETAILS

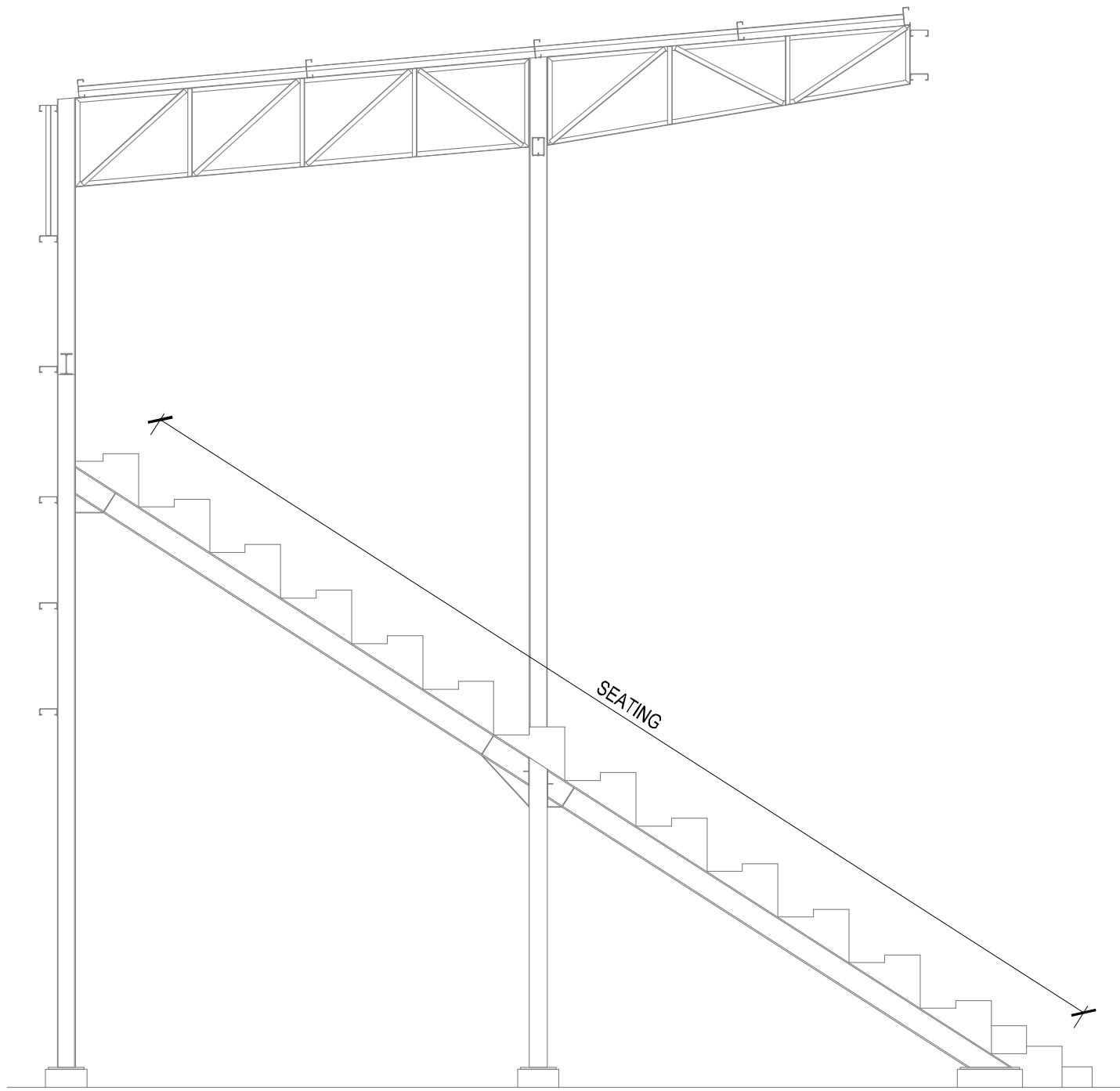
PAPER SIZE/PAPIER GROOTTE A1
SCALE/SKAAL A/S
DRAWING No./TEKENING Nr: 3089/2/S/C/L/002
REV No. --

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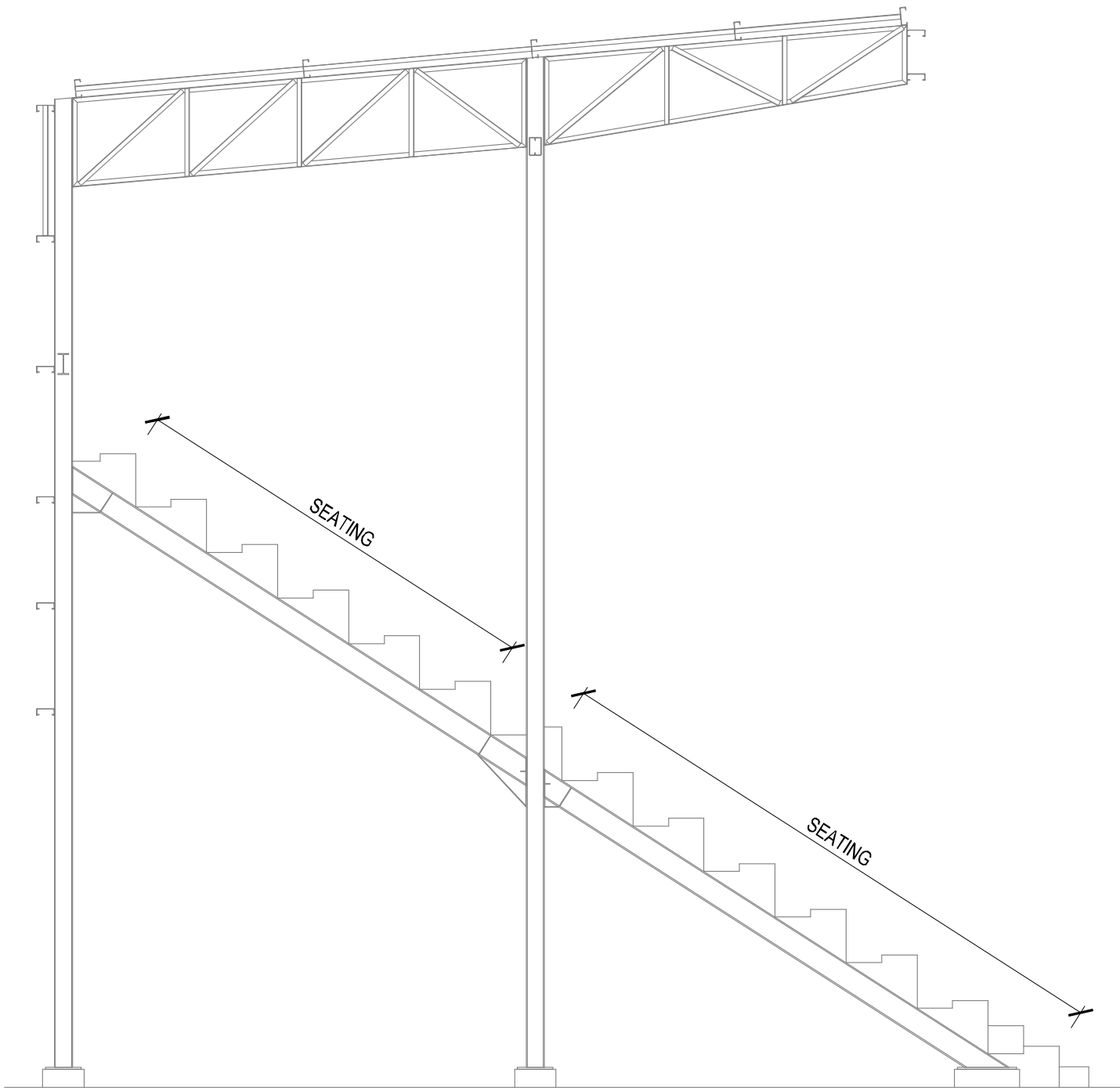


PAVILION STEEL ROOF LAYOUT
SCALE 1:50

LEGEND	
	110mm Ø SEWER LINE
	50mm Ø SEWER LINE
	50mm Ø WATER LINE
	NEW 110mm THICK BRICKWORK
	NEW 450x250mm DEEP STRIP FOOTING
	5mm THICK METAL SHEETING TO BE REPLACED
	GULLY



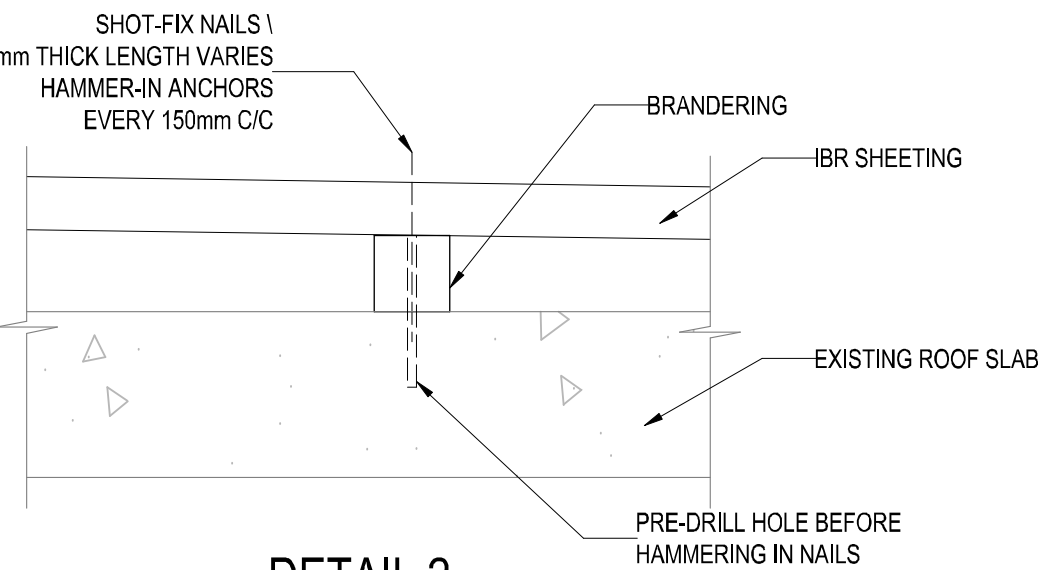
SECTION S2-S2
SCALE 1:50



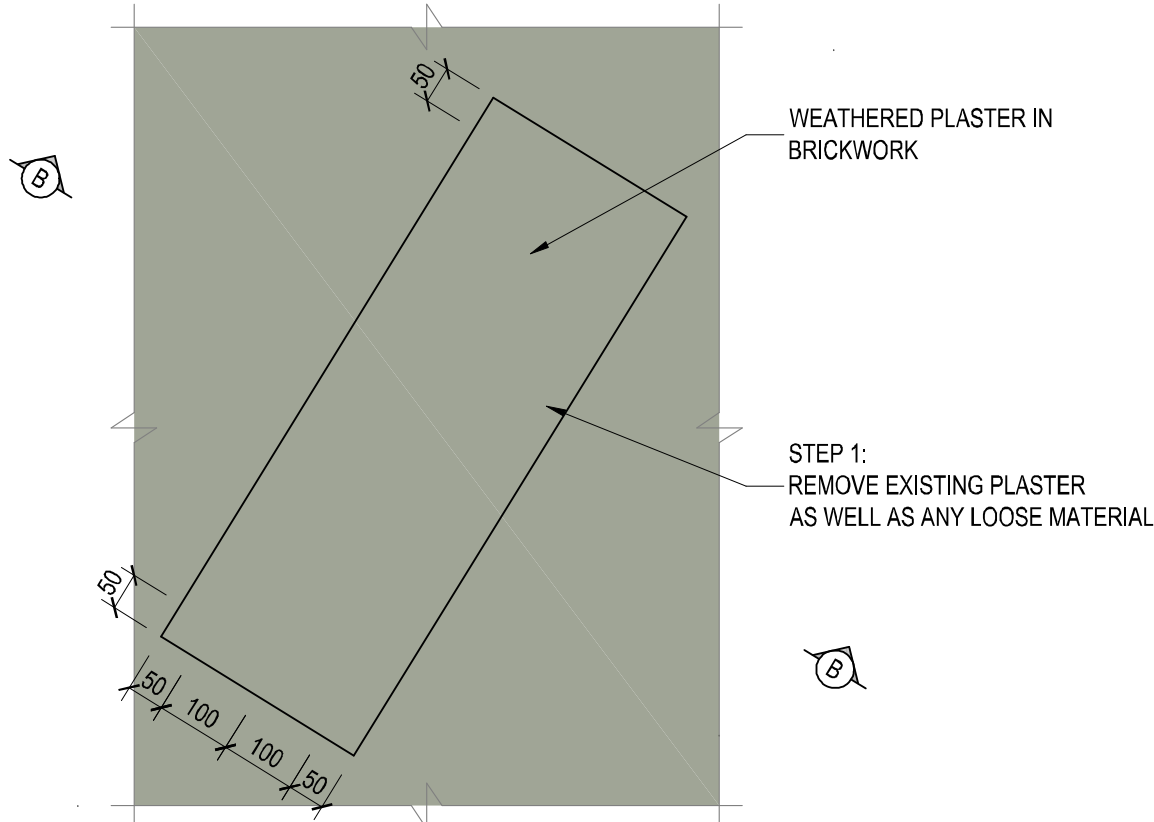
SECTION S1-S1
SCALE 1:50

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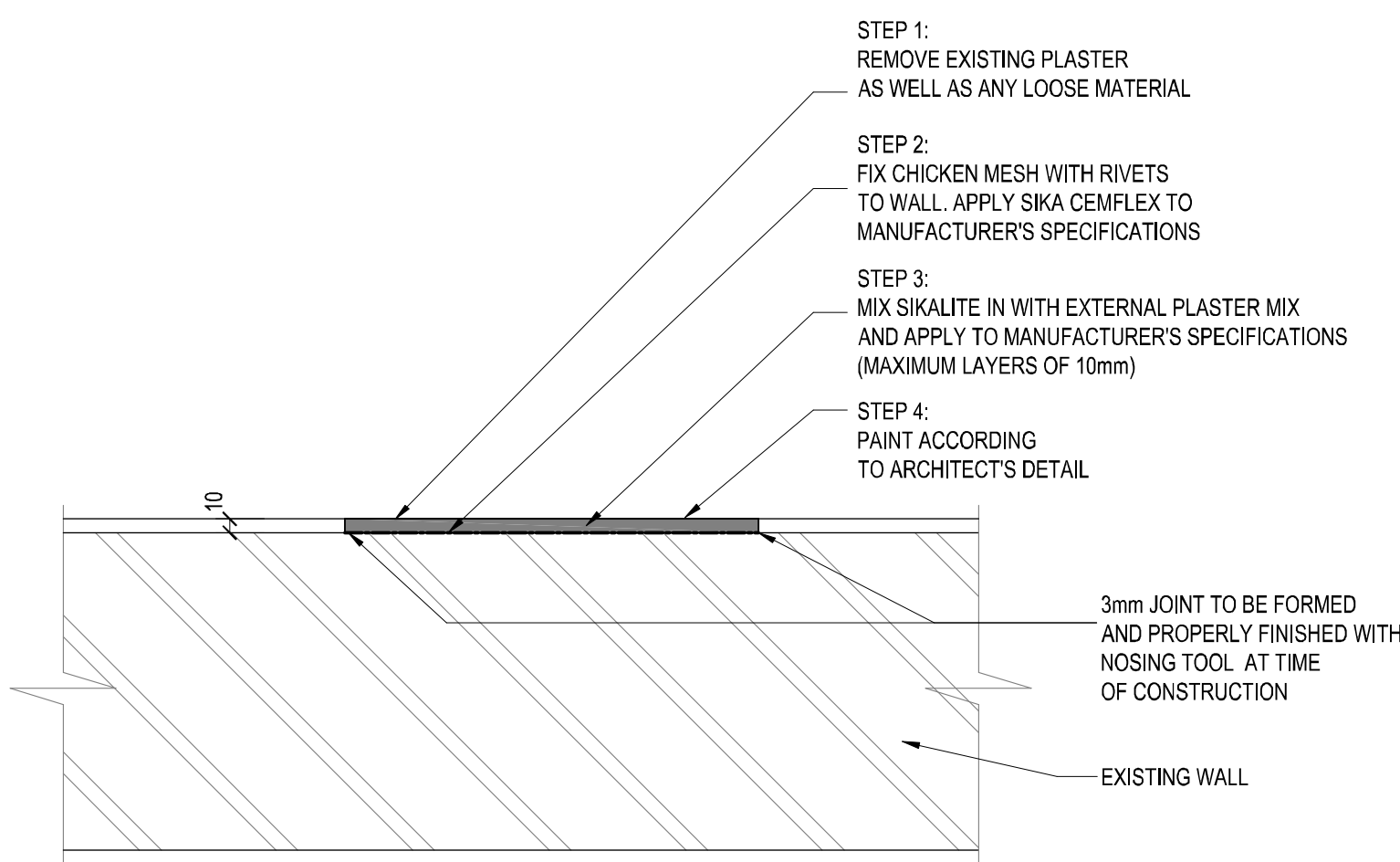
SHOT-FIX NAIL SIZES ACOORDING TO BRANDERING SIZE	
BRANDERING SIZE (mm)	SHOT-FIX NAIL LENGTH (mm)
38×38	125
50×50	135
76×76	165



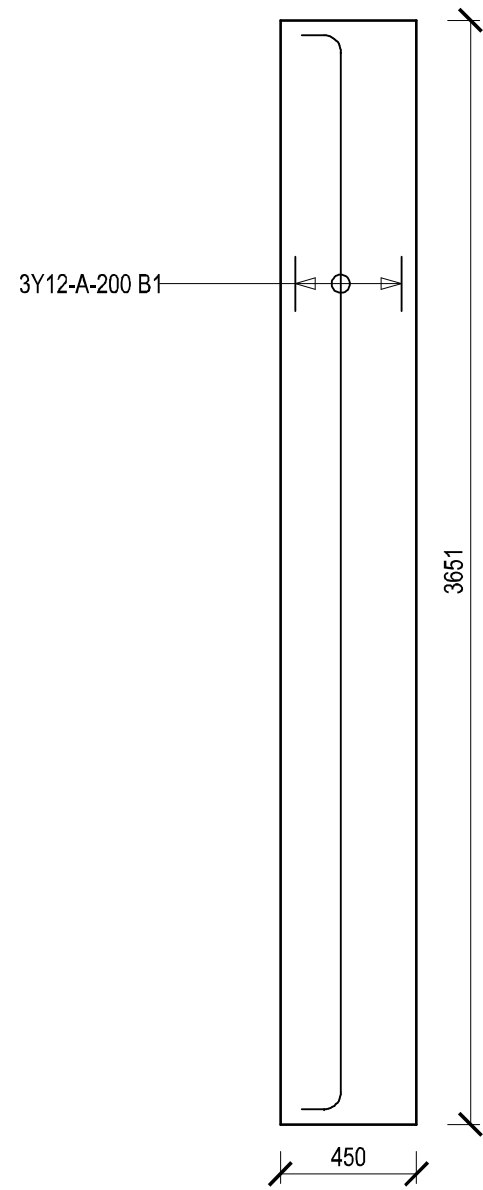
DETAIL 2
SCALE 1:5



DETAIL 1a:
TYPICAL REPALACEMENT OF PLASTER
IN WALLS
SCALE 1:10

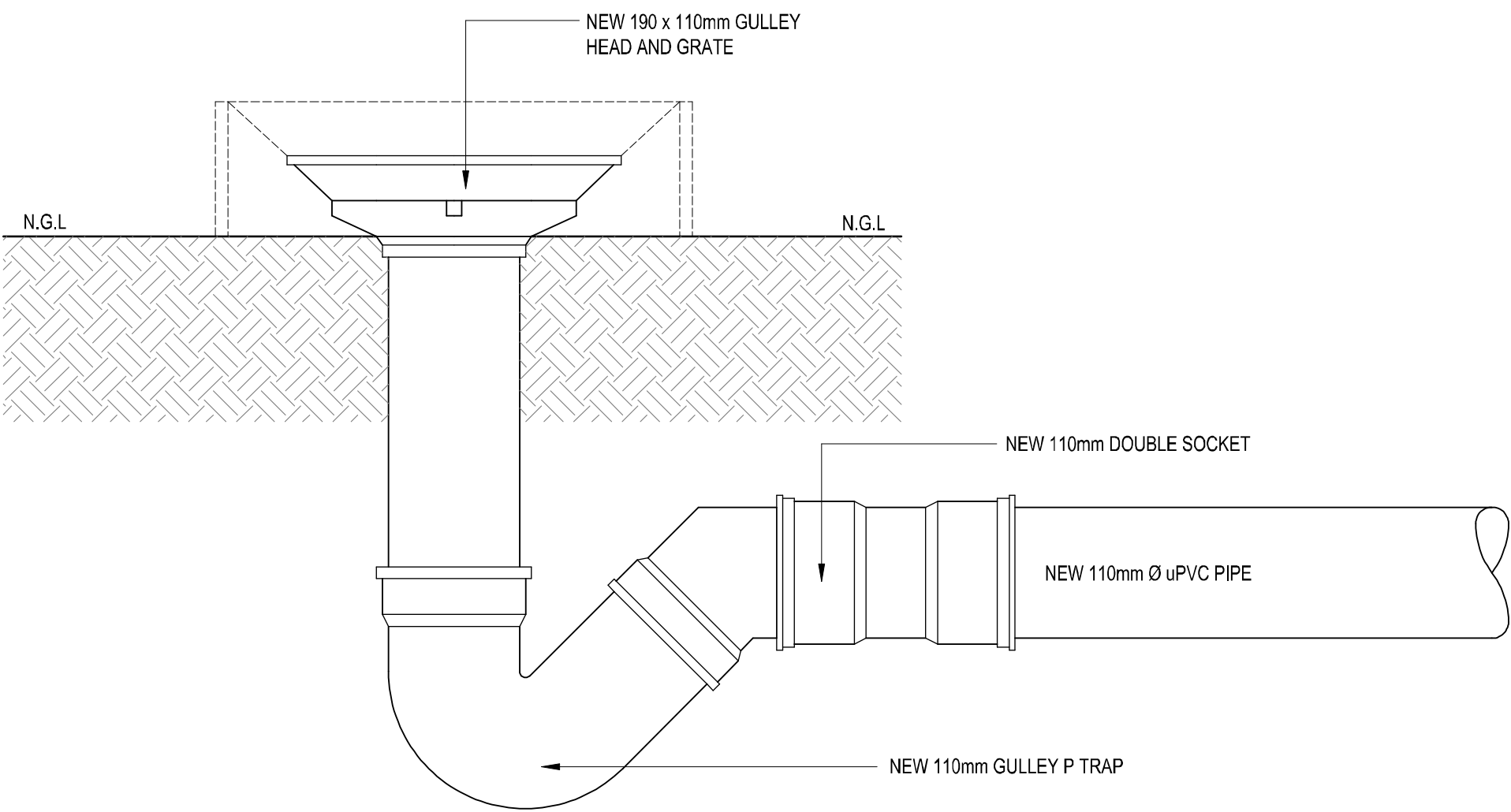


SECTION B-B
SCALE 1:5

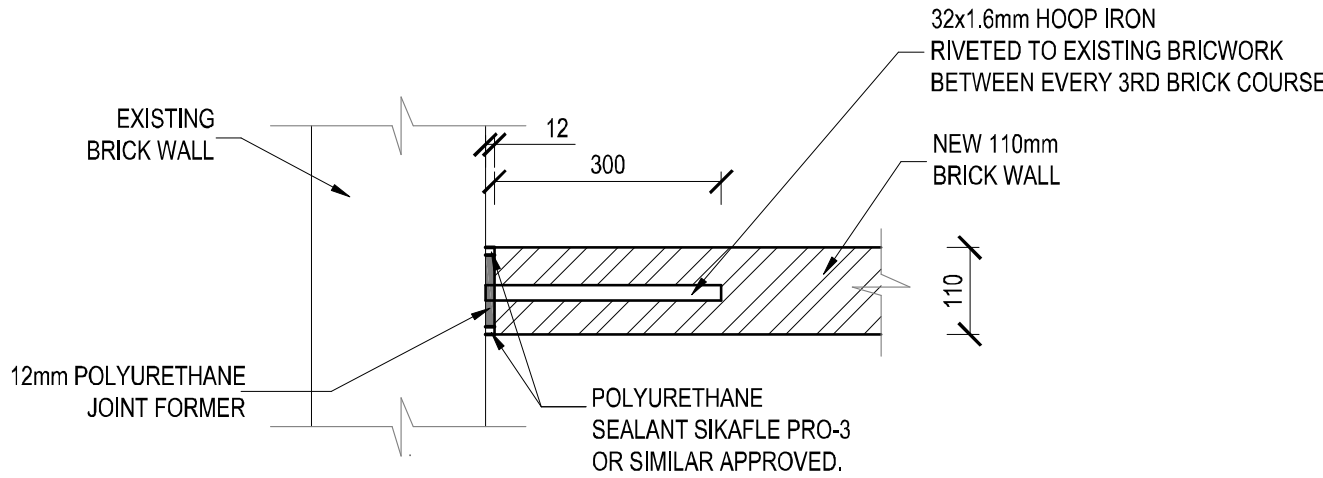


MEMBER	No OF	BARS PER MEMB	DIA.	LENGTH	TOTAL NUM-BER	MARK	S	C	B E N D I N G				
									A	B	C	D	E/r
STRIP FOOTING (SF)	1	3 18	Y12 R8	3750 350	3 18	A ST	35 20	3550 (350)					
8	10	12	16	20	25	32	40	TOT	Date	03/10/2024			
R	2							2	Det. by	W. Louw			
Y		10						10	Ref Dwg	3089/2			
TOT	2	10						12	Job No	3089/2			
MVD Kalahari				DEBEN:CONSTRUCTION OF SPORTS FACILITIES IN DIBENG					Revision				
Roadgewende Ingenieurs en Stadsbeplanning. Consulting Engineers and Town Planning.									Schedule No				SF

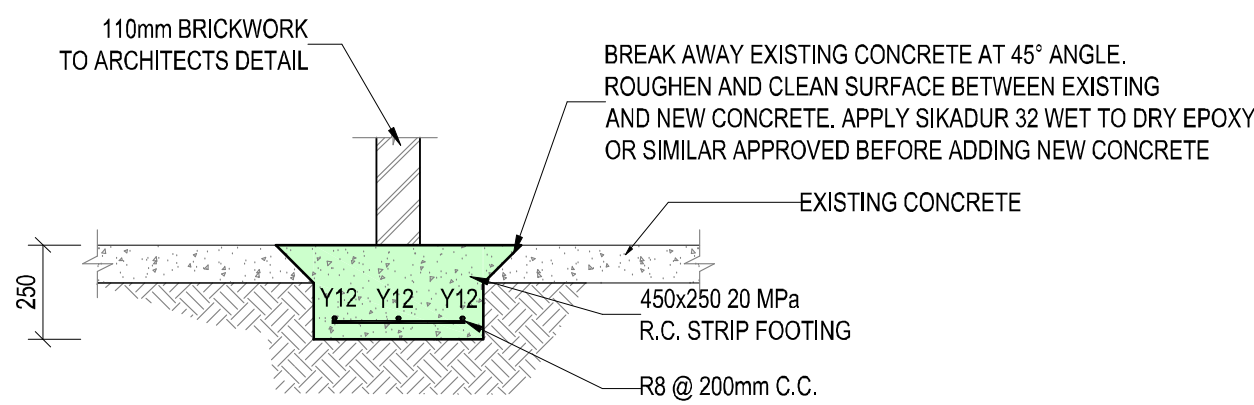
STRIP FOOTING (SF)
REINFORCING LAYOUT
SCALE 1:25



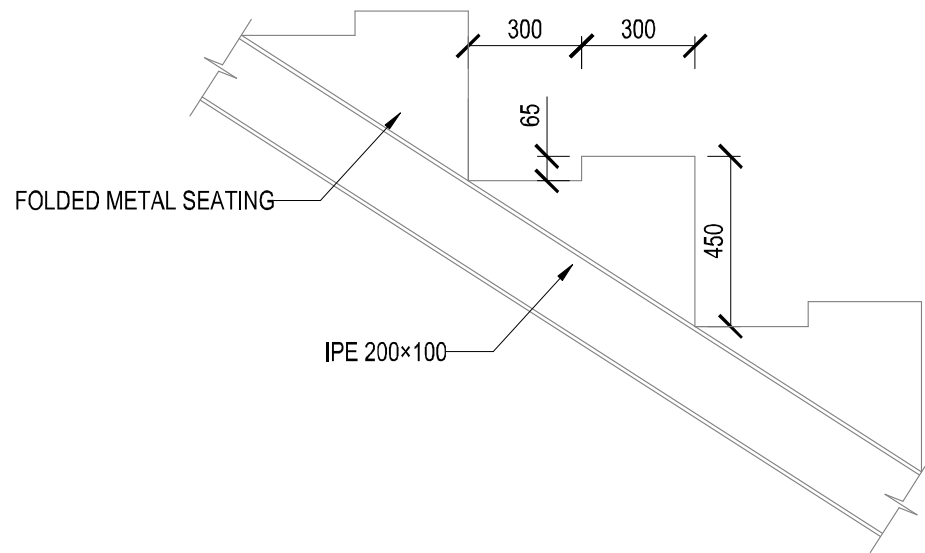
GULLEY
(SEWER GULLEY)
SCALE 1 : 5



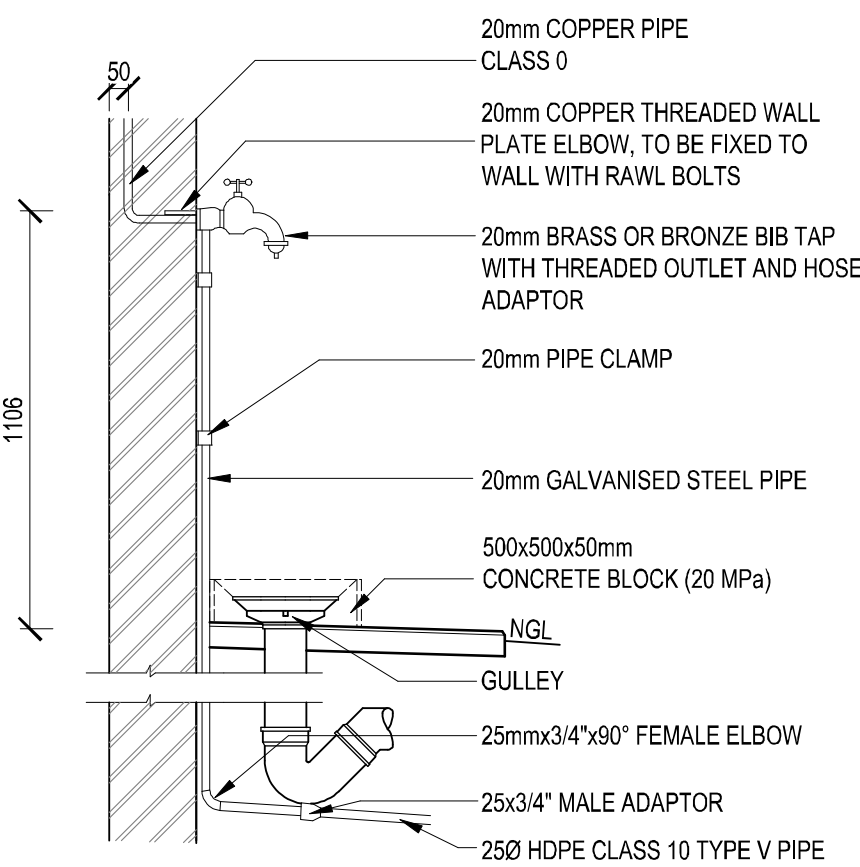
NEW 110mm BRICKWORK
TO EXISTING BRICKWORK
SCALE 1:10



STRIP FOUNDATION & SURFACE BED
FOR 110mm WALL
SCALE 1:20



PAVILION SEATING DETAIL
SCALE 1:20



DETAIL(WD1) OF STANDPIPE AND
CONNECTION TO BUILDING
SCALE 1:20

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NO. NR.	DATE DATUM	AMENDMENTS WYSIGINGS
-	-	-

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DESIGN ONTWERP	J. du Plessis
DRAWN GETEKEN	W. Louw
CHECKED NAGEGAAN	J. du Plessis
CLIENT KLIENT	G.M.L.
DATE DATUM	October 2024

PROJECT/PROJEK

DEBEN:
CONSTRUCTION OF
SPORTS FACILITIES
IN DIBENG

CLIENT/KLIENT



DRAWING DESCRIPTION/TEKENING BESKRYWING

GENERAL DETAILS

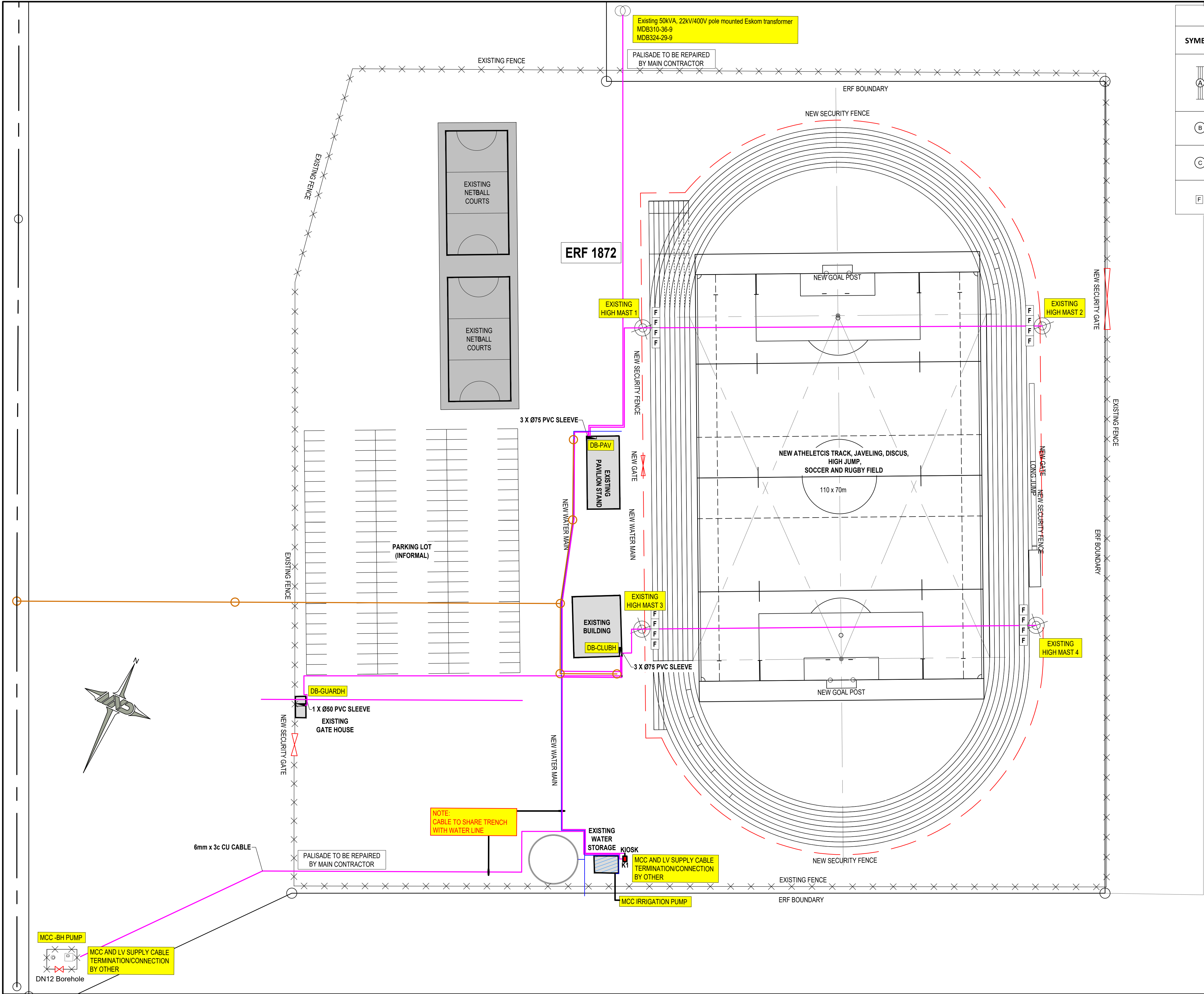
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SCALE/SKAAL
A/S

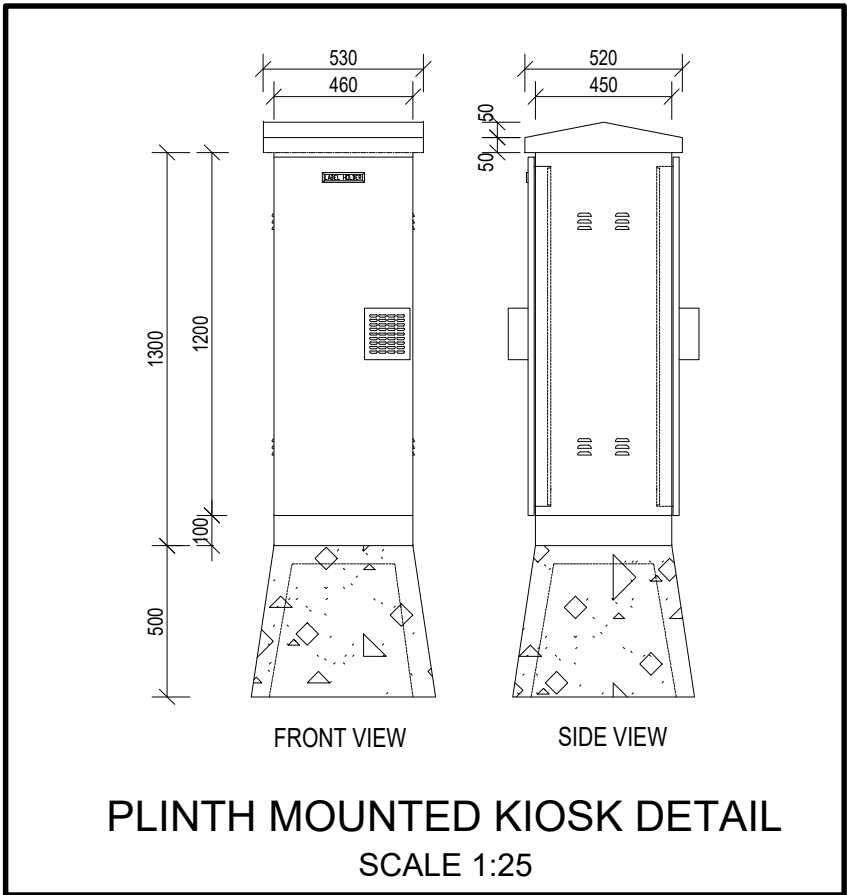
DRAWING No./TEKENING Nr:
3089/2/S/C/D/001

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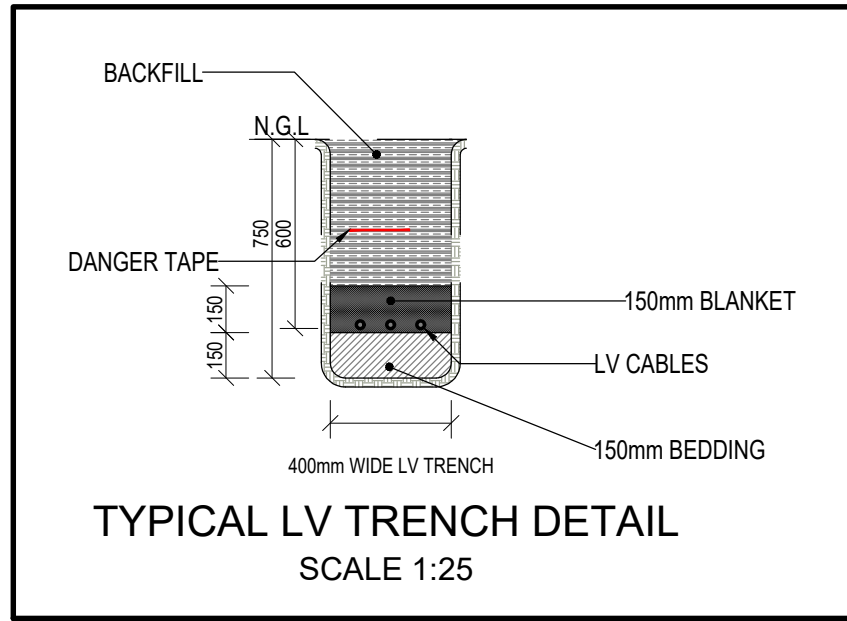
FOR TENDER



SCHEDULE OF LIGHTING LUMINAIRES							
SYMBOL	Type	Description	LED Lamp (Watt)	Mounting Height	Colour	IP	Photo
A	A	HERHOLDTS, C10, 4FT, DAMP PROOF, 4000K, WITH STAINLESS STEEL CLIPS, OR EQUAL OR APPROVED. ALLOW DEEPER ROUND BOX IN CEILING SLAB/VOID TO ACCOMMODATE THE DAMP PROOF GLAND FOR WIRING ACCESS THROUGH TOP BASE WHERE NEW 20MM DIA HOLE IS CUT. NO SURFACE CONDUIT/WIRING.	2 x 20W	SURFACE, CEILING MOUNTED	WHITE	65	
B	B	BEKA, SERIES 50, BULKHEAD, PRISMATIC-CLEAR DIFFUSER OR EQUAL OR APPROVED	17W	2500mm AFFL	BLACK, POWDER COATED	66	
C	C	BEKA, SERIES 30, BULKHEAD, PRISMATIC-CLEAR DIFFUSER OR EQUAL OR APPROVED	17W	SURFACE, CEILING MOUNTED	BLACK, POWDER COATED	66	
F	F	BEKA OMNIBLAST 1-E MIDI LED 160 412W QE-OPTIC 5359 FLOODLIGHT LUMINAIRES OR EQUAL AND APPROVED	412W	TO OF MAST EXISTING BRACKET		66	



LEGEND	
SYMBOL	Description
	HIGH MAST
	LV CABLE ROUTE



LV Cable Schedule					
From	To	Distance (m)	Load (W)	Cable (mm²)	BSCC (mm²)
TRF	DB Pav	120	42800	35 x 4c	25
DB Pav	Mast 1	50	5400	6 x 4c	4
Mast 1	Mast 2	105	2700	6 x 4c	4
DB Pav	DB Clubh	75	25400	25 x 4c	16
DB Clubh	Kiosk 1	70	6500	10 x 4c	6
Kiosk 1	MCC -Irrig. Pump	5	5000	6 x 3c	
Kiosk 1	MCC -BH Pump.	160	1500	6 x 3c	
DB Clubh	DB Gateh	100	1500	4 x 3c	
DB Clubh	Mast 3	20	5400	6 x 4c	4
Mast 3	Mast 4	105	2700	6 x 4c	4
Mast 4	Lamps	25	2700	2.5 x 4c	2,5

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DATE DATUM
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DESIGN ONTWERP
DRAWN GETEKEN
CHECKED NAGEGAAN
CLIENT KLIENT
DATE DATUM

H. Jonck
G. Bosman
H. Jonck

AUG 2024

PROJECT/PROJEC

GAMAGARA LOCAL MUNICIPALITY
DIBENG: SPORTSFIELD UPGRADE

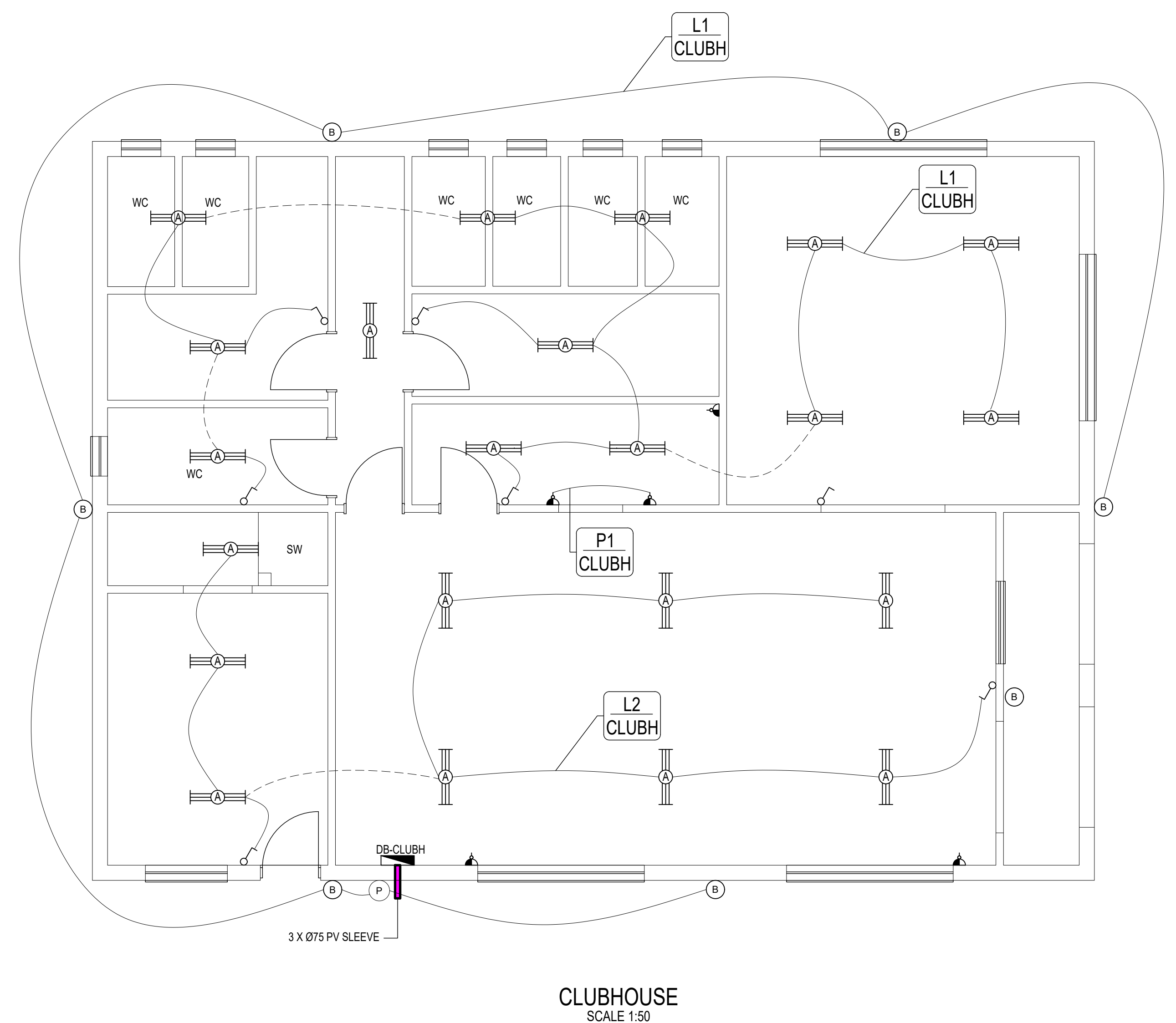
CLIENT/KLIEN

GAMAGARA LOCAL MUNICIPALITY
DRAWING DESCRIPTION/TEKENING BESKRYWING

SITE PLAN CABLE RETICULATION

PAPER SIZE/PAPIER GROOTTE
A1
SCALE/SKAAL
1:500
DRAWING No./TEKENING Nr.
3089/K/MV/L/001
REV No.
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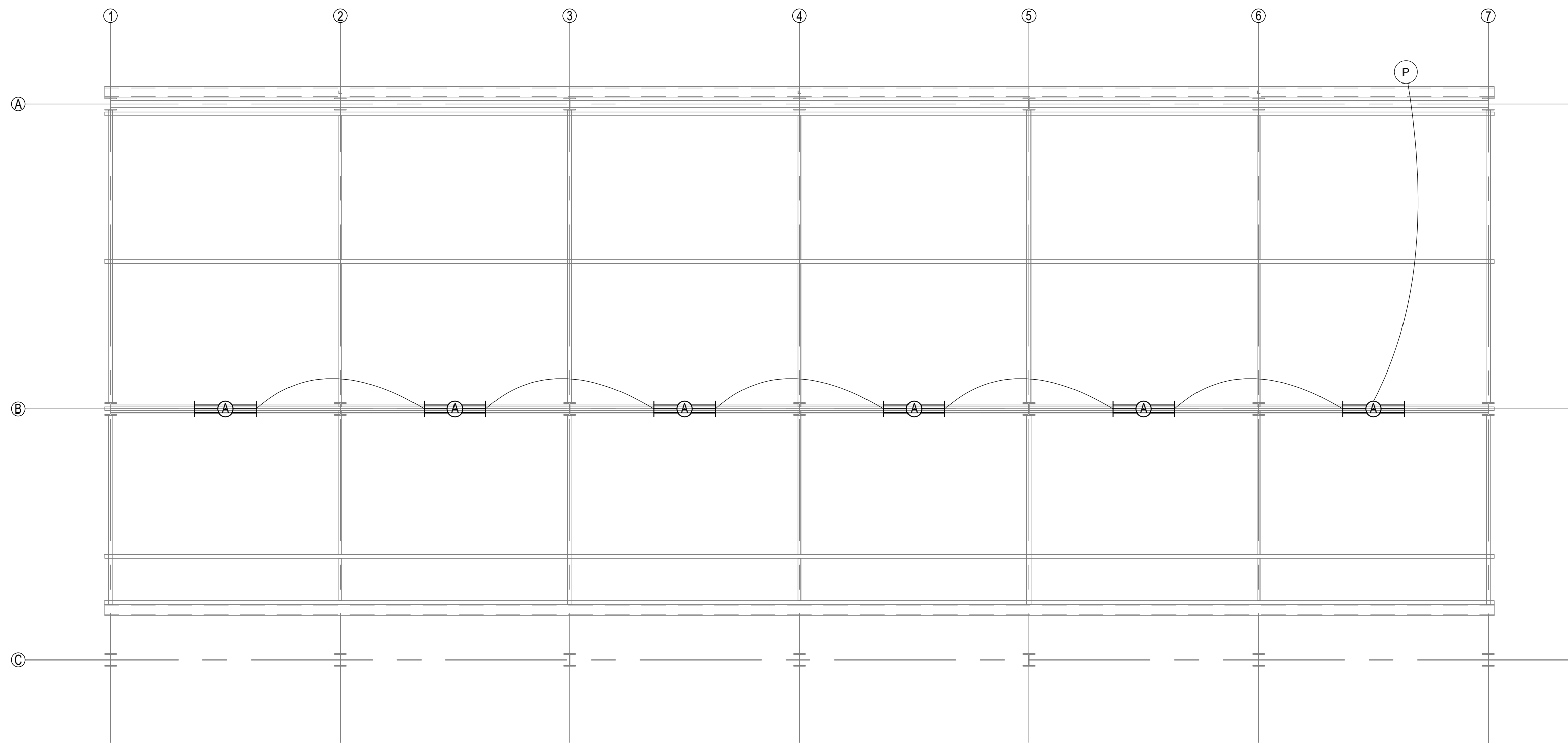
FOR TENDER



LEGEND	
SYMBOL	Description
	SINGLE LIGHT SWITCH AT 1200 MOUNTED HEIGHT
	WATER RESISTANT SINGLE LIGHT SWITCH AT 1200 MOUNTED HEIGHT
	16A DOUBLE SWITCH SOCKET IN WALL @ 400 AFFL
	SINGLE POLE ISOLATOR
	TRIPLE POLE ISOLATOR
	ELECTRICAL DB
	PHOTOCELL

SYMBOL	Type	Description	LED Lamp (Watt)	Mounting Height	Colour	IP	Photo
	A	HERHOLDTS, C10, 4FT, DAMP PROOF, 4000K, WITH STAINLESS STEEL CLIPS . OR EQUAL OR APPROVED. ALLOW DEEPER ROUND BOX IN CEILING SLAB/VOID TO ACCOMMODATE THE DAMP PROOF GLAND FOR WIRING ACCESS THROUGH TOP BASE WHERE NEW 20MM DIA HOLE IS CUT. NO SURFACE CONDUIT/WIRING.	2 x 20W	SURFACE, CEILING MOUNTED	WHITE	65	
	B	BEKA, SERIES 50, BULKHEAD, PRISMATIC-CLEAR DIFFUSER OR EQUAL OR APPROVED	17W	2500mm AFFL	BLACK, POWDER COATED	66	
	C	BEKA, SERIES 30, BULKHEAD, PRISMATIC-CLEAR DIFFUSER OR EQUAL OR APPROVED	17W	SURFACE, CEILING MOUNTED	BLACK, POWDER COATED	66	

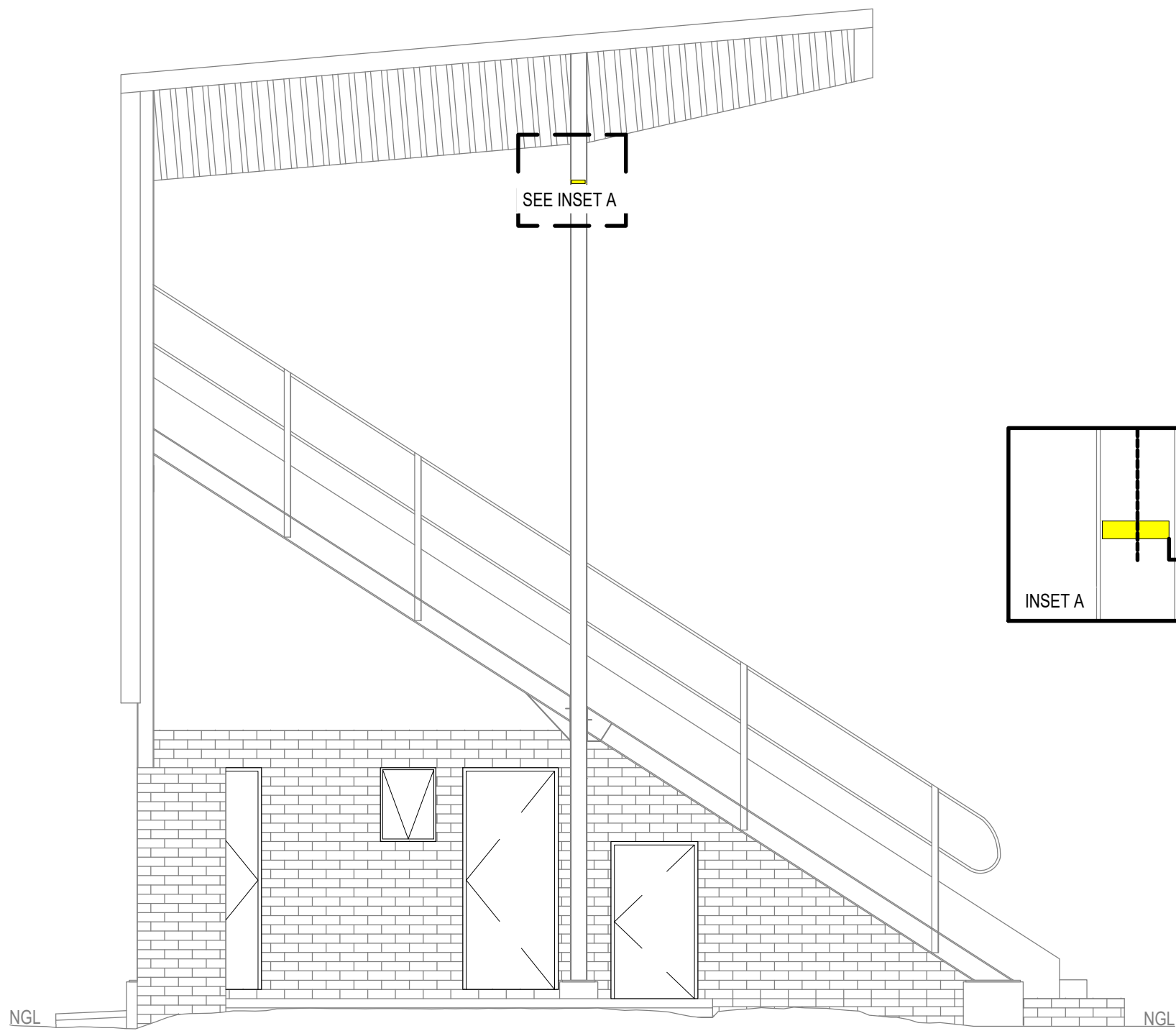
NOTE/NOTA : NO DIMENSIONS ARE TO BE SCALED OFF ANY DRAWINGS. ALL DIMENSIONS ARE TO BE RATIFIED ON SITE PRIOR TO ANY CONSTRUCTION. GEEN AFMETINGS MAG VAN TEKENINGE GESKAAL WORD NIE. ALLE AFMETINGS MOET OP TERREIN NAGEGAAN WORD VOOR KONSTRUKSIE.	A BEFORE CONTRACT COMMENCES. VOOR KONTRAK IN AANVANG NEEM. A1 AFTER CONTRACT HAS COMMENCED. NA KONTRAK IN AANVANG GENEEM HET.						 MVD Kalahari Consulting Engineers and Town Planning/Raadgewende Ingenieurs en Stadsbeplanning. Du Toitspanweg 186 / Du Toitspan Road Posbus / P.O. Box 580, Kimberley 8300 Tel: (053) 831 1889/90 E-Mail admin@mvdkalahari.co.za www.mvdgroup.org Level 1 B-BBEE Contributor  CESA Consulting Engineers South Africa	DESIGN ONTWERP	H. Jonck		PROJECT/PROJEK	CLIENT/KLIJENT	FOR TENDER
								DRAWN GETEKEN	G. Bosman				
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								DATE DATUM	AUG 2024			GAMAGARA LOCAL MUNICIPALITY DIBENG: SPORTSFIELD UPGRADE	
												CLUB HOUSE LIGHTS AND SMALL POWER LAYOUT	
												PAPER SIZE/PAPIER GROOTTE A1	
												SCALE/SKAAL ----	
												DRAWING No./TEKENING Nr. 3089/K/G/G/002	
												REV No. --	



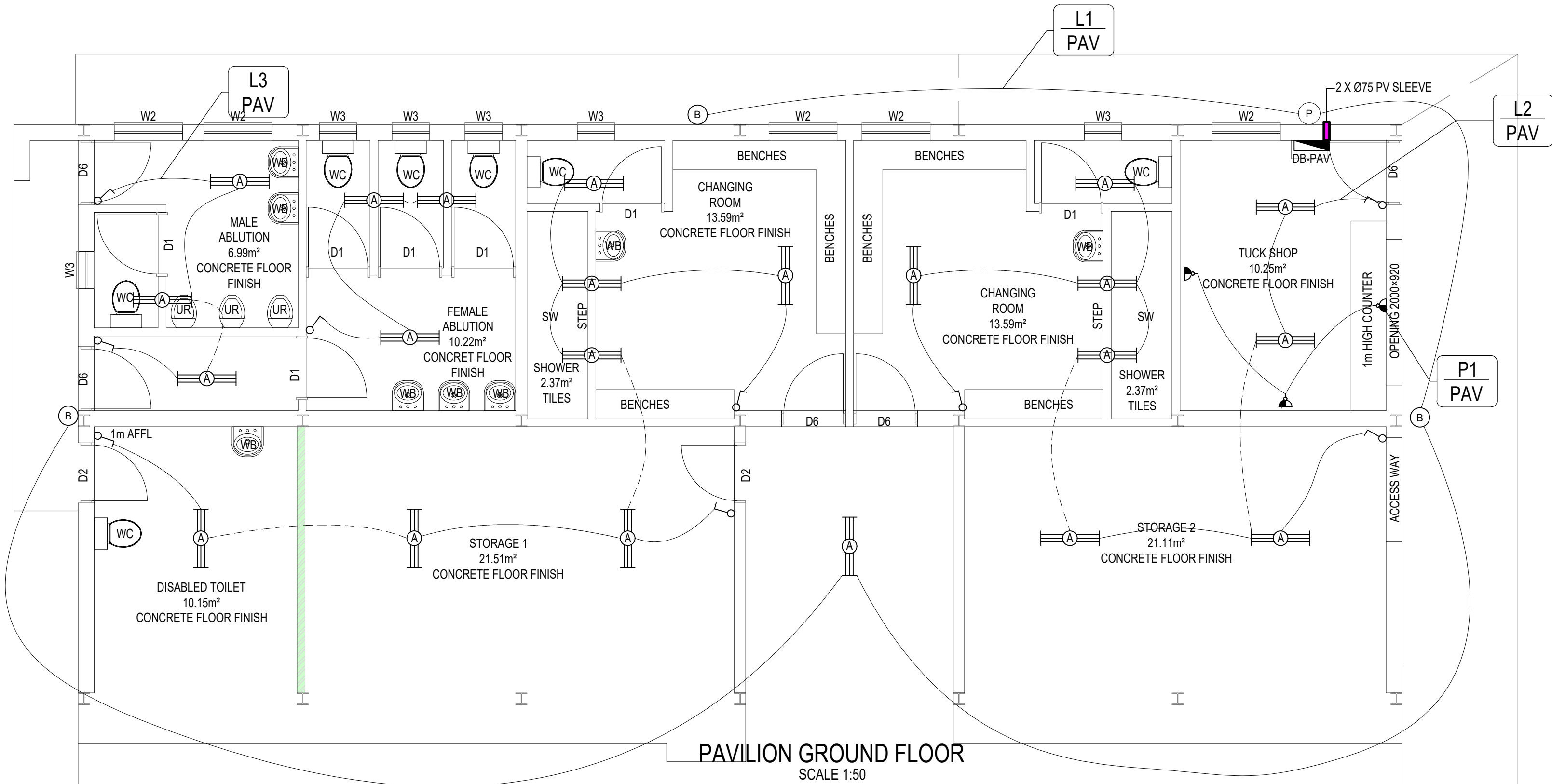
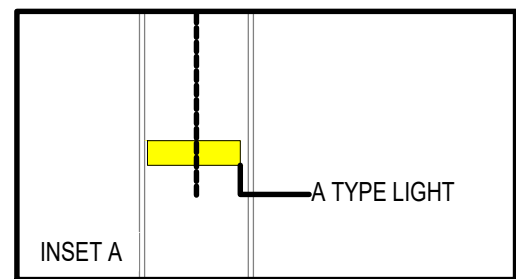
PAVILION ROOF LAYOUT
SCALE 1:50

LEGEND	
SYMBOL	Description
	SINGLE LIGHT SWITCH AT 1200 MOUNTED HEIGHT
	WATER RESISTANT SINGLE LIGHT SWITCH AT 1200 MOUNTED HEIGHT
	16A DOUBLE SWITCH SOCKET IN WALL @ 400 AFFL
	SINGLE POLE ISOLATOR
	TRIPLE POLE ISOLATOR
	ELECTRICAL DB
	PHOTOCELL

SCHEDULE OF LIGHTING LUMINAIRES							
SYMBOL	Type	Description	LED Lamp (Watt)	Mounting Height	Colour	IP	Photo
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PAVILION SIDE ELEVATION
SCALE 1:50



PAVILION GROUND FLOOR
SCALE 1:50

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NO. NR. DATE DATUM AMENDMENTS WYSIGINGS

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CESA
Consulting Engineers South Africa

DESIGN ONTWERP H. Jonck

DRAWN GETEKEN G. Bosman

CHECKED NAGEGAAN H. Jonck

CLIENT KLIJNT -----

DATE DATUM AUG 2024

PROJECT/PROJEC

GAMAGARA LOCAL MUNICIPALITY
DIBENG: SPORTSFIELD UPGRADE

CLIENT/KLIJNT

GAMAGARA LOCAL MUNICIPALITY

DRAWING DESCRIPTION/TEKENING BESKRYWING

PAVILION LIGHTS AND SMALL
POWER LAYOUT

PAPER SIZE/PAPIER GROOTTE

A1

SCALE/SKAAL

1:50

DRAWING No./TEKENING Nr.

3089/K/G/G/001

REV No.

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FOR TENDER

| <p>REGULATIONS</p> <p>The installation shall be erected and tested in accordance with the following Acts and regulations as amended:</p> <ul style="list-style-type: none"> • The latest issue of SANS 10142-1:1, 'Code of Practice for the Wiring of Premises'. • The Occupational Health and Safety Act, 1993 (Act 85 of 1993) as amended. • The Local Government Act 1998 (Act 10 of 1998) (Gauteng), municipal by-laws and any special requirements of the Local Supply Authority. • The Fire Brigade services Act, 2000 (Act 14 of 2000). • The National Building Regulations and Building Standards Act 1996 (Act 29 of 1996). • The Post Office Act 1996 (Act 124 of 1996). • The Electricity Act, 1996 (Act 88 of 1996). • The Regulations of the Local Gas Board where applicable. • The National Water Act 1996 (Act no. 36 of 1996). • The Water Service Act 1997 (Act 108 of 1997). • The General Authorizations (Water Act). • The Environmental Management Act 1996 (Act no. 73 of 1989). • The National Environmental Management Act 1996 (Act no. 107 of 1998). • The relevant SABS publications <p>DETAIL SPECIFICATION: STANDARD CLAUSES FOR COMPREHENSIVE SERVICES</p> <p>1. SLEEVE PIPES</p> <p>Where cables cross under roadsways, building foundations, other services and where cables enter buildings, the cables shall be installed in double wall corrugated high density polyethylene sleeve pipes. 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.</p> <p>2. NOTICES</p> <p>The Contractor shall issue all notices and make the necessary arrangements with Supply Authorities, the Postmaster-General, S.A. Transport Services, Provincial and National Road authorities and other authorities as may be required with respect to the installation.</p> <p>3. ELECTRICAL EQUIPMENT</p> <p>All equipment and fittings supplied must be suitable for the relevant supply voltage, and frequency and must be approved by the Engineer.</p> <p>4. DRAWINGS</p> <p>Where applicable drawings generally show the scope and extent of the proposed work and shall not be held as showing every minute detail of the work to be executed. The location of power points, switches and light points that may be influenced by construction methods or other services must be established on site, prior to these items being built in.</p> <p>5. BALANCING OF LOAD</p> <p>The Electrical Contractor is required to balance the load as equally as possible over the multiphase supply.</p> <p>6. SERVICE CONDITIONS</p> <p>All plant shall be designed for the climatic conditions pertaining to the service and location.</p> <p>7. SWITCHES AND SOCKET OUTLETS</p> <p>All switches and switched socket outlet combination units shall be manufactured and approved according to SANS 164-0. Unless otherwise specified on the drawings, all switches must be at 1400mm above finished floor level and all socket outlets at 400mm above finished floor level.</p> <p>8. LIGHT FITTINGS AND LAMPS</p> <p>All fittings to be supplied by the electrical contractor shall have the approval of the Engineer. All lamps shall bear the approved SANS / SABS mark and shall be of the specified type. The light fittings must be of the type specified in the Schedule of Light Fittings.</p> <p>9. EARTHING AND BONDING</p> <p>The Contractor will be responsible for all earthing and bonding of the building and installation. The earthing and bonding are to be carried out strictly as described in SANS 10142, this specification and to the satisfaction of the Engineer.</p> <p>10. MAINTENANCE OF ELECTRICAL SUPPLY</p> <p>All interruptions of the electrical supply that may be necessary for the execution of the work will be subject to prior arrangement between the Contractor, the user, and the Client's representative.</p> <p>11. EXTENT OF WORK</p> <p>The work covered by this contract comprises the complete electrical installation, in working order, as shown on the drawings and as per this specification, including the supply and installation of all specified materials and the installation of such equipment supplied by the Client.</p> <p>The work entails the complete electrical installation for the refurbishment and upgrading of the existing Dibeng Sports Facility in Dibeng, Northern Cape, including but not limited to the following components:</p> <ul style="list-style-type: none"> • Liaise and pay Eskom for the re-installment of the LV connection • Excavations, cable sleeves, Trays and Ducts • 400V/231V Low Voltage Distribution Systems including new LV kiosks and new or upgrading of Distribution Boards • Replace sportsfield lights and distribution boards • Conduct and wiring installations. Assess existing wire ways to identify what could be re-used • Installation of new light fittings and switches • Test, commission of complete installation and issue of Certificate of Compliance. <p>12. SUPPLY AND CONNECTION</p> <p>Eskom is the Electrical Supply Authority.</p> <p>13. CONDUIT AND WIRING</p> <p>Conduit and accessories in ceiling voids, cast in concrete and chased in brickwork or fixed to structures, concealed out of reach shall be PVC. Surface mounted uncoated conduit shall be galvanneal steel. All wall boxes shall be galvanneal steel.</p> <p>Unless otherwise specified by the engineer conduit sizes shall be as follows:</p> <ul style="list-style-type: none"> • Conduit for general electrical circuits with wiring up to 4mm² shall be 20mm Ø • Conduit for general electrical circuits with wiring 6mm² and higher shall be 25mm Ø • Conduits for electronic services shall be 25mm Ø <p>Note:</p> <p>Regardless of the type of conduit used, all switches and light fittings must be supplied with a permanent earth terminal for the connection of the earth wires. Lugs held by switch fixing screws or self-tapping screws will not be acceptable.</p> <p>The electrical contractor must be the existing wire way installation to confirm the re-use thereof for approval by the Engineer, where after new conduit could be ordered.</p> <p>14. POWER POINTS</p> <p>The tenderer shall allow for the installation of power points and equipment as listed in the schedules and indicated on the drawings.</p> <p>15. TRENCING</p> <p>15.1 GENERAL</p> <p>The provision of trenches for the laying of cables and the installation of telephone, data, fire detection, access control and cable sleeves forms part of this contract. All cables and sleeves shall be laid at a depth of 600 mm except that sleeves below the building may be laid at a lesser depth provided that the Electrical Engineer is satisfied that no damage to the sleeves can occur. The bottom of the trenches shall be of smooth contour and shall not have sharp dips or rises, which may cause tensile forces in the cable during backfilling. 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. 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 Electrical Engineer shall be notified before installing the cables and will then advise on the course of action to be taken.</p> <p>15.2 DIMENSIONS OF TRENCHES</p> <p>Cable trenches for one or two cables or sleeves shall not be less than 300 mm wide and need not be more than 450 mm high. This dimension shall be valid for the total trench depth. Where trenches change direction or where cable size is to be accommodated, the contractor shall ensure that the requirements of the relevant SABS specification regarding the bending radii of cables are met when determining trench widths. Trench depths shall be determined in accordance with cable laying depths and bedding thickness.</p> <p>15.3 BEDDING</p> <p>The bottom of the trench shall be filled across the full width with a 75 mm layer of suitable soil sifted through a 6 mm mesh and levelled off. Only sandy clay or loam soil with a satisfactory thermal resistivity (not exceeding 15 ΩmW) may be used for this purpose. Sea or river sand, ash, chalk, peat, cinifer or clayey soil shall not be used. The use of crusher sand is acceptable.</p> <p>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. After cable laying, a blanket layer of same soil as bedding material shall be provided to extend to 75 mm above the cables.</p> <p>15.4 BACKFILLING</p> <p>The contractor shall be provided with the backfilling of trenches without prior notification to the Electrical Engineer so that the cable installation may be checked. Should the contractor fail to give a timely notification, the trenches shall be re-opened at the contractor's cost. Such an inspection will not be unreasonably delayed. Backfilling shall be undertaken with suitable material to ensure settling without voids. The maximum allowable diameter of stones present in the backfill material is 75 mm. The contractor shall have allowed in his tender for the importation of suitable backfill material if required and such costs shall be included in the unit rates for excavations. The backfill shall be compacted in layers of 150 mm and sufficient allowance shall be made for final settlement. The contractor shall maintain access to his expense for the duration of the contract. Sufficient material shall be removed from
site and suitably disposed of. On completion of the contract, the surface shall be made good to match the surrounding area. 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.</p> <p>15.5 MEASUREMENT</p> <p>Trench excavations shall be measured and paid for as per the unit include used by Tenderers for excavations. In all cases, the cost of excavations shall include the total cost of excavating, bedding, backfilling and making good.</p> <p>Definitions for the different type of excavations are as follows:</p> <ol style="list-style-type: none"> Earth: Excavations which can be performed with pick and shovel. Hard rock: Hard rock will be measured where compressor operated jack hammers, earth moving equipment and/or blasting are required to remove the rock and includes for areas where large boulders which must be mechanically moved occur. <p>16. CABLES</p> <p>This clause covers the supply, delivery, installation and connection of all low-tension cables as specified in the schedules and as indicated on the drawings.</p> <p>16.1 GENERAL</p> <p>The storage, transport, handling and laying of cables shall be done according to approved and accepted methods. The contractor shall ensure that he has sufficient and suitable equipment as well as adequate labour at his disposal, thereby preventing damage to the cables at all times. Twisted, knicked or cables damaged in any way shall be rejected. Provisional lengths of cables only are indicated in the Schedule for Cables for the purpose of tendering. The excess is however, on the contractor to measure the actual lengths of cable required before ordering. All measurements are only to be done after any possible alterations to cable routes or positions of substations have been made by the Engineer. Reasonable allowances have been made to the cable lengths in the Schedule for Cables for joints, cable ends, circuits etc. but payments shall only be made for actual lengths of cable installed. Excess cable shall not be considered for take-over.</p> <p>16.2 INSTALLATION OF CABLES</p> <p>Cables must be laid in service positions as indicated on drawings and cable trenches within the electricity servitude shall be 750 mm deep for low tension cables and 1000 mm for high tension cables. Trenches shall be 300 mm wide for single or double cables. In the event of more than two cables having to be laid in one trench, the trench shall be proportionately increased in width over the wholelength of the trench so that the cables are spaced 150mm apart. The bottom and sides of the trenches shall be free of debris and free from obstructions. The contractor shall provide and supply all materials necessary to construct the cable trench so that no injury to the public is caused. Further, all precautions are to be made to prevent damage and subsidence to buildings, roads, sewerage or any other property on the site. All cable trenches are to be inspected and approved before any cables are laid. Cable drums are to be adequately supported on adequate jacks or on drum trailers when cables are being rolled off, thereby reducing any possible twisting, tension or other damage being inflicted upon the cable. Cables trenched in hard or soft rock are to be laid at a 450mm thick layer of soil and then covered with another 150mm thick layer of soil before the trench is filled. (The above-mentioned provisions apply to all cables.) The cables must be laid in the position indicated on the drawings and the service dimensions are to be strictly adhered to. Where necessary, revised routes shall be determined on site in conjunction with the Engineer's Representative. At each indicated position where cables pass below buildings, streets or pitch free trays, rigid PVC pipe sleeves shall be provided and the cables are to be installed in the sleeve. The sleeves shall be cut to length from sidewalk to sidewalk and will also extend past each curb. Where cable routes and other services cross (for example Post Office cable) the cable is to be protected and laid to the satisfaction of the other service. A 50 mm thick concrete block shall however extend 300 mm on either side of the cable. The contractor shall special attention to cables being pulled through pipes and channels to ensure that such cables from being stretched, twisted or scorched. All such pipes and channels shall be properly sealed in an approved manner after all cables have been installed. Approved brass recessed in concrete cable sleeves are to be installed above cables at suitable points to indicate the positions of joints, joints and changes in direction. Where excavations are done in the vicinity of existing cables or where existing cables are to be exposed, only labourers who are competent and familiar with this type of work may be used. Such excavations may only be done with the use of hand tools and only shovels may be used within 300mm of the existing cables. Backfilling of the trenches shall be done in layers of 150 mm and each layer shall be thoroughly compacted before the following layer is filled in. In order to protect the cable the contractor shall install a 150 mm wide standard plastic warning tape. The marker tape shall be approximately 300 mm above the cable and shall run the full length of the cable. An additional 50 mm layer of soil shall be placed over the tape before the final backfilling is done.</p> <p>16.3 CABLE JOINTS, TERMINATIONS AND CABLE ENDS</p> <p>16.3.1 GENERAL</p> <p>The number of cable joints must be kept to a minimum and these shall only be permitted if the length of the cable is longer than that provided on a new drum. All joints and the termination of the ends of underground cables shall be done by competent cable joiners in accordance with approved and accepted practice. Joints and ends must be done in strict accordance with the manufacturer's requirements and specifications. In all instances where joints are carried out, a hole of sufficient size must be made in order that the joints can be properly made. The ground beneath the cable joints must be firmly compacted to prevent sagging of the joints. If cut cables cannot immediately be terminated, the cable ends must immediately be sealed off.</p> <p>16.3.2 LT CABLES AND TERMINATIONS</p> <p>This item is the supply, installation, testing and commissioning of the LT cable installation as detailed on the drawings and in the schedules of this specification.</p> <p>16.3.3 PVC/PVC/SWAPVC POWER CABLES</p> <p>The conductors are to be of high conductivity copper insulated with one layer of PVC. The colour of the cores shall be as follows: Four core: one red, one white, one blue and one black and for three phase loads supplied by SSCC. The cores are to be twisted together, bedded, sheathed with PVC (preferably black) armoured with a layer of galvanneal steel wire, bedded and served with PVC (preferably black) All insulation shall be for general service 660-volt cable.</p> <p>16.3.4 PVC/PVC/SWAPVC POWER CABLES GLANDS</p> <p>The glands shall be of the adjustable type and must be suitable for PVC SWA general purpose 660 volt cable. The non-watertight glands must be easily converted to watertight glands by means of a waterproofing shrug. The glands are to be made of copperplate and heavily lined bronze or brass, and shall consist of a barrel, with a cone nut carrying a cone bush screwed into one end, and a hot lined steel nipple carrying heavy galvanneal steel locknut screwed into the other end. They shall be of the captive cone type, with integral ear lug. On the cable entrance side of the barrel, a round groove must be provided, for taking the top of the waterproofing shrug. The shrugs are to be made of non-deteriorating non-porous or synthetic rubber, and shall be resistant to water, oil and sunlight. The shrugs shall tightly fit round the glands and cable.</p> <p>16.3.5 POWER CABLES TERMINATIONS</p> <p>Power cable terminations, connections and joints shall be facilitated by means of the use of a portable hydraulic compression tool with pre-set automatic temperature/hydraulic unloading by-pass valve, the entire tool being either bought from, hired, or approved by the Cable Manufacturer. Approved lugs or ferrules shall be crimped to the cable cores in all cases. No other method of termination or joint shall be allowed. Where aluminium cable or copper or brass conductors are used, especially where the joint so formed is currently carrying, "Densal" jointing paste or other approved paste or treatment shall be used.</p> <p>16.4 TESTING OF CABLES</p> <p>Following completion of the installation of the cables for each section, the insulation resistance shall be tested with an approved Megger type instrument. This test shall perform at a terminal voltage of 625V for LT cables and not less than 1 000 V for HT cables. The results of the test shall be witnessed by and be to the satisfaction of the Engineer/Representative and a representative of the local supply authority. HT cables shall be tested as required by SABS method 540 complete with test certificates. The contractor shall also test and ensure that, at all points where cables are connected, the phase colours and phase rotations are correct. This test shall be done with an approved phase rotation meter and shall be done by means of an approved Megger type instrument.</p> <p>16.5 DRAWINGS</p> <p>The contractor shall complete "as built" drawing after the installation to indicate the exact positions of the cable routes, joints, etcetera. These details are to be indicated on a site plan. All important and necessary dimensions should also be clearly indicated on the drawing so that the drawing may, in future, be used to locate the positions of the cables, joints etc. The drawing must be handed over to the Engineer/Representative for
approval as soon as the cables have been installed.</p> <p>16.6 CABLE LENGTHS</p> <p>For tender purposes the cable lengths shall be as indicated in the schedule of cables. The contractor must measure the cable lengths for site after all routes have been approved by the Engineer/Representative before the cables are ordered, and the contract price shall be adjusted to the actual cable lengths. It is essential that the actual cable lengths required shall be checked on site before orders are placed, as no joints will be permitted, except where lengths exceed the drum length).</p> <p>16.7 FIXING OF CABLES</p> <p>Cables shall run along walls, ceilings, etcetera, they shall be secured on cables, or as specifically specified. In all cases expanding type fixing systems shall be used for fixing the equipment to the walls and on account will wood plugs, etcetera be accepted. Whilst setting out the positions of the cable supports, the contractor shall bear in mind the importance attached to the minimum bending radii of the cables as well as the minimum horizontal spacing between cables.</p> <p>17. DISTRIBUTION BOARDS</p> <p>17.1 SCOPE</p> <p>The scope of this portion of the works shall be the supply, delivery, off-loading, possible storage, placing into position, erecting, testing and commissioning of all low voltage distribution boards required for the project. Most of the boards have been detailed on the attached drawings and Tenderers should price in accordance with the requirements. Before any board is manufactured, the manufacturer shall obtain approval from the Engineer to proceed with manufacture of that board. All distribution boards shall be installed in the positions indicated on the drawings, and as finally agreed upon with the Engineer. One span 25 mm dia and three span 20 mm dia conduits must be installed from all distribution boards to roof spaces. Three sets of factory drawings of all distribution boards must be submitted to the Electrical Engineer for approval within four weeks after award of tender (in order to confirm that the design for boards allowed for the DB's are adequate) and before manufacture of the distribution boards commences.</p> <p>17.2 SIZE</p> <p>All switchboards shall be of ample size to accommodate the specified switchgear and provide space for future switchgear. For every 4 (or part of 4) 5 kA circuit-breakers on a switchboard, space for an additional 5 kA circuit breaker shall be allowed unless future increase requirements are clearly specified and agreed in writing. For circuit breakers above 5 kA, this shall be 15 %.</p> <p>17.3 EXTERNAL DIMENSIONS</p> <p>The maximum allowable height of free-standing switchboards is 2.2 metre. Cabinet type boards may be up to 2.4-metre-high if they can be fully dismantled into individual cubicles. Where, due to space restrictions, a board exceeds 2.4 metre in height, equipment not normally requiring access, shall be installed in the top section, enabling equipment normally requiring access to be installed lower down in the board. All other specified external dimensions for switchboards shall be strictly adhered to. If the dimensions specified cannot be adhered to as a result of restricting external dimensions, the Contractor shall obtain the approval of the Engineer before manufacturing the switchboards.</p> <p>17.4 MOISTURE AND VERMIN</p> <p>All switchboards shall be rendered moisture proof and vermin proof and shall be adequately ventilated.</p> <p>17.4.1 VENTILATION</p> <p>Switchboards shall be properly ventilated, especially cubicles containing contactors, transformers, motor starters, lighting dimmers and other heat producing equipment.</p> <p>Louvers shall be fitted to provide adequate upward or cross ventilation. All louvers shall be vermin proofed with 1.5 mm brass mesh or perforated steel plate internally spot welded over the louvers. The ambient ambient temperature shall not exceed 40°C.</p> <p>Louvers shall be fitted to provide adequate upward or cross ventilation. All louvers shall be vermin proofed with 1.5 mm brass mesh or perforated steel plate internally spot welded over the louvers. The ambient ambient temperature shall not exceed 40°C.</p> <p>17.4.2 VERMIN PROOFING</p> <p>Free standing boards shall be protected against vermin, especially from below. Where cables have to pass through the gland plate, rubber grommets shall be provided and enough non hardening compound shall be delivered with the board so that these holes can be sealed properly after installation of the cables.</p> <p>17.5 LOAD BALANCE</p> <p>The load shall be balanced as equally as possible across multiphase supplies.</p> <p>17.6 CONSTRUCTION OF FLUSH MOUNTED SWITCHBOARDS</p> <p>17.6.1 STANDARD</p> <p>Flush mounted switchboards shall comply with SANS 60439 and SANS 60947, unless the depths of the switchboards are specified, the depths shall be determined in accordance with paragraph 7.8.</p> <p>17.6.2 EXPANDED METAL</p> <p>Where switchboards are to be built into 115 mm thick walls, expanded metal plate shall be spot-welded to the rear of the bonding trays. The expanded metal shall protrude at least 75 mm on each tray side to prevent slapping from cracking.</p> <p>17.6.3 KNOCK-OUTS</p> <p>Knock-outs shall be provided in the top and bottom ends of each switchboard tray to allow for the installation of conduits for the specified and future circuits. Knock-outs shall be provided for an equal number of 20 mm and 25 mm conduits.</p> <p>17.6.4 PANEL</p> <p>Front panels shall have machine punched slots for housing the specified and future flush mounted switchgear. The distance between the inside of the closed doors and the panel shall not be less than 20 mm. No equipment may be mounted on the panel unless the panel is permanently hinged to the switchboard frame.</p> <p>17.6.5 FIXING OF FRONT PANELS</p> <p>The front panel shall be secured to the architrave frame by means of 6 mm studs and chromium plated hexagonal domed nuts, hank nuts or captive fasteners. Alternatively, the panel may be secured to the architrave frame by means of two pins at the bottom and a latch or lock at the top of the panel. Self tapping screws will not be allowed. All front panels shall be provided with a minimum of one chrome plated handle.</p> <p>17.6.6 DOOR HANDLES AND CATCHES</p> <p>Switchboard doors shall be equipped with handles and catches. Locks shall only be provided when specified. In all cases where lockable doors are required and, in all cases, where the switchboard doors are higher or wider than 450 mm, handles consisting of a push-button-and-handle combination with spring loaded catch or rotary handle-and-catch combination shall be installed.</p> <p>Switchboard doors smaller than 450 mm in height and width may be equipped with spring loaded flush mounted ring type latches. Square key operated catches are not acceptable unless specified.</p> <p>17.7 CONSTRUCTION OF SURFACE MOUNTED SWITCHBOARDS</p> <p>17.7.1 STANDARD</p> <p>Surface mounted switchboards shall comply with SANS 60439 and SANS 60947.</p> <p>17.7.2 SWITCHBOARD TRAY</p> <p>Surface mounted switchboards shall be equipped with a 1.6 mm minimum sheet steel reinforced tray, suitably braced and stiffened to carry the chassis and associated equipment. Lugs to secure the switchboard to a vertical surface shall be provided.</p> <p>17.7.3 CONSTRUCTION</p> <p>All joints shall be protected by a cover or securely bolted. The tray shall be square and neatly finished without protrusions. The front tray sides shall be constructed with an edge of at least 20 mm to accommodate fuse holders.</p> <p>17.7.4 CHASSIS</p> <p>A sheet steel chassis for the mounting of equipment shall be bolted to the tray and shall comply with the requirements of paragraph 7.8 and 7.8.2.</p> <p>17.7.5 FRONT PANEL AND DOOR</p> <p>The front panel and door shall comply with paragraph 7.6.4 and 7.6.6 above. Doors shall fit flush in the tray when closed.</p> <p>17.7.6 DIMENSIONS</p> <p>Unless the depth of the switchboards is specified, the dimensions shall be determined in accordance with the requirements of paragraph 7.8.1 and 7.8.2.</p> <p>17.8 MOUNTING OF EQUIPMENT</p> <p>THE MOUNTING OF EQUIPMENT SHALL COMPLY WITH SABS 1180 WHERE APPLICABLE. EQUIPMENT TO BE MOUNTED ON THE CHASSIS SHALL BE MOUNTED BY BOLTS, WASHERS AND NUTS OR BY BOLTS SCREWED INTO TAPPED HOLES IN THE CHASSIS PLATE. IN THE LATTER CASE, THE MINIMUM THICKNESS OF THE CHASSIS PLATE SHALL BE 2.5 MM. THE LATTER METHOD SHALL NOT BE USED WHERE BOARDS WILL BE SUBJECT TO VIBRATION OR MECHANICAL SHOCKS. SELF-TAPPING SCREWS WILL NOT BE ACCEPTED.</p> <p>17.8.1 SPACE REQUIREMENTS</p> <p>In designing the switchboards, the following requirements shall be strictly adhered to: -</p> <ol style="list-style-type: none"> A minimum of 50 mm between any piece of equipment in the frame or internal partitioning. This minimum space is required on all sides of the equipment. In the case of a single row of single-pole circuit-breakers the spacing on one side of the row shall be reduced to 40 mm on the incoming side of the circuit breaker bus bar connection. A minimum of 75 mm between horizontal rows of equipment. The maximum outside dimensions of equipment shall be considered. Circuit breakers up to a fault rating of 10 kA may be installed adjacent to each other. For higher ratings a minimum of 40 mm shall be allowed between circuit-breakers or isolators. Sufficient space shall be provided for wiring allowing for the appropriate bending radius. Space for future equipment shall be allowed as described under section "Size" <p>17.8.2 MOUNTING OF CHASSIS</p> <p>Equipment shall be mounted on smaller surface mounted boards shall be mounted in accordance with SABS 1180. For all free-standing
switchboards and surface mounted switchboards where the main switch carries exceeds 100 A (Nipile-pole), space for wiring shall be provided between the chassis and tray. This space shall be adequate to install the supply cable behind the chassis in accordance with the requirements of paragraph 7.8.2.</p> <p>17.8.3 GROUPING OF EQUIPMENT</p> <p>Equipment shall be arranged and grouped in logical fashion as follows:</p> <ol style="list-style-type: none"> Main switch - to be installed either at the top or bottom of the board. Short circuit protection equipment - fuse gear or fuse-switches. Change-over contactors or other contactors controlling the supply. Motor supplies. Fuse holders for outgoing circuits. Other circuits and equipment. <p>Where a portion of the equipment on the switchboard is supplied from a standby power source, the change-over contactor and the associated equipment shall be grouped in a separate compartment. Where earth leakage units are required, the associated circuit breakers shall be installed adjacent to the unit.</p> <p>17.8.4 MOUNTING OF CIRCUIT BREAKERS</p> <p>All moulded-case circuit-breakers shall be flush mounted with only the toggle protruding. Miniature circuit breakers may be installed in dip-in trays mounted on the frame. All other circuit-breakers shall be clearly visible from the front of the board. All equipment shall be made for large main switches when designing the framework. Care shall be exercised that the rear studs of circuit-breakers are properly insulated from the steel chassis. Where necessary, insulating material shall be installed between the rear studs and the chassis. Circuit-breakers shall be installed so that the toggles are in the up position when "ON" and down when "OFF".</p> <p>17.8.5 INSTRUMENTATION</p> <p>All metering instruments shall be flush mounted in the front panel or door. The rear terminals of instruments mounted on doors shall be covered with an insulating material to prevent accidental contact. Current transformers for metering shall be mounted so that the rating is clearly visible. Fuses for instrumentation shall be mounted in an easily accessible position and clearly marked.</p> <p>17.8.6 MOUNTING OF FUSES</p> <p>Fuse holders shall be mounted semi-recessed in the front panel so that fuses can readily be changed without removing the front panel. Bus bar mounted fuses for instrumentation shall be used as far as possible.</p> <p>Where equipment requiring fuses is specified on a board (fuse switches etc.), a ruling shall be obtained from the Engineer on the quantity of spare fuses to be provided.</p> <p>17.8.7 EQUIPMENT IN MAIN BOARDS</p> <p>Equipment in main low-tension switchboards and sub-main boards shall be grouped in individual compartments. Equipment shall be arranged as follows:</p> <ol style="list-style-type: none"> Rock-out type air circuit-breakers shall be mounted in the bottom section, flush behind the panel with the handle only protruding. If this is not possible, the panel shall be drilled, and the air circuit-breaker installed behind a door. If the main switch is a moulded-case circuit-breaker or isolator it shall be flush mounted. Contactors controlling the supply shall be installed behind separate front panels. All metering, protection and rresis is specified on a board (fuse switches etc.), a ruling shall be obtained from the Engineer on the quantity of spare fuses to be provided. All circuit breakers and fuses (except for fuse-switches) may be grouped together behind one or more panels. The switchgear shall be logically arranged and grouped as described in paragraph 7.8. Depending upon the number and size of components, a common front panel may be installed over one or more groups of equipment. All equipment shall be installed in accordance with the requirements of paragraph 7.8. Fuses or fuse-switches providing back-up protection for circuit breakers, shall be grouped with the associated circuit breakers. Exposed surfaces of fuse-switches shall be of the same finish and colour as the rest of the board where practical. <p>17.8.8 STANDBY SUPPLIES</p> <p>Where standby power from a diesel-generator set or other sources is available and has to be connected to some of the equipment on a switchboard, the switchboard shall be divided into separate sections with steel metal divisions to isolate standby power and mains power sections.</p> <p>17.8.9 SUPPLY TO BOARD C</p> <p>TOEVOER NA BOARD C
TOEVOER NA BOARD C
PUMP SUPPLY
TOEVOER NA BOARD C
TOEVOER NA BOARD C
Letters at least 5 mm high. Label on the outside of the switchboard.</p> <p>17.8.10 BUS BARS IN SWITCHBOARDS</p> <p>17.8.11 APPLICATION</p> <ol style="list-style-type: none"> Bus bars shall be manufactured of solid drawn high conductivity copper with a rectangular cross-section in accordance with the requirements of SABS 1180 and SABS 159 and shall be of the type and size specified. Although SABS 784 refers only to overhead or rising bus bars, bus bars in switchboards shall comply with applicable sections of this specification especially as far as insulation and clearance values, creepage distance, joints, insulation resistance, future increase requirements and other details and short-term time without arcing are concerned. Heat shrink PVC sheets shall be fitted over the bus bars to indicate the phase colours. Insulation tape is not acceptable. Bus bars shall be supplied for the following applications: <ul style="list-style-type: none"> Distribution of supply voltage. Connection of equipment with ratings exceeding the current rating of 70 mm² conductors. Connection of outgoing circuits with current ratings in excess of that allowed for 70 mm² conductors. Collector bars for parallel cables. Connection bars for neutral conductors. Earth bus bars. Connections to miniature circuit-breakers. <p>17.10 WIRING</p> <p>17.10.1 CABLING</p> <p>Cables concealed in openings or outgoing circuits shall be terminated on the gland plate supplied for this purpose. Power cables up to and including 70 mm² may terminate on clamp type terminals where the clamping screws are not in direct contact with the conductor. Connection to the equipment can then be made with cables that are similarly connected to the equipment. All power cables larger than 70 mm² terminate on bus bars that are connected to the associated equipment. Parallel incoming or outgoing cables shall be connected to a collector bus bar without crossing the conductors.</p> <p>17.10.2 TERMINAL STRIPS</p> <p>External wiring for low voltage, control, interlocking, alarm, measuring and DC circuits shall terminate on numbered wiring terminals complying with the Engineer's standard specification for "WIRING TERMINALS". Section C9. The correct terminal size as recommended by the manufacturer for the equipment shall be used. The terminal strip shall be protected against damage by the wiring diagrams of the switchboards. Terminals for power wiring shall be separated from other terminals. Terminals for internal wiring shall not be interspersed with terminals for external circuits. All connections to terminals shall be identified as described in paragraph 8.8.8. Where switchboards consist of separate sections, the control wiring passing between sections shall be terminated on strips in each section so that control wiring can be readily re-installed when reassembling the board.</p> <p>17.10.3 CURRENT RATINGS</p> <p>The current ratings of conductors for the internal wiring shall be sufficient for the maximum continuous current that can occur in the circuit. This value shall be determined from the circuit-breaker or fuse protection of the circuit.</p> <p>TABLE: CURRENT RATING FOR INTERNAL WIRING</p> <table> <tr> <th>NOMINAL CROSS-SECTION mm²</th> <th colspan="5">CONDUCTOR RATING (A)</th> </tr> <tr> <th></th> <th>1</th> <th>2 - 3</th> <th>4 - 5</th> <th>6 - 9</th> <th>10 and more</th> </tr> <tr> <td>2.5</td> <td>28</td> <td>25</td> <td>22</td> <td>19</td> <td>16</td> </tr> <tr> <td>3.5</td> <td>37</td> <td>33</td> <td>30</td> <td>26</td> <td>22</td> </tr> <tr> <td>4.0</td> <td>47</td> <td>42</td> <td>38</td> <td>33</td> <td>28</td> </tr> <tr> <td>6.0</td> <td>64</td> <td>54</td> <td>51</td> <td>44</td> <td>38</td> </tr> <tr> <td>10.0</td> <td>85</td> <td>78</td> <td>69</td> <td>59</td> <td>51</td> </tr> <tr> <td>16.0</td> <td>112</td> <td>101</td> <td>89</td> <td>78</td> <td>67</td> </tr> <tr> <td>25.0</td> <td>128</td> <td>114</td> <td>101</td> <td>86</td> <td>74</td> </tr> <tr> <td>35.0</td> <td>138</td> <td>124</td> <td>110</td> <td>96</td> <td>82</td> </tr> <tr> <td>50.0</td> <td>172</td> <td>154</td> <td>137</td> <td>120</td> <td>103</td> </tr> <tr> <td>70.0</td> <td>213</td> <td>191</td> <td>170</td> <td>149</td> <td>127</td> </tr> </table> <p>The above table shall be applied for ambient temperatures up to 30 °C. Refer to table 4.1 in VDE 0100). For higher ambient temperatures the values shall be de-rated as prescribed by SABS 0142, Table 10.</p> <p>17.12.4 FINAL DRAWINGS</p> <p>A complete set of "as built" transparent drawings of all switchboards shall be submitted to the engineer within two weeks after delivery of the boards. The following information shall be presented:</p> <ol style="list-style-type: none"> Item (a) to (d) of the previous paragraph. Terminal strip numbers, numbers and colours of conductors connected to the terminal strips and numbers and colours of the conductors utilised for the internal wiring. A separate schedule of all equipment. <p>17.14.3 MANUALS</p> <p>Three sets of manuals for all specified main and sub-main switchboards shall be
supplied to the Engineer at no extra cost. These manuals shall include the following information:</p> <ol style="list-style-type: none"> Complete information on the operation of the equipment. Complete information for maintenance of the equipment. Brochures and ordering information. A complete equipment list indicating quantities and relevant catalogue numbers. <p>17.14.4 COMPLETION</p> <p>The supply contract shall be regarded as complete until all tests have been conducted successfully and all drawings and manuals have been handed to the Engineer.</p> <p>18. EARTHING OF INSTALLATION</p> <p>The type of main earthing must be as required by the supply authority if other than specified, and in any event as directed by the Engineer, who require additional earthing to meet test standards. Where required an earth mat shall be provided, the minimum size, unless otherwise specified, shall be 1500 mm wide and 1500 mm long. The smallest conductor to be used for power wiring in switchboards shall be 2.5 mm². Flexible cable of minimum size 10 mm² may be used for control wiring.</p> <p>Where heat generating equipment is present and the internal temperature of the board is likely to exceed 50°C, silicon-bronze insulated stranded conductors shall be used.</p> <p>Wiring shall be arranged in horizontal and vertical rows and shall be bound with suitable plastic straps or installed in PVC wiring channels. Under no circumstances may PVC adhesive tape be used for the bundling of conductors or for the colour identification of conductors.</p> <p>Bunched conductors shall be neatly formed to present a uniform appearance without twisting or crossing the conductors. Conductors leaving the harnesses shall be so arranged that they are adjacent to the chassis.</p> <p>Conductors to be installed in panels and doors shall be secured on both the door and the frame and shall be lugged between the two points. The lugs shall be arranged to produce a twisting motion when the door is opened or closed. A flexible protection sleeve shall be installed over the conductors.</p> <p>Where wiring channels are used, they shall be installed horizontally and vertically. Under no circumstances may power and control circuit wiring be installed in the same wiring channels. Channel shall not be more than 40% full.</p> <p>All wiring between different Panels within the same switchboard shall be installed in wiring channels.</p> <p>Conduits shall be installed in each hole in the metalwork through which conductors pass.</p> <p>All wiring shall be installed away from terminals, clamps or other current carrying parts. Wiring shall also be kept away from exposed metal edges or shall be protected where they cross metal edges.</p> <p>Conductors may be joined at equipment terminals or numbered terminal strips only. No other connections are allowed. Where conductors change direction, smooth bends shall be formed with a radius of at least 5 times the outside diameter of the conductor or harness.</p> <p>Where screened cables are specified, the screening shall be earthed in the switchboard or control board only unless clearly specified to the contrary. Screened cables entering control boxes through pressed knock-outs, shall terminate in compression glands. Conductors shall be as far as possible remain inside the screening at terminations. Where conductors have to separate from the screen, the braiding shall be separated and the conductors drawn through the braid without damaging the braiding. The conductors shall then be connected to their respective terminals and the screening smoothed and connected to the earth terminal.</p> <p>Where neutral connections are located between the terminals of isolators, it is essential that the two conductor ends be inserted into a common lug or ferrule and are crimped or soldered together in order that the neutral connection is not broken when the conductors are removed from all the instruments.</p> <p>Wiring should be as far as possible confined to the front portions of switchboards for ease of access. This requirement is important for wiring between smaller circuit-breakers and the associated main circuit-breaker as well as the wiring from circuit-breakers to lighting and other equipment.</p> <p>A maximum of two conductors will be allowed per equipment terminal. Where more conductors must be connected to the same equipment terminal (for example a main circuit-breaker feeding other circuit breakers), stub bus bars shall be provided for the various conductors. Refer also to paragraph 7.10.6.</p> <p>17.15 LOAD END CONNECTIONS</p> <p>The supply end connections to all equipment shall under all circumstances be at the top and the load end connections at the bottom.</p> <p>17.16 WIRING TO CIRCUIT BREAKERS</p> <p>Equipment with a rating exceeding the current rating of 70 mm² conductors shall be connected by means of bus bars to the main bus bars. Looped connections may only be installed for a maximum of two outgoing circuits. Where there are more than two outgoing circuits, bus bars shall be used. Equipment connected individually to the bus bars. Where miniature circuit-breakers are mounted in continuous rows and supplied by bus bars connected to MCB, each bus bar shall be supplied by a separate conductor. This conductor shall be connected to the bus bar by means of a separate lug and not via an MCB terminal.</p> <p>17.17 CONDUCTOR TERMINATIONS</p> <p>Conductors connected to terminals complying with the Engineer's standard specification for "WIRING TERMINALS". Section C9, need not be soldered or ferruled. Connections to circuit-breakers, isolators or contactors shall be made by one of the following methods:</p> <ol style="list-style-type: none"> A ferrule of the correct size. Soldering to the correct size conductor. Winding a conductor strand tightly around the end to totally cover the end. <p>All conductors terminating on pins, fuse holders and other equipment with screwed terminals shall be fitted with lugs. The lugs shall be soldered or crimped to the end of the conductor. The correct amount of insulation shall be stripped from the end to fit into the terminal. Strands may not be cut from the end of the conductor.</p> <p>17.18 IDENTIFICATION</p> <ol style="list-style-type: none"> The colour of the conductors for all 220/250 V circuits shall correspond to the colour of the supply phase for that circuit. Neutral conductors shall be black. Any other conductors in the board, supplying control circuits, etcetera shall be coded in colours other than those specified above. A colour code shall be devised for each board and the colour code shall be shown on the wiring diagrams. All other conductors shall be identified by the internal wiring of the board. The internal wiring of the board shall further be identified at both ends by means of durable cable marking ferrules. PVC or other tape is not acceptable. The numbers on the markers shall be shown on the wiring diagrams. <p>17.11 PAINT FINISH</p> <p>Surfaces of the framework, panels and chassis shall be painted in accordance to SANS 1091, National Colour Standards for Paint as follows:</p> <ol style="list-style-type: none"> Framework, chassis and doors: "White" Excitator plate: "Electric Orange" for Normal Power, "Signal Red" for Standby Power. Signet or Blue for Clean Power <p>17.12 LABELLING</p> <p>A LABEL SHALL BE TAKEN TO ENSURE THAT ALL EQUIPMENT IS FULLY LABELLED, AND THAT ACCURATE DESCRIPTIONS AND SAFETY WARNING NOTICES APPEAR IN BOTH OFFICIAL LANGUAGES.</p> <p>17.12.1 MATERIAL</p> <p>Engraved plastic or red letters on a white or yellow background for danger notices.</p> <p>17.12.2 MAIN SWITCHBOARDS</p> <p>Main switchboards and sub-main switchboards shall be supplied with the following bilingual labels:</p> <ol style="list-style-type: none"> Number and allocation of switchboard. Terminal strip numbers, numbers and colours of conductors connected to the terminal strips and numbers and colours of the conductors utilised for the internal wiring. Legend for the internal wiring. <p>Letters at least 5 mm high. Label on the outside of the switchboard.</p> <ol style="list-style-type: none"> Designation of bus bar sections. Example: BUS BAR SECTION 2 GELEISTINGSKES 2 <p>Letters at least 10 mm high. Label on the outside in a prominent position.</p> <ol style="list-style-type: none"> Designation of all switchgear including circuit-breakers, isolators, contactors, etcetera. If the current rating of circuit-breakers is indicated on a switchboard, the value shall be indicated on the engraved label. Example: TOEVOER NA BOARD C TOEVOER NA BOARD C PUMP SUPPLY TOEVOER NA BOARD C TOEVOER NA BOARD C <p>Letters at least 5 mm high. Label on the outside of the switchboard.</p> <ol style="list-style-type: none"> All other equipment including meters, instruments, indicator lights, switches, push-buttons, circuit-breakers, fuses, contactors, control relays, protection relays, etcetera shall be identified. The function of the equipment and circuits shall be clearly indicated. The main switch shall be labelled as follows: "SWITCH OFF IN CASE OF EMERGENCY" "SKAKEL AF IN NOODGEVAL". <p>Flush mounted equipment within doors or front panels shall be identified with labels fitted to the doors or front panels respectively. The labels for equipment installed behind panels, shall be fixed to the chassis close to the equipment. If this equipment is positioned too close together to accommodate</p> | NOMINAL CROSS-SECTION mm ² | CONDUCTOR RATING (A) | | | | | | 1 | 2 - 3 | 4 - 5 | 6 - 9 | 10 and more | 2.5 | 28 | 25 | 22 | 19 | 16 | 3.5 | 37 | 33 | 30 | 26 | 22 | 4.0 | 47 | 42 | 38 | 33 | 28
| 6.0 | 64 | 54 | 51 | 44 | 38 | 10.0 | 85 | 78 | 69 | 59 | 51 | 16.0 | 112 | 101 | 89 | 78 | 67 | 25.0 | 128 | 114 | 101 | 86 | 74 | 35.0 | 138 | 124 | 110 | 96 | 82 | 50.0 | 172 | 154 | 137 | 120 | 103 | 70.0 | 213 | 191 | 170 | 149 | 127 |

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---|---------------------------------------|----------------------|-------|-------|-------------|--|--|---|-------|-------|-------
-------------|-----|----|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|----|----|-----|----|----|----|----|----|------|----|----|----|----|----|------|-----|-----|----|----|----|------|-----|-----|-----|----|----|------|-----|-----|-----|----|----|------|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|
| NOMINAL CROSS-SECTION mm ²

 | CONDUCTOR RATING (A) | | | | | | | | | | |
 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|

 | 1 | 2 - 3 | 4 - 5 | 6 - 9 | 10 and more | | | | | | |
 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.5

 | 28 | 25 | 22 | 19 | 16 | | | | | | |
 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.5

 | 37 | 33 | 30 | 26 | 22 | | | | | | |
 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.0

 | 47 | 42 | 38 | 33 | 28 | | | | | | |
 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6.0

 | 64 | 54 | 51 | 44 | 38 | | | | | | |
 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10.0

 | 85 | 78 | 69 | 59 | 51 | | | | | | |
 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16.0

 | 112 | 101 | 89 | 78 | 67 | | | | | | |
 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25.0

 | 128 | 114 | 101 | 86 | 74 | | | | | | |
 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35.0

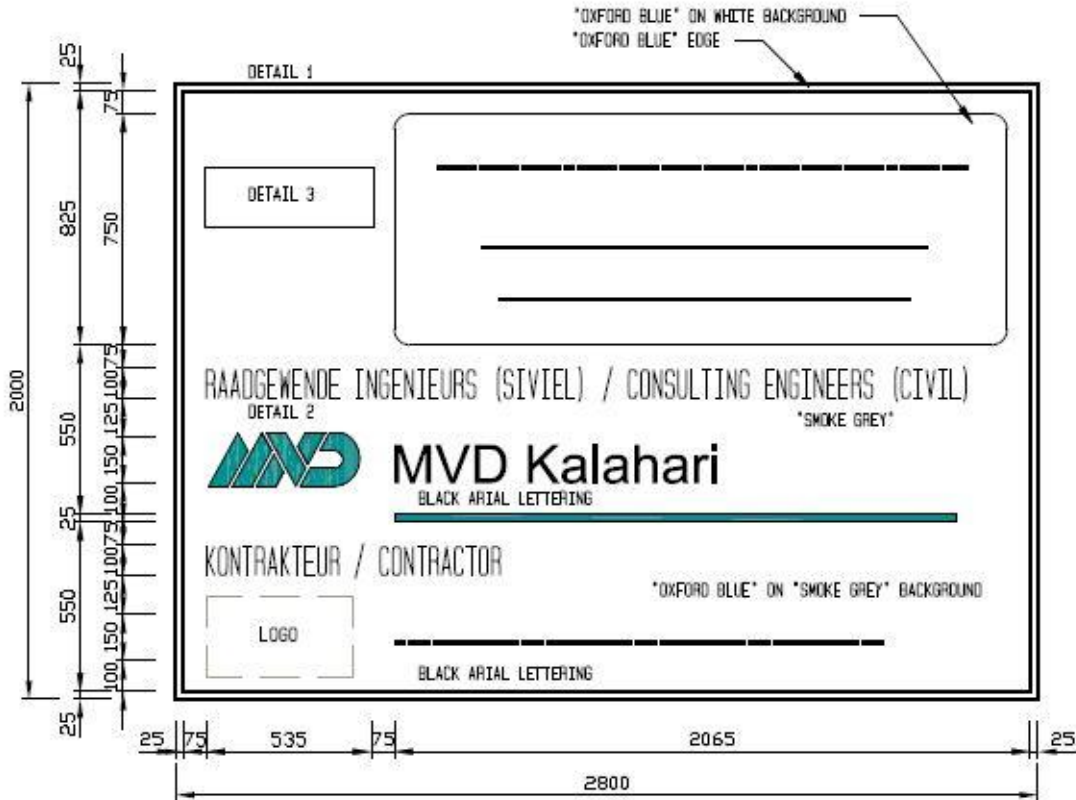
 | 138 | 124 | 110 | 96 | 82 | | | | | | |
 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50.0

 | 172 | 154 | 137 | 120 | 103 | | | | | | |
 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 70.0

 | 213 | 191 | 170 | 149 | 127 | | | | | | |
 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Drawing A1: Name Board

ANNEXURE H



NOTES:

- DETAIL 1: SHOULD MORE INFORMATION BE REQUIRED, THE BOARD MUST BE ENLARGED IN MULTIPLES OF 550mm
- DETAIL 2: MVD LOGO CAN BE BOUGHT FROM MVD KALAHARI
- DETAIL 3: SAVRI LOGO CAN BE BOUGHT FROM MVD KALAHARI

COLOUR SPECIFICATIONS:

- C:87 M:69 Y:0 K:0 PANTONE 2726 C
- C:56 M:21 Y:4 K:0 PANTONE 659 C
- C:0 M:0 Y:0 K:100 PANTONE PROCESS BLACK C
- C:0 M:0 Y:0 K:50 PANTONE COOL GRAY 9 C
- C:0 M:0 Y:0 K:30 PANTONE 2726 C

DETAIL 3



PROJECT NAME BOARD

NAME BOARD : A800 (CONTRACTOR 1 OR 2 OR 3)

SCALE 1 : 20

TENDERER:

Initial: Authorized Signatory/ies:

1

2

CLIENT

Initial:

Gamagara Local Municipality

Witness:

STANDARD FORMS AND FORMATS

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

REF NUMBER	DESCRIPTION
SS-01	Daily Site Diary
SS-02	Inspection Request
SS-03	Monthly Progress Report - General
SS-04	Monthly Progress Report - Roads
SS-07	Monthly Progress Report – Storm Water
SS-09	Monthly Report – Plant on Site
SS-10	Monthly Report – Labour on Site
SS-11	Control on Pavement Layer Works Contract Supervision
SS-12	Evaluation of Road Levels
SS-13	Inspection Form - Roads
SS-15	Excavation Checklist
SS-17	Requisition for Checking prior to pouring of Concrete
SS-18	Pre-Concrete Inspection Checklist
SS-19	Post Concrete Inspection Report for Civil Works
SS-20	Partial Handover Inspection
SS-21	Telkom & Electrical Certificate
SS-23.1	Interim Inspection Form – Sewer and Stormwater
SS-26	Final Inspection Form - Stormwater
CONS-10	Community Liaison Officer – Monthly Report
CONS-17	Outstanding Items for Completion
CONS-18.3	Certificate of Completion and Snag List
CONS-19.3	Certificate of Practical Completion
CONS-20.3	Final Approval Certificate
THE ABOVEMENTIONED FORMS WILL BE MADE AVAILABLE AFTER TENDER IS AWARDED	

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____

ENVIRONMENTAL MANAGEMENT PLAN

TENDERER:

Initial: Authorized Signatory/ies: 1 _____
2 _____

CLIENT

Initial: Gamagara Local Municipality _____
Witness: _____



GAMAGARA LOCAL MUNICIPALITY

ENVIRONMENTAL MANAGEMENT PLAN

UPGRADING OF SPORTS FIELD IN DIBENG

PREPARED BY

MVD Kalahari



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ANNEXURES

A. PENALTIES SCHEDULE

ABREVIATIONS/ACRONYMS

EMP	Environmental Management Plan
ECO	Environmental Control Officer
MSDS	Material Safety Data Sheets
LPG	Liquefied Petroleum Gas

INTRODUCTION

An EMP is developed to outline measures that are to be implemented in order to minimise adverse environmental degradation associated with the Upgrading of Sports field in Dibeng, Kathu. It serves as a guide for the Contractor and the workforce on their roles and responsibilities concerning environmental management on site and it provides a framework for environmental monitoring throughout the development period.

1. AIMS OF THE EMP

The aims of this EMP are to:

- Guide and control construction activities relating to the construction of the houses to minimise negative environmental impacts during construction.
- Guide and control operational and management activities to minimise negative environmental impacts and risks.
- Provide a working Management Plan for enhancement of the ecological functioning of the property.

2. IMPLEMENTATION OF THE EMP

A number of potential environmental impacts, mitigating measures and environmental management controls were identified and are laid out in this document. In order to ensure compliance with this EMP during construction and operation, an ECO must be appointed to monitor the implementation of the recommendations made herein.

During the construction phase an independent ECO must be appointed to guide implementation of the EMP. The ECO must undertake monthly audits in respect of compliance with the EMP that must be submitted to the Gamagara Local Municipality, represented by the Engineer, MVD Kalahari.

3. NON-COMPLIANCE WITH THE EMP

Any non-compliance with the EMP will be treated as serious. Liability rests with the Contractor for non-compliance with the EMP. A penalties schedule is attached as *Appendix A* that will be implemented in the instance of non-compliance by any Contractor working on site, such that the Client has a means of ensuring that their risk in respect of non-compliance by these Contractors can be managed.

SECTION A: PRE-CONSTRUCTION PHASE

GENERAL PRINCIPLES FOR THE PRE-CONSTRUCTION PHASE

The pre-construction phase must involve careful planning of the construction phase for minimised environmental, social and economic impacts – both on site and for surrounding neighbours and residents.

A.1. SETUP OF CONSTRUCTION CAMP AND CONSTRUCTION SITE

- A.1.1. Choice of site for the Contractor's camp requires the ECO's permission and must take into account the location of local residents and ecologically sensitive areas, including flood zones, unstable zones and areas of natural vegetation. A site plan must be submitted to the ECO for approval for establishment of the camp.
- A.1.2. The size of the Construction Camp must be minimised.
- A.1.3. Adequate parking must be provided for site staff and visitors.
- A.1.4. The Contractor must attend to drainage of the Construction Camp to avoid standing water or sheet erosion.
- A.1.5. Bins and/or skips must be provided within the Construction Camp at convenient intervals.
- A.1.6. A bulk waste collection area must be demarcated within the Construction Camp.
- A.1.7. A materials storage area must be identified and designated within the Construction Camp.
- A.1.8. An area for fuel storage must be identified. This area should be sited to have minimal impact on and risk to surrounding residents and should be secured within the Construction Camp.
- A.1.9. Hazardous chemical working/refuelling areas must be lined with an impermeable liner to protect groundwater quality. This can be done using a plastic liner covered with soil.
- A.1.10. Storage areas containing hazardous substances/materials must be clearly marked/signed and must have fire extinguishers in proximity.
- A.1.11. Residents living adjacent to the construction site and nearby the hazardous materials storage area must be notified of the existence of the hazardous storage area and the uses of these materials on site.
- A.1.12. Material Safety Data Sheets (MSDS) shall be readily available on site for all chemicals and hazardous substances to be used on site. Where possible and available, MSDSs should additionally include information on ecological impacts and measures to minimise negative environmental impacts during accidental releases or escapes.
- A.1.13. Chemical toilets must be installed at the Construction Camp. At least 1 toilet must be available per 20 workers that use the camp on a daily basis.
- A.1.14. Parking areas for plant, oil/bitumen stores or other chemical storage zones must be prepared with a plastic liner under the soil.
- A.1.15. Signs should be erected on all entrance gates indicating that no temporary jobs are available to limit opportunistic labourers and crime. Signage must also include a list of contact numbers for emergency purposes.
- A.1.16. A planning meeting and site walks must be conducted by representatives of the Municipality, MVD Kalahari, and the Contractor to identify actual route alignments and

placements of all infrastructure prior to works on site commencing and to discuss the phasing of various construction activities on site.

A.2. ACCESS TO HOUSES UNDER CONSTRUCTION

A.2.1. The contractor must take into account the following limitations when deciding on access routes into and around the construction site for construction purposes:

- Existing houses may not be damaged as a result of haulage of material on site.
- The need to minimise disturbances to adjacent businesses and residents.

A.2.2. All roads for construction access must be planned and approved by the ECO ahead of construction activities.

A.2.3. Clearing of indigenous vegetation must be kept to a minimum during operations.

A.2.4. Construction roads must use as little cut and fill as possible and minimise exposed soil surface area.

A.2.5. All vehicles accessing the property must adhere to speed limits.

A.3. SOURCING OF NATURAL MATERIALS

A.3.1. Contractors shall prepare a source statement indicating the source of all materials (including topsoil, sands, natural gravels, crushed stone, asphalt, clay liners, etc.) and submit these to the ECO and Engineer for approval prior to commencement of any work.

A.3.2. Where possible, a signed document from the supplier of natural materials should be obtained confirming that they have been obtained in a suitable manner and in compliance with relevant legislation.

A.3.3. Where materials are borrowed (mined), proof must be provided of the authorisation to utilise these materials from the landowner/mineral rights owner and the Department of Minerals and Energy.

SECTION B: CONSTRUCTION PHASE

GENERAL PRINCIPLES FOR THE CONSTRUCTION PHASE

1. All construction activities undertaken on site must aim to limit disturbance, nuisance and interruptions to the lives and daily business of neighbours, local residents and local businesses.
2. Construction and development staff should be courteous and respectful of the people potentially affected by construction activities and be willing to address any activities that are causing undue nuisance or inconvenience to any party.
3. The construction phase must be completed in as short a time as possible.
4. All construction activities must be undertaken with the safety of people and the environment as a priority.
5. Good housekeeping and a Clean Site Policy should be adopted by all persons involved in construction activities.

B.1. MANAGEMENT OF CONSTRUCTION CAMP

- B.1.1. The size of the Construction Camp must be kept minimized. The camp or materials storage areas associated with the camp may not be extended without prior approval of the ECO/Engineer.
- B.1.2. Adequate parking must be provided for site staff and visitors.
- B.1.3. The Contractor must attend to drainage of the Construction Camp to avoid standing water or sheet erosion.
- B.1.4. A bulk waste collection area must be designated, and waste cleared regularly by a recognised waste contractor.
- B.1.5. Litter collection bins must be provided within the Construction Camp at convenient intervals and must be regularly cleared.
- B.1.6. Adequate numbers of chemical toilets must be maintained in the Construction Camp to service the staff using this area. At least 1 toilet must be available per 20 workers using the camp.
- B.1.7. The chemical toilets serving the camp must be maintained in a good state and any spills or overflows must be attended to immediately.

B.2. MANAGEMENT OF CONSTRUCTION SITE

- B.2.1. Signs should be erected on all entrance gates indicating that no temporary jobs are available to limit opportunistic labourers and crime.
- B.2.2. Potentially hazardous areas such as trenches are to be cordoned off and clearly marked at all times.
- B.2.3. Lighting on the site is not allowed except at the Construction Camp.

- B.2.4. No firearms are allowed on site or in vehicles transporting staff to or from site (unless used by security personnel).
- B.2.5. All vehicles accessing the property must adhere to speed limits.
- B.2.6. Construction/management activities including use of the service vehicle, machinery, hammering, etc. must be limited to the hours between 7:00 am and 5:30 pm weekdays; 7:00 am and 1:30 pm on Saturdays; no noisy activities may take place on a Sunday.
- B.2.7. A list of emergency contact numbers must be clearly displayed at the Construction Camp at all times.
- B.2.8. Disturbance to birds, animals and reptiles and their habitats should be prevented at all times.
- B.2.9. The Site Engineer must maintain a Complaints Register and any interested party must record their comments therein. This must be available for review during audits.
- B.2.10. The ECO, Engineer, Developer and Manager of the site must be aware of the interested and affected parties.
- B.2.11. Activities that may disrupt neighbours (e.g. delivery trucks, excessively noisy activities, etc.) must be preceded by notice being given to the affected neighbours at least 24 hours in advance.
- B.2.12. All areas that have been stripped of vegetation, including all roads must be dampened periodically to avoid excessive dust.

B.3. WORKER CONDUCT

- B.3.1. On arrival at the property, workers must be briefed by the person in charge of managing construction/management activities on the regulations of the property. This must be repeated at weekly Toolbox Talks.
- B.3.2. No alcohol, drugs, snares, slingshots or animals must be brought onto the property.
- B.3.3. No fires may be made on the property unless under the guidance of the ECO for the purposes of controlled burning of grasslands/wetland or within controlled braai areas in the Construction Camp.
- B.3.4. No hunting activities are allowed on site or the adjacent properties.
- B.3.5. Workers that are under the influence of alcohol or drugs may not operate chainsaws, vehicles or other machinery/duties.
- B.3.6. Construction workers should be made aware that they are not to make excessive noise (e.g. shouting, hooting, etc.).
- B.3.7. The harvesting of firewood, medicinal plants, tree bark, flower or other natural materials is forbidden on the site and adjacent properties.
- B.3.8. Trespassing on neighbouring properties is forbidden. All workers must be shown the limits of the property and remain within these limits during the course of the working day.
- B.3.9. No workers may sleep on the property unless proper accommodation for this has been established.
- B.3.10. Workers must be instructed to be polite to neighbours and be told to whom any interested members of the public may be directed on site.

- B.3.11. Prior to the commencement of construction all workers need to know what possible archaeological or historical objects of value may look like and to notify the Site Manager if one is found.

B.4. ACCESS ROADS FOR CONSTRUCTION

- B.4.1. All roads for construction access must be planned and approved by the ECO/Engineer ahead of construction activities.
- B.4.2. Use of access/haulage routes must take into consideration the need to minimise disturbances to businesses and residents.
- B.4.3. If necessary, staff must be employed to clean surfaced roads adjacent to the construction site where materials have been spilt.
- B.4.4. Cognisance of vehicle weight/dimensions must be taken when using access constructed out of certain materials, e.g. paved surfaces, cobbled entranceways, etc.

B.5. STORAGE OF GENERAL MATERIALS

- B.5.1. General building/other materials includes non-hazardous materials and chemicals. These must be kept in a designated area.
- B.5.2. The designated storage area must be kept fenced or secured to keep people and animals out. This area should be located in or near the Construction Camp enclosure.
- B.5.3. Materials must be stacked in a way that they cannot fall and cause injury or damage to property or the natural environment.
- B.5.4. Fire prevention facilities must be present at the storage area at all times.
- B.5.5. The storage area must be sited so that it has minimal visual impact on surrounding neighbours and people living within the development area. Special attention should be given to screening highly reflective materials.
- B.5.6. Contractors shall prepare a Source Statement indicating the sources of all materials (including topsoil, sand, natural gravel, crushed stone, asphalt, clay liners, etc.) and submit this statement to the ECO/Engineer for approval prior to commencement of the works.
- B.5.7. Where possible a signed document from the supplier of natural materials should be obtained confirming that they have obtained in a suitable manner and in compliance with relevant legislation.
- B.5.8. Obstruction to driver's line of sight due to stockpiles and stacked materials must be avoided.

B.6. STORAGE AND USE OF HAZARDOUS MATERIALS

The definition of hazardous substances/materials is those that are potentially poisonous, flammable, carcinogenic or toxic. These may include diesel, petroleum, oil, bituminous products, cement, solvent based paints, lubricants, explosives, drilling fluids, pesticides, herbicides and LPG. Every effort should be made to ensure that any chemicals or hazardous substances do not contaminate the soil or groundwater on site.

- B.6.1. MSDSs will be readily available on site for all chemicals and hazardous substances to be used on site. Where possible and available, MSDSs should additionally include

information on ecological impacts and measures to minimise negative environmental impacts during accidental releases or escapes.

- B.6.2. Fuel storage areas must be lined with a catchpit of at least 110% of the storage capacity of the fuel storage container. This liner must have a controlled stormwater outlet with a filter.
- B.6.3. Hazardous chemical working/refuelling areas must be lined with an impermeable liner to protect groundwater quality. This can be done using a plastic liner covered with soil.
- B.6.4. Storage areas must be clearly signed.
- B.6.5. Staff dealing with these substances must be aware of their potential impacts and follow the appropriate safety measures.
- B.6.6. Fire prevention facilities must be present at the storage areas at all times.
- B.6.7. The area must be properly safeguarded from fire during burning of grass on the property or adjacent properties.
- B.6.8. The hazardous materials storage area must be fully secured to prevent people and animals from accessing it.
- B.6.9. Transport of hazardous materials around the site should be limited and materials around the site must be transported in sealed bags/containers.
- B.6.10. All canisters that may be used to transport the hazardous materials (e.g. herbicide) to the point of use on the site must be regularly checked for leaks. Leaky canisters must be repaired before use.
- B.6.11. Mixing/decanting of all chemicals and hazardous substances must take place either on a tray or on an impermeable surface. Waste from these should then be disposed of at a suitable waste site.
- B.6.12. Should any spills of hazardous materials occur on site or in the storage area, the relative clean up specialists must be contacted immediately. Materials that absorb fuel and oil such as Drizit, sawdust or earth should be placed over the spill. This contaminated material must be removed and disposed of at a recognised disposal site.
- B.6.13. Vehicles transporting hazardous materials including concrete may not be washed on site.
- B.6.14. Lime, cement and other powders may not be mixed during excessively windy conditions.

B.7. CONSTRUCTION VEHICLES/EQUIPMENT

- B.7.1. Access to the property must be via the approved construction access routings. No other access route may be used onto the property.
- B.7.2. Choice of site for the storage of vehicles/equipment during the construction process must take into account the location of local residents and sensitive natural areas on the property.
- B.7.3. Construction vehicles are to be fitted with standard silencers prior to the beginning of construction.
- B.7.4. Equipment that is fitted with noise reduction facilities (e.g. side flaps, silencers, etc.) must be used as per operating instructions and properly maintained during site operations.

- B.7.5. All vehicles and equipment used on site must be operated by appropriately trained and/or licensed individuals in compliance with all safety measures as laid out in the Occupational Health and Safety Act (OHSA).
- B.7.6. Vehicles and machinery are to be kept in good working order and to meet manufacturer's specifications for safety, fuel consumption, etc.
- B.7.7. Should excessive emissions be observed, the site manager is to have the equipment seen to as soon as possible.
- B.7.8. No vehicle or equipment may be serviced on the property unless in a properly demarcated work zone.
- B.7.9. Vehicle parking/storage areas must be appropriately surfaced such that oil, fuel and other fluid leaks do not pollute soil or water resources.
- B.7.10. Large delivery vehicles/trucks must not be allowed to block the road or cause damage to the road surface.
- B.7.11. Storage and dispensing of fuels must be done in accordance with the controls detailed in *Section B6*.

B.8. WASTE MANAGEMENT AND SANITATION

- B.8.1. All solid waste generated during the construction phase/process (including packets, plastic, rubble, cut plant material, waste metals, etc.) must be placed in the waste collection area in the Construction Camp and must not be allowed to blow around the site, be accessible to animals or be placed in piles adjacent to the bins/skips.
- B.8.2. Separation of waste and recycling of paper, glass, etc. must be encouraged. Composting of organic waste is encouraged.
- B.8.3. Hazardous materials that require disposal (cement, paints, solvents, old fuel, etc.) must be disposed of at a registered hazardous material landfill site. These materials must be removed by an appropriate hazardous waste contractor. Proof of appropriate disposal must be available for scrutiny by the ECO/Engineer.
- B.8.4. The excavation of rubbish pits on site is not allowed.
- B.8.5. Burning of rubbish on site is not allowed.
- B.8.6. A site for a compost heap may be identified with assistance from the local environmental authority.
- B.8.7. Adequate toilets must be available on site for use by construction staff at all times. These toilets must be moved with the workforce.
- B.8.8. The digging of pit latrines for this purpose is not allowed under any circumstances.
- B.8.9. Should chemical toilets be used, an appropriate contractor must be employed to service these facilities on an on-going basis.
- B.8.10. Spills or overflows from chemical or other toilets used by construction staff must be dealt with by a sanitation expert immediately.
- B.8.11. Littering on site is forbidden.

SECTION C: OPERATIONAL AND MAINTENANCE ACTIVITIES

GENERAL PRINCIPLES FOR OPERATIONAL ACTIVITIES

1. The operation and maintenance of this facility should be sensitive to the surrounding area, and not cause nuisance or safety risks to local residents or businesses in the area.
2. Operation of this facility should be undertaken in an environmentally sustainable manner with minimum negative impacts and maximum positive impacts.

C.1. FENCING AND SECURITY

- C.1.1. Security staff employed on site must be aware of police operating in the area and work with them in the prevention of crime in and around the property.
- C.1.2. The security and lighting must not result in negative visual impacts.

C.2. PROTECTION OF WATER RESOURCES AND HUMAN HEALTH

- C.2.1. All wastewater management systems must be operated and maintained in a good state by Gamagara Local Municipality.
- C.2.2. Any spill of fuels, oils or any other hazardous material must be attended to immediately. Appropriate hazardous material clean-up contractors must be contracted immediately, and the relevant authorities notified of the spill.

C.3. SOLID WASTE MANAGEMENT

- C.3.1. Solid waste must be collected at a central point. Sorting of the waste into organics, recyclable, hazardous and domestic waste should be undertaken at this point if possible.
- C.3.2. Composted organic waste may be used on the property for soil conditioning in landscape maintenance.

ANNEXURE A
PENALTY SCHEDULE

APPENDIX A: CONTRACTOR PENALTIES SCHEDULE

The following penalty schedule reflects four different penalty scales relating to the severity of the offence and the associated cost of restoring the environment.

This schedule must form part of the construction contract.

It must be noted that if any offence is committed by a Contractor such that the requirement of National Legislation is contravened and a subsequent legal process is initiated, the responsible Contractor will be subject to the associated criminal process and associated penalties (which may include a fine and/or imprisonment) as decided on by the court. In this case, if the environmental penalty contained in the EMP is greater than the fine imposed by the court, then the Contractor will be subject to payment of the difference as per the requirements of the Environmental Penalty Schedule.

In all cases the Contractor will be subject to a penalty for the offence committed, the monies from which will be used by a separate contractor to remedy the damage. The Contractor that caused the damage may opt remedy the damage themselves to the satisfaction of the ECO/Engineer and Developer. In such cases a discount on the penalty may be negotiated with the ECO/Engineer and Developer.

In addition to the schedule of penalties, a portion of the Retention on the contract must be apportioned to compliance with the EMP. This portion should be no less than 25% of the total Retention amount but may be increased depending on the level of environmental risk associated with the contract. This portion will be decided by the Developer in consultation with the ECO/Engineer.

PENALTY SCHEDULE

LEVEL	DESCRIPTION	PENALTY	OFFENCES
1	Minor Offence	R1,000 first offence, R2,000 second offence and R1,000/per day that offence continues beyond notification of offence	• Littering, inadequate or inappropriate on-site waste management or sanitation • Uncontrolled noise and dust nuisance • Poaching on site • Inadequate soil/water protection controls for fuel storage & dispensing areas, vehicle parking areas
2	Moderate Offence	R5,000 first offence R10,000 second offence and R5,000 per day that the offence continues beyond notification of offence	• Trespassing onto neighbours properties • Removal of indigenous trees marked for conservation purposes without the permission of the ECO, or trees in demarcated sensitive environmental zones • Disposal of any form of waste to a non-approved dump site • Any illegal /non-permitted abstraction or use of water from a natural resource • The withholding of pertinent information or provision of false information to the ECO or Project Manager
3	Significant Offence	R30,000 first offence R50,000 second offence and R30,000 per day that the offence continues beyond notification of offence	• Non-compliance with any risk or safety management requirements • Significant spillage of hazardous materials • Use of natural materials not sourced from a legally permitted source. • Construction or use of roads/access across rivers, streams or wetlands that have not been authorized by the Project Manager and ECO
4	Serious Offence	Up to R500,000 or total cost of rehabilitating damaged environment	• Any serious pollution event or accident • Any serious encroachment into demarcated sensitive environmental zones, by accident or on purpose • Any serious stormwater damage that could have been avoided through appropriate management interventions

* Note that the above figures represent the maximum fine amount in each instance