

ORIGINAL

TENDER NO. 179Q/2016/17



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

SCM - 509 Approved by SCM Director 25 February 2015

Version: 2 Page 1 of 431

CONTRACT DOCUMENT

FOR THE

CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER TREATMENT WORKS: CIVIL WORKS

VOLUME 3

(RETURNABLE DOCUMENT)

NOTE:

- The Form of Offer and Acceptance (C1.1) is on **page 80** of this document (see also Clause F.4.7 Invalid tenders on **page 20**)
- Table 1: Tender preference claim (B-BBEE contribution) is on **page 77** of this document

ISSUED BY: DIRECTOR : WATER AND SANITATION CITY OF CAPE TOWN Tower Block, Civic Centre 12 Hertzog Boulevard CAPE TOWN 8001	COMPILED BY: 	For official use. TENDER SERIAL No.: 3 SIGNATURES OF CITY OFFICIALS AT TENDER OPENING

DECEMBER 2016

**NAME OF TENDERING
ENTITY**

Making progress possible. Together.

AGREEMENT

THIS AGREEMENT made between **THE CITY OF CAPE TOWN** (hereinafter referred to as "the Employer") of the one part and (hereinafter referred to as "the Contractor") of the other part.

WHEREAS the Employer is desirous that certain Works should be constructed, viz. **CONTRACT NO. 179Q/2016/17: THE CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIT WASTEWATER TREATMENT WORKS: CIVIL WORKS** and has accepted a Tender by the Contractor for the construction, completion and defects correction of such Works by signing the acceptance.

NOW THIS AGREEMENT WITNESSES that:

1. In this agreement words and expressions shall have the same meanings as are respectively assigned to them in the General and contract specific Conditions of Contract.
2. The following documents shall be deemed to form and be read and construed as part of this agreement, viz.:

Volume 3:

- (a) All documents listed in the Schedule of Documents
- (b) Employer's letters dated 28 December 2017 and 3 September 2019
- (c) The signed acceptance, schedule of deviations and confirmation of receipt
- (d) Tender Clarifications
- (e) Addenda to Tender Documents (blue)

3. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned the Contractor undertakes to the Employer to construct, complete and remedy any defects in the Works in conformity in all respects with the provisions of the Contract:
4. The Employer hereby undertakes to pay to the Contractor in consideration of the construction, completion and defects correction of the Works the Contract Price at the times and in the manner prescribed by the Contract.

CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 179Q/2016/17

CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER TREATMENT WORKS: CIVIL WORKS

General Tender Information

TENDER ADVERTISED	:	02 DECEMBER 2016
ESTIMATED CIDB CONTRACTOR GRADING DESIGNATION	:	9CE
SITE VISIT/CLARIFICATION MEETING	:	10h00, 14 DECEMBER 2016 (Compulsory)
VENUE FOR SITE VISIT/CLARIFICATION MEETING	:	Zandvliet Wastewater Treatment Works
CLOSING DATE	:	~~27 FEBRUARY 2017~~ 17 MARCH 2017
CLOSING TIME	:	10h00
CLOSING VENUE	:	Tender Box 172 at the Tender Submission Office, 2 nd Floor (Concourse Level), Civic Centre, 12 Hertzog Boulevard, Cape Town.
TENDER BOX	:	The Tender Document (which includes the Form of Offer and Acceptance) completed in all respects, plus any additional supporting documentation required, must be submitted in a sealed envelope with the name and address of the tenderer, the tender No. and title, the tender box No. and the closing date indicated on the envelope. The sealed envelope must be inserted into the appropriate official tender box before closing time.

If the tender offer is too large to fit into the abovementioned box or the box is full, please enquire at the public counter (Tender Distribution Office) for alternative instructions. The onus remains with the tenderer to ensure that the tender is placed in either the original box or as alternatively instructed.

CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 179Q/2016/17

CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER TREATMENT WORKS: CIVIL WORKS

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Part T1: Tendering procedures

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CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 179Q/2016/17

CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER
TREATMENT WORKS: CIVIL WORKS

T1.1 Tender Notice and Invitation to Tender

The CITY OF CAPE TOWN, WATER AND SANITATION, invites tenders for Tender No. 179Q/2016/17: CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER TREATMENT WORKS: CIVIL WORKS

Tenderers must be registered on the City of Cape Town's Vendor Database.

Tenderers who are not registered on the City of Cape Town's Vendor Database are not precluded from submitting tenders, but must however be registered prior to the evaluation of tenders in order for their tenders to be responsive.

It is estimated that tenderers should have a CIDB contractor grading designation of 9CE.

Preferences are offered to tenderers who tender in accordance with the Preferential Procurement Regulations, 2011.

The physical address for collection of tender documents is:

Tender Distribution Office, 2nd Floor (Concourse Level), Civic Centre, 12 Hertzog Boulevard, Cape Town.

Documents may be collected during working hours between 08:30 – 15:00 from **02 DECEMBER 2016**.

A non-refundable tender fee of R500.00 payable by crossed cheque made out in favour of the City of Cape Town, is required on collection of the tender documents.

Queries relating to any issues in these documents may be addressed to Mr e-mail

A compulsory site visit/clarification meeting with the representatives of the Employer will take place at the Zandvliet WWTW (Refer to Locality Plan – Site Visit/Clarification Meeting Venue overleaf) on **14 DECEMBER 2016** starting at 10:00.

The closing time for receipt of tenders is 10:00 on ~~27 FEBRUARY 2017~~, **13 MARCH 2017**.

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

Tenders may only be submitted on the tender documentation that has been issued. Printed Bills of Quantities, in the same format (that is, layout, billed items and quantities) as those issued electronically by the Employer upon request, may be submitted as stated in the Tender Data.

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



CITY OF CAPE TOWN
 WATER AND SANITATION
 CONTRACT NO. 179Q/2016/17
 CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER
 TREATMENT WORKS: CIVIL WORKS

LOCALITY PLAN – SITE VISIT/CLARIFICATION MEETING VENUE

CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 179Q/2016/17

CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIE WASTEWATER TREATMENT WORKS: CIVIL WORKS

T1.2 Tender Data

The conditions of tender are the Standard Conditions of Tender as contained in Annex F of Board Notice 86 of 2010 in Government Gazette No. 33239 of 28 May 2010, Construction Industry Development Board (CIDB) Standard for Uniformity in Construction Procurement. (see www.cidb.org.za) which are reproduced without amendment or alteration for the convenience of tenderers as an Annex to this Tender Data.

The Standard Conditions of Tender make several references to the Tender Data for details that apply specifically to this tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the standard conditions of tender. Each item of data given below is cross-referenced to the clause in the Standard Conditions of Tender to which it mainly applies.

The following variations, amendments and additions to the Standard Conditions of Tender as set out in the Tender Data below shall apply to this tender:

Clause Number	Tender Data

F.1 General

F.1.1 Actions

Add the following:

The Employer is the City of Cape Town, represented by the Director: WATER AND SANITATION.

F.1.2 Tender Documents

Add the following:

The following documents form part of this tender:

VOLUME 1: The General Conditions of Contract for Construction Works, Second Edition, 2010, prepared by the South African Institution of Civil Engineering (SAICE). This publication is available and tenderers must obtain copies at their own cost from the South African Institution of Civil Engineering (SAICE), Private Bag X200, Halfway House 1685, Tel: (011) 805 5947, Fax: (011) 805 5971, e-mail: civilinfo@saice.org.za.

VOLUME 2: The SANS Standardised Specifications for Civil Engineering Construction prepared by Standards South Africa. These publications are available and tenderers must obtain copies at their own cost from Standards South Africa, Private Bag X191, PRETORIA, 0001.

Volumes 1 and 2 may also be inspected, by appointment, at the offices of the Employer's agent during normal office hours.

The tender documents issued by the Employer comprise:

VOLUME 3: The Contract Document (this document, which may also be obtained in electronic format – or parts thereof – in terms of F.4.12), in which is bound:

The Tender

Part T1: Tendering procedures

T1.1 Tender notice and invitation to tender

T1.2 Tender data

Part T2: Returnable Documents

T2.1 List of returnable documents

T2.2 Returnable schedules

The Contract

Part C1: Agreements and Contract Data

- C1.1 Form of offer and acceptance
- C1.2 Contract data
- C1.3 Form of Performance Guarantee
- C1.4 Form of Advance Payment Guarantee
- C1.5 Occupational Health and Safety Agreement
- C1.6 Protection of the Environment Declaration
- C1.7 Insurance Broker's Warranty

Part C2: Pricing Data

- C2.1 Pricing Assumptions
- C2.2 Bills of Quantities

VOLUME 3A:

Part C3: Scope of Work

- C3.1 Description of the Works
- C3.2 Engineering
- C3.3 Procurement
- C3.4 Construction
- C3.5 Management
- C3.6 Specifications
- C3.7 Annexes

Part C4: Site information

- C4 Site information

VOLUME 3B:

- C3.6.4 Electrical Specifications

VOLUME 4: Drawings

Volume 3 is deemed the "Returnable Document" which must be returned to the Employer in terms of submitting a tender offer.

F.1.4

Communication and employer's agent

Add the following:

Attention is drawn to the fact that verbal or any other form of communication, given by the Employer, its employees, agents or advisors during site visits/clarification meetings or at any other time prior to the award of the Contract, will not be regarded as binding on the Employer, unless issued formally by the Employer in writing to tenderers through its Director: Supply Chain Management or his nominee. Only information issued formally by the Employer in writing to tenderers will be regarded as amending the Tender Documents.

The Employer's agent is:

E-mail:]

F.1.6.2

Competitive negotiation procedure

Add the following to F.1.6.2:

A competitive negotiation procedure will not be followed.

F.1.6.3

Proposal procedure using the two-stage system

Add the following to F.1.6.3:

A two-stage system will not be followed.

F.2 Tenderer's obligations

F.2.1 Eligibility

Add the following to F.2.1.1:

F.2.1.1 Only those tenderers who satisfy the following criteria are eligible to submit tenders:

F.2.1.1.1 City of Cape Town Supplier Database Registration

Tenderers are required to be registered on the CCT Supplier Database as a service provider. Tenderers must register as such upon being requested to do so in writing and within the period contained in such a request, failing which no orders can be raised or payments processed from the resulting contract. In the case of Joint Venture partnerships this requirement will apply individually to each party of the Joint Venture.

Tenderers who wish to register on the City of Cape Town's Vendor Database may collect registration forms from the Supplier Management Unit located within the Tender Distribution Office, 2nd Floor (Concourse Level), Civic Centre, 12 Hertzog Boulevard, Cape Town (Tel 021 400 9242/3/4/5). Registration forms and related information are also available on the City of Cape Town's website www.capetown.gov.za (follow the Supply Chain Management link to Supplier registration).

F.2.1.1.1.A National Treasury Web Based Central Supplier Database (CSD) Registration

Tenderers are required to be registered on the National Treasury Web Based Central Supplier Database (CSD) as a service provider. Tenderers must register as such upon being requested to do so in writing and within the period contained in such a request, failing which no orders can be raised or payments processed from the resulting contract. In the case of Joint Venture partnerships this requirement will apply individually to each party of the Joint Venture.

Tenderers who wish to register on the National Treasury Web Based Central Supplier Database (CSD) may do so via the web address <https://secure.csd.gov.za>.

It is each tenderer's responsibility to keep all the information on the National Treasury Web Based Central Supplier Database (CSD) updated.

F.2.1.1.2 Construction Industry Development Board (CIDB) Registration

Only those tenderers who are registered with an active status with the CIDB, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25 (7A) of the Construction Industry Development Regulations, for a CE class of construction work, are eligible to have their tenders evaluated.

Joint Ventures are eligible to submit tenders provided that:

- a) every member of the joint venture is registered with an active status with the CIDB;
- b) the lead partner has a contractor grading designation of not lower than one level below the required grading designation in the CE class of construction work; and
- c) the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a CE class of construction work or a value determined in accordance with Regulation 25 (1B) or 25 (7A) of the Construction Industry Development Regulations.

Notwithstanding the above, tenderers who are capable of being so registered with an active status with the CIDB prior to the evaluation of submissions may be evaluated at the sole discretion of the Employer (the evaluation of tenders takes place when the Employer's Bid Evaluation Committee meets to make a final recommendation to the Bid Adjudication Committee).

For alpha-numerics associated with the contractor Grading Designations see Annex G attached.

F2.1.1.3 Minimum score for Quality

F 2.1.1.3.1 Overview

Tender offers will be allocated a functionality score out of 100 in terms of the Functionality Criteria described herein. The score will be determined by the Employer, based on his interpretation of the comparative quality of the various tender offers, as evidenced by the documentation provided in the tender offer. Where information in support of a score for the various categories of Functionality Criteria is not provided fully and in compliance with:

- a) the requirements herein;
- b) the requirements of the corresponding schedules in T2.2: Returnable Schedules and the format stipulated in these; and
- c) with Clauses F.2.13.2 and F.2.13.3 of T1.2: Tender Data;

a score of zero will be allocated for that category.

The minimum score for Functionality Criteria that tender offers must attain in order to be deemed responsive is 69 out of 100. Tenderers whose tender offer does not achieve this minimum qualification score will be rejected as non-responsive.

In order to be considered for allocation of a Functionality Criteria score, tenderers must submit with their tender, a Functionality Criteria file labelled in accordance with F.2.13.5 of the Tender Data. The file shall contain all information required to support the allocation of a score for the respective Functionality Criteria where this information is not already provided in T2.2 Returnable Schedules as bound into Volume 3 of the Schedule of Documents. The file shall be indexed to match the Functionality Criteria given in Table 1, and shall be provided with dividers to separate and label each Functionality Criteria and the associated sub-sections.

A summary of the principle Functionality Criteria and the maximum possible score for each is shown in Table 1. The total score allocated for Functionality Criteria will be the sum of the scores allocated for each of the categories.

Table 1: Summary of principle functionality criteria	
Description of functionality criteria category	Weighting
Key personnel assigned to the work	25
Evidence of planning for the project	40
Tenderer's expertise and experience	35
Maximum possible score	100

The quality score will be the average of that determined by not less than three evaluators appointed by the Employer, based on their interpretation of the comparative quality of the various tender offers. Their evaluation will be based on the information provided in the tender, in accordance with the returnable schedules referenced in the above table.

F2.1.1.3.2 Joint Ventures

Where the entity tendering is a Joint Venture, or where components of the work will be undertaken by sub-contractors, the tender offer must include a statement describing exactly what aspects of the Works will be undertaken by each party to the joint venture or each sub-contractor, as per Returnable Schedule. If this requirement is not met, the functionality criteria for the associated category will not be allocated to the tenderer.

F2.1.1.3.3 Functionality Criteria

Continued overleaf

l) Key personnel assigned to the work

Tenderers will be allocated a functionality score in accordance with Table 2, to rate the key personnel assigned to the Contract. The total points allocated in terms of Table 2 will in turn be pro-rated to a total weighting of 25, to carry through to the total allowed for key personnel in Table 1. In order to receive a Functionality Criteria score for key personnel, the tender offer must provide the information required in Schedule 16.1: Key personnel assigned to the Contract, Schedule 16.2: Proposed organisation and staffing, and Schedule 16.3: Experience of key personnel, in the format specified.

Table 2: Functionality score for key personnel							
Key Personnel Role	Qualification		Professional accreditation		Relevant experience		Maximum points available
	Type	Points	Type	Points	Years	Points	
Contract Manager/ Director	4yr Eng + Masters degree ^{\$}	3	ECSA Pr Eng	2	>25	5	10
					>20	4	
					>15	3	
	4yr Eng degree	2	ECSA Pr Eng	2	>25	5	9
					>20	4	
					>15	3	
3yr Eng diploma or BTech	1	ECSA Pr Tech	1	>25	5	7	
				>20	4		
				>15	3		
Contractor's Representative* (as defined in GCC)	4yr Eng + Masters degree	3	ECSA Pr Eng	2	>25	5	10
					>20	4	
					>15	3	
	4yr Eng degree	2	ECSA Pr Eng	2	>25	5	9
					>20	4	
					>15	3	
3yr Eng diploma or BTech	1	ECSA Pr Tech	1	>25	5	7	
				>20	4		
				>15	3		
Environmental Officer*	4yr Eng degree	1	SACNASP or similar	1	>5	1	3
Health and Safety Officer*	3yr Eng diploma	1	Member ACHASM	1	>5	1	3
Construction Managers * #	4yr Eng degree	2	ECSA Pr Eng	2	>20	4	5 x 8 = 40
					>15	3	
					>10	2	
	3yr Eng diploma or BTech	1	ECSA Pr Tech	1	>20	4	5 x 6 = 30
					>15	3	
					>10	2	
Other tertiary	1	NA		>20	4	5 x 5 = 25	
				>15	3		
				>10	2		
Total points available							66
*: Denotes full-time on Site							
#: A score for up to five Construction Managers will be allocated. Further instructions concerning Construction Managers and information required in support of an associated score, are contained in Schedule 16.1: Key personnel assigned to the Contract							
\$: The Masters degree may be an engineering degree, project management, business administration or similar degree							

ii) Evidence of planning for the project

Tenderers will be allocated a functionality score in accordance with Tables 3a to 3d, to rate the evidence and quality of preliminary planning for the Contract. The total points allocated in terms of Tables 3a to 3d will in turn be pro-rated to a total weighting of 40, to carry through to the total allowed for evidence of planning in Table 1. In order to receive a Functionality Criteria score for each category, the tender offer must provide the information required in terms of the respective table and the cross-referenced Returnable Schedules.

Table 3a: Functionality score for preliminary planning – Provision of method statement in compliance with Schedule 16.4: Method statement, demonstrating thorough understanding of the Works and the key factors required for successful execution thereof		
Extent to which associated preliminary planning is demonstrated		Points available
Nil	No associated evidence of planning.	0
Poor	The technical approach and / or methodology is poor / is unlikely to satisfy project objectives or requirements. The Tenderer has misunderstood certain aspects of the scope of work and does not deal with the critical aspects of the project. The approach is generic and not tailored to address the specific project objectives and methodology. The quality plan, manner in which risk is to be managed etc is too generic.	35
Satisfactory	The approach is specifically tailored to address the specific project objectives and methodology and is sufficiently flexible to accommodate changes that may occur during execution. The quality plan and approach to managing risk etc is specifically tailored to the critical characteristics of the project.	70
Excellent	Besides meeting the "good" rating, the important issues are approached in an innovative and efficient way, indicating that the Tenderer has outstanding knowledge of state-of-the-art approaches. The approach paper details ways to improve the project outcomes and the quality of the outputs.	100
Total points available		100
Table 3b: Functionality score for preliminary planning – Provision of an organogram and associated supporting information in compliance with Schedule 16.2: Proposed organisation and staffing		
Extent to which associated preliminary planning is demonstrated		Points available
Nil	No associated evidence of planning.	0
Poor	The organization chart is sketchy; the staffing plan is weak in important areas. There is no clarity in allocation of tasks and responsibilities.	35
Satisfactory	The organizational chart is complete and detailed, the technical level and composition of the staffing arrangements are adequate.	70
Good	Besides meeting the "satisfactory" rating, staff are well balanced i.e. they show good co-ordination, complimentary skills, clear and defined duties and responsibilities. Some members of the project team have worked together before on limited occasions.	90
Excellent	Besides meeting the "good" rating, the proposed team is well integrated and several members have worked together extensively in the past.	100
Total points available		100

Continued overleaf

Table 3c: Functionality score for preliminary planning – Provision of a preliminary programme of the Works in compliance with Schedule 11: Preliminary programme

Extent to which associated preliminary planning is demonstrated		Points available
Nil	No associated evidence of planning.	0
Poor	Programme is inadequate and/or considered unrealistic and does not achieve required completion date.	35
Satisfactory	Programme is considered realistic and adequately shows the main components and compliance with completion date.	70
Excellent	Programme is considered realistic and includes the main components and subcomponents and linkages and compliance with completion date.	100
Total points available		100

Table 3d: Functionality score for preliminary planning – Provision of a realistic estimated monthly cash flow forecast (Schedule 12) in compliance with Schedule 11: Preliminary programme

Extent to which associated preliminary planning is demonstrated		Points available
Nil	No associated evidence of planning.	0
Poor	The cash flow forecast is inadequate and/or considered unrealistic and does not match the preliminary programme.	6
Satisfactory	The cash flow forecast is considered realistic, matches the preliminary programme, and matches terms of payment specified in the Contract.	14
Excellent	Besides meeting the "satisfactory" rating, the cash flow forecast identifies major components of work which become due for payment in a clear and understandable format.	20
Total points available		20

iii) Tenderer's expertise and experience

Tenderers will be allocated a functionality score in accordance with Table 4, to rate their expertise and experience in work of a similar nature to that required for this Contract. The total points allocated in terms of Table 4 will in turn be pro-rated to a score out of 35, to carry through to the total allowed for Tenderer's expertise and experience in Table 1. In order to receive a score for each category, the tender offer must provide the information required in terms of Schedule O: Tenderer's expertise and experience, in the format specified. To allow for the time value of money, project construction values must be escalated at 4% per annum from the year of completion, compounded annually, until December 2016.

Continued overleaf

ADDENDUM TO TENDER DOCUMENTS (ATD) NO 1

ATD1 - 1 Part T1: T1.2: Tender Data (Volume 3)

ATD1 - 1.1 Delete the entire "Table 4: Functionality Score for Tenderer's Expertise and Experience", and replace with the following table:

Table 4-A: Functionality score for Tenderer's expertise and experience

Item No.	Project/component of work description	Points per project		Maximum Points per category
		Year when project completed	Points	
1	Civil work construction of water and waste water treatment works:			
1.1	Civil work construction of water and waste water treatment works of average dry weather flow (ADWF) capacity of less than 10 Mt/d (average daily flow), or Civil work construction of less than 10 Mt/d (average daily flow) capacity upgrades to water and waste water treatment works.	2002 to 2016	6	
		1997 to 2001	3	
	Civil work construction of water and waste water treatment works of average dry weather flow (ADWF) capacity greater than 10 Mt/d (average daily flow), or Civil work construction of greater than 10 Mt/d (average daily flow) capacity upgrades to water and waste water treatment works.	2002 to 2016	10	
		1997 to 2001	4	
2	Construction of the following reinforced concrete water retaining structures components:			
2.1	Inlet works with a capacity of less than 5 000 m ³ /d	2002 to 2016	6	9
		1997 to 2001	2	
	Inlet works with a capacity of more than 5 000 m ³ /d	2002 to 2016	9	
		1997 to 2001	5	
2.2	Biological reactor/ reservoir with a capacity of less than 5 000 m ³	2002 to 2016	5	10
		1997 to 2001	1	
	Biological reactor/ reservoir with a capacity of more than 5 000 m ³	2002 to 2016	10	
2.3	Secondary settling tank (SST)/ clarifier or primary sedimentation tank (PST) with a diameter of less than 20 m, or less than the same effective surface area for cases in which the tank is rectangular	2002 to 2016	5	8
		1997 to 2001	1	
	Secondary settling tank (SST)/ clarifier or primary sedimentation tank (PST) with a diameter of greater than 20 m, or greater than the same effective surface area for cases in which the tank is rectangular	2002 to 2016	8	
		1997 to 2001	3	
2.4	Breaking into and building on to existing structures (i.e. joining new structures to existing structures)	1997 to 2001	1	3
3	Construction of the following water and wastewater (sewage) bulk and/ or Interconnecting pipelines components:			
3.1	Pipelines less than 355 mm in diameter and at least 300m in length	2002 to 2016	5	5
		1997 to 2001	1	
3.2	Pipelines between 355 mm and 700 mm in diameter and at least 200m in length	2002 to 2016	7	7
		1997 to 2001	1	
3.3	Pipelines between 700 mm and 1000 mm in diameter and at least 100m in length	2002 to 2016	8	8
		1997 to 2001	1	
3.4	Pipelines greater than 1000 mm in diameter and at least 50m in length	2002 to 2016	10	10
		1997 to 2001	1	

Table 4-A: Functionality score for Tenderer's expertise and experience				
Item No.	Project/component/area of work/ description	Points per project		Maximum Points per category
		Year when project Completed	Points	
4	Construction of the following components:			
4.1	Building work with a construction value exceeding R 1.5 million excluding VAT	2002 to 2016	2	4
		1997 to 2001	1	
4.2	Road works/pavement with a construction value exceeding R 3 million excluding VAT	2002 to 2015	2	4
		1997 to 2001	1	
4.3	Bulk earthworks (for water and wastewater treatment works) with a construction value exceeding R 2 million excluding VAT	2002 to 2016	5	5
		1997 to 2001	3	
4.4	Underground fuel tanks with a capacity of at least 2 000 l	2002 to 2016	5	5
		to 2001	1	
4.5	Diversion of and connecting into live sewers of at least 300 mm in diameter	to 2016	5	5
		1997 to 2001	1	
4.6	HDPE corrosion protection (anchor knob sheeting) in pipeline or on concrete walls/surfaces of water retaining structures	2002 to 2016	5	5

F.2.1.1.4 Local Content

- a) The supplier shall study the terms and conditions as stated in the **Local Content Declaration / Annexure C** returnable schedule.

F.2.1.1.3.1 The stipulated minimum threshold percentages for local production and content for the **Electrical and Telecoms Cable sector** is 90% and for **Valve Products and Actuators** is 70% ("the designated sector") and will include all sub-sectors from the applicable National Treasury Instruction Note.

F.2.1.1.3.2 Only tenders with locally produced or locally manufactured raw material or input will be considered. If the raw material or input to be used for a specific item is not available locally, bidders should obtain written authorisation from the Department of Trade and Industry (DTI) (Chief Director: Industrial Procurement, tel. 012 394 3927 and fax 012 394 4927) should there be a need to import such raw material or input.

F.2.1.1.3.3 A copy of the authorisation letter must be submitted together with the bid document at the closing date and time of the bid.

F.2.1.1.3.4 The Employer is obliged and must ensure that contracts for the **designated sector** are awarded at prices that are market related taking into account, among others, benchmark prices designated by the DTI for the sector, value for money and economies of scale. Where appropriate, prices may be negotiated with preferred bidders in accordance with provisions for Negotiation with Preferred Bidders as set out in the City of Cape Town SCM Policy.

F.2.1.1.3.5 A bid will be declared non-responsive / disqualified if the **Local Content Declaration / Annexure C** returnable schedule as well as the authorisation letter referred to above (if applicable) are not submitted as part of the bid documentation at the closing date and time of the bid.

F.2.1.1.3.6 For further information relating to the local production and content legislation, bidders may refer to website http://www.thedti.gov.za/industrial_development/ind.jsp, or may contact the Chief Director: Industrial Procurement at the DTI at telephone number _____, the _____, the _____, and e-mail _____.

or DTI Contact Centre no 0861 843384.

F.2.7 Clarification meeting

Tender
Part T1: Tendering procedures
Reference No. 179Q/2016/17

Add the following:

The arrangements for a compulsory site visit/clarification meeting are as stated in the Tender Notice and Invitation to Tender.

Tenderers should be represented at the site visit/clarification meeting by a person who is suitably qualified and experienced to comprehend the implications of the work involved.

F.2.10 Pricing the tender offer

Add the following to F.2.10.3:

F.2.10.3 Tenderers are referred to Clause 6.8.2 in Part C1.2 Contract Data regarding contract price adjustment.

F.2.12 Alternative tender offers

Add the following to F.2.12.1:

F.2.12.1 If a tenderer wishes to submit an alternative tender offer, he shall do so as a separate offer on a separate set of tender documents. The alternative tender offer shall be submitted in a separate sealed envelope on a separate Form of Offer, both clearly marked "Alternative Tender" in order to distinguish it from the main tender offer.

While it is not necessary to duplicate all parts of the main tender offer, the alternative tender offer shall be supported by the following documents as applicable:

- a) the schedule that compares the alternative(s) offered with the requirements of the issued tender documents
- b) preliminary designs, calculations, drawings and all other pertinent technical information and characteristics must be submitted with the alternative tender offer, in order to enable the Employer to evaluate the efficacy of the alternatives proposed
- c) revised Bills of Quantities, or parts thereof, highlighting the changes made, together with a revised Summary, the total of which has been carried to the Form of Offer
- d) details of any proposed amendments to the Pricing Assumptions

Only the alternative of the highest ranked acceptable main tender offer (that is, submitted by the same tenderer) will be considered, and if appropriate, recommended for award.

Alternative tender offers of any but the highest ranked main tender offer will not be considered.

An alternative of the highest ranked acceptable main tender offer that is priced higher than the main tender offer may be recommended for award, provided that the ranking of the alternative tender offer is higher than the ranking of the next ranked acceptable main tender offer.

The Employer's costs in confirming the acceptability of the alternative offer will be, *inter alia*, taken into account in considering the alternative offer.

The Employer will not be bound to consider alternative tenders and shall have sole discretion in this regard.

In the event that the alternative is accepted, the Contractor shall accept full responsibility that the alternative offer complies in all respects with the Employer's standards and requirements.

F.2.13 Submitting a tender offer

Add the following to F.2.13.1:

F.2.13.1 Where the tendering entity is a joint venture it is recommended that the standard CIDB Joint Venture Agreement be used.

F.2.13.2 *Add the following to F.2.13.2:*

Printed Bills of Quantities, in the same format (that is, layout, billed items and quantities) as those issued electronically by the Employer on request, may be submitted in terms of F.4.12 c).

A CD containing electronic copies of the Tender Document in PDF format, plus C2.3; Bill of Quantities (in MS Excel format in addition to PDF format) will be made available to tenderers for the purposes of making the abovementioned hardcopy prints. These electronic copies of the tender documents are issued for the convenience of Tenderers. In the event of any discrepancy between the documents contained on or printed from the CD and that in the issued hardcopy Tender Documents, as amended by any addendum to tender, the requirements of the hardcopy Tender Documents shall prevail.

Add the following to F.2.13.3:

F.2.13.3 Parts of each tender offer communicated on paper shall be submitted as an original, plus 0 (nought) copies.

F.2.13.4 *Add the following after the first sentence of F.2.13.4:*
The tender shall be signed by a person duly authorised to do so. Tenders submitted by joint ventures of two or more firms shall be accompanied by the document of formation of the joint venture, in which is defined precisely the conditions under which the joint venture will function, its period of duration, the persons authorised to represent and obligate it, the participation of the several firms forming the joint venture, and any other information necessary to permit a full appraisal of its functioning.

F.2.13.5 *Add the following to F.2.13.5:*
The Employer's address for delivery of tender offers and identification details to be shown on each tender offer package are:

Location of tender box:	Tender Box 172.
Physical address:	Tender Submission Office, 2 nd Floor (Concourse level), Civic Centre, 12 Hertzog Boulevard, Cape Town.
Identification details:	Tender number 179Q/2016/17 Title of tender : CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER TREATMENT WORKS: CIVIL WORKS

Sealed tenders (including any alternative tenders) with the Tenderer's name and address and the endorsement "TENDER NO. 179Q/2016/17: CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER TREATMENT WORKS: CIVIL WORKS" on the envelope(s), must be placed in the appropriate official tender box at the abovementioned address.

F.2.13.6 *Add the following to F.2.13.6:*
A two-envelope procedure will **not** be followed (F.3.5).

F.2.13.10 *Add the following sub-clause after F.2.13.9:*
By signing the offer part of C1.1 Form of Offer and Acceptance the tenderer declares that all information provided in the tender submission is true and correct.

F.2.15 Closing time

F.2.15.1 *Add the following to F.2.15.1:*
The closing time for submission of tender offers is as stated in the Tender Notice and Invitation to Tender.

Telephonic, telegraphic, telex, facsimile or e-mailed tender offers will not be accepted.

F.2.16 Tender offer validity

F.2.16.1 *Add the following to F.2.16.1:*
The tender offer validity period is **12 weeks (84 days)**. Tenderers are also referred to F.4.13 in respect of the Section 33 process.

F.2.16.2 *Replace sub-clause F.2.16.2 with the following:*
Tender offers shall be deemed to remain valid until formal acceptance by the Employer of an offer at any time after the expiry date of the original tender offer validity period, unless the Employer is notified in writing of anything to the contrary, including any further conditions, by the tenderer.

Any further conditions introduced by the tenderer will be considered at the sole discretion of the Employer.

F.2.17 Clarification of tender offer after submission

Add the following to F.2.17:
A tender will be rejected as non-responsive if the tenderer fails to provide any clarification or supporting documentation requested by the Employer within the time for submission stated in the Employer's written request for such clarification or documentation. A tender will also be rejected as non-responsive if the tenderer fails, within the time stated in writing by the Employer, to comply with the requirements of F.4.3.

F.2.18 Provide other material

F.2.18.1 *Delete the following word in F.2.18.1:*
notarized

F.2.18.1 *Add the following to F.2.18.1:*
Provide, on written request by the Employer, where the transaction value (tendered amount) inclusive of VAT exceeds R 10 million:

- a) audited annual financial statement for the past 3 years, or for the period since establishment if established during the past 3 years, if required by law to prepare annual financial statements for auditing;
- b) a certificate signed by the tenderer certifying that the tenderer has no undisputed commitments for municipal services towards a municipality or other service provider in respect of which payment is overdue for more than 30 days;
- c) particulars of any contracts awarded to the tenderer by an organ of state during the past five years, including particulars of any material non-compliance or dispute concerning the execution of such contract;
- d) a statement indicating whether any portion of the goods or services are expected to be sourced from outside the Republic, and, if so, what portion and whether any portion of payment from the municipality or municipal entity is expected to be transferred out of the Republic.

Each party to a Consortium/Joint Venture shall submit separate certificates/statements in the above regard.

F.2.23 Certificates

Add the following:

The tenderer is required to submit the following:

F.2.23.1 Evidence of tax compliance

Tenderers shall be registered with the South African Revenue Service (SARS) and their tax affairs must be in order and they must be tax compliant. In this regard, it is the responsibility of the Tenderer to submit evidence in the form of a valid Tax Clearance Certificate issued by SARS to the Employer at the Supplier Management Unit located within the Tender Distribution Office, 2nd Floor (Concourse Level), Civic Centre, 12 Hertzog Boulevard, Cape Town (Tel 021 400 9242/3/4/5), or included with this tender. The tenderer must also provide its Tax Compliance Status PIN number on the Compulsory Enterprise Questionnaire.

Each party to a Consortium/Joint Venture shall submit a separate Tax Clearance Certificate.

Tenderers are to note that the Employer will not award a contract to a Tenderer whose tax matters are not in order.

F.2.23.2

Broad-Based Black Economic Empowerment Status Level Documentation

In order to qualify for preference points, it is the responsibility of the tenderer to submit documentary proof, either as certificates or sworn affidavits, of its B-BBEE status level of contribution in accordance with the applicable Codes of good practise as issued by the Department of Trade and Industry, to the CCT at the Supplier Management Unit located within the Tender Distribution Office, 2nd Floor (Concourse Level), Civic Centre, 12 Hertzog Boulevard, Cape Town (Tel 021 400 9242/3/4/5) or included with the tender submission.

Consortiums/Joint Ventures will qualify for preference points, provided that the entity submits the relevant certificate/scorecard in accordance with the applicable codes of good practise. Note that, in the case of unincorporated entities, a verified consolidated B-BBEE scorecard must be submitted in the form of a certificate with the tender.

Tenderers are further referred to the content of the **Preference Schedule** for the full terms and conditions applicable to the awarding of preference points.

The applicable code for this tender is the **Amended Codes of Good Practise (Generic Scorecard)** unless in possession of a valid sector certificate.

The tenderer shall indicate in Section 4 of the **Preference Schedule** the Level of Contribution in respect of the enterprise status or structure of the tendering entity (the supplier).

F.3 The Employer's undertakings

F.3.2 Issue Addenda

Add the following to F.3.2:

Notwithstanding any requests for confirmation of receipt of Addenda issued, the tenderer shall be deemed to have received such addenda if the employer can show proof of transmission thereof (or a notice in respect thereof) via electronic mail, facsimile or registered post.

F.3.4 Opening of tender submissions

Add the following to F.3.4.1:

F.3.4.1 The time and location for opening of the tender offers is:

Time: Tenders will be opened immediately after the closing time for receipt of tenders as stated in the Tender Notice and Invitation to Tender, or as stated in any Addendum extending the closing date.

Location: Tender Submission Office, 2nd Floor (Concourse Level), Civic Centre, 12 Hertzog Boulevard, Cape Town.

F.3.8 Test for responsiveness

Replace the first sentence of sub-clause F.3.8.1 with the following:

F.3.8.1 "Determine, after opening and before detailed evaluation, whether all tender offers properly received."

F.3.8.2 *Replace the final sentence of F.3.8.2 with the following:*

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

F.3.8.3 *Add the following two sub-clauses after F.3.8.2:*

Tenders will be considered non-responsive if, inter alia:

- a) the tender is not in compliance with the Scope of Work;
- b) the tenderer is not registered on the City of Cape Town's Vendor Database prior to the evaluation of submissions as stated in F.2.1.1.1 above;
- c) the tenderer does not comply with the CIDB registration (active status) and contractor grading designation specified in F.2.1.1.2 above;
- d) the tenderer has failed to clarify or submit any supporting documentation within the time for submission stated in the employer's written request as stated in F.2.17;
- e) the tenderer is not compliant with the requirements for local content as stated in F.2.1.1.3;
- f) the tenderer has failed to attend the compulsory clarification meeting.

Tenders may also be declared non-responsive if it is determined on reasonable grounds or evidence that the tenders are submitted by:

- g) tenderers who, notwithstanding having submitted duly completed certificates of independent tender determination (Returnable Schedule 2), are nevertheless deemed to have knowledge of the contents of any other tenderer's offer and/or a certificate is not true and correct in every respect;
- h) tenderers in a horizontal relationship which has the effect of substantially preventing or lessening competition in a market, subject to the exceptions as set out in section 4(1)(a) of the Competitions Act, 89 of 1998;
- i) tenderers who are presumed to be firms engaged in a restrictive horizontal practice as contemplated in section 4(1)(b) read with section 2 of the Competitions Act, 89 of 1998;
- j) tenderers in a vertical relationship which has the effect of substantially preventing or lessening competition in a market, subject to the exceptions as set out in section 5(1) of the Competitions Act, 89 of 1998.

F.3.8.4 The Employer reserves the right to accept a tender offer which does not, in the Employer's opinion, materially and/or substantially deviate from the terms, conditions, and specifications of the tender documents.

F.3.11 Evaluation of tender offers

F.3.11.3 Method 2 : Financial offer and preferences

Add the following to F.3.11.3 d):

Such reasons (objective criteria) include whether the recommended tenderer:

- i) has demonstrated that it has the necessary resources and skills required to fulfil its obligations in terms of the tender document;
- ii) poses any commercial or legal risk to the City;
- iii) is currently subject to action in accordance with the policy for combating abuse of the Supply Chain Management System.

F.3.11.7 Scoring Financial Offers

Add the following:

The financial offer will be scored using **Formula 2 (Option 1)** where the value of W_1 is 90 points.

F.3.11.8 Scoring Preferences

Add the following:

Points will be awarded to tenderers who are eligible for preferences in terms of the **Preference Schedule** (where preferences are granted in respect of B-BBEE contribution) which is included in T2.2 Returnable Schedules.

The terms and conditions of the **Preference Schedule** shall apply in all respects to the tender evaluation process and any subsequent contract.

Points for Preference

A maximum of 100 minus W_1 tender evaluation points will be awarded for preference to tenderers with responsive tenders, who are eligible for such preference, in accordance with the criteria listed below.

The Tenderer shall indicate on the **Preference Schedule** his or her company/firm/entity's B-BBEE status level of contributor.

Up to 10 tender evaluation points (N_p) will be awarded for the level of B-BBEE contribution, in accordance with the tables below:

Exempted Micro Enterprises (EMEs)

Black Ownership	Deemed B-BBEE Status Level of Contributor	Number of Points (N_p)
Less than 51%	4	5
at least 51% but less than 100%	2	9
100%	1	10

Qualifying Small Enterprises (QSEs)

Black Ownership	Deemed B-BBEE Status Level of Contributor	Number of Points (N_p)
at least 51% but less than 100%	2	9
100%	1	10

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

¹ A non-compliant contributor is one who does not meet the minimum score for a level 8 contributor, or who is not verified in terms of the applicable Codes of Good Practice.

Add the following new sub-clause after F.3.11.9:

F.3.11.10

Risk Analysis

Notwithstanding compliance with regard to CIDB registration or any other requirements of the tender, the employer will perform a risk analysis in respect of the following:

- reasonableness of the financial offer
- reasonableness of unit rates and prices
- the tenderer's ability to fulfil its obligations in terms of the tender document, that is, that the tenderer can demonstrate that he/she possesses the necessary professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, capacity, experience, reputation, personnel to perform the contract, etc.; the employer reserves the right to consider a tenderer's existing contracts with the City of Cape Town in this regard.

No tenderer will be recommended for an award unless the tenderer has demonstrated to the satisfaction of the employer that he/she has the resources and skills required.

F3.13

Acceptance of tender offer

Add the following to F.3.13:

F.3.13.1

Tender offers will only be accepted if:

- the tenderer is registered and in good standing with the South African Revenue Service (SARS) and has submitted evidence in the form of an original valid Tax Clearance Certificate issued by SARS;
- the tenderer or any of its directors is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act, 12 of 2004 as a person prohibited from doing business with the public sector;
- the tenderer has not:
 - abused the Employer's Supply Chain Management System; or

- ii) failed to pay municipal rates and taxes or service charges and such rates, taxes and charges are in arrears for more than three months;
 - d) the tenderer has completed the Compulsory Enterprise Questionnaire and there are no conflicts of interest which may impact on the tenderer's ability to perform the contract in the best interests of the employer or potentially compromise the tender process.
- F.3.13.2 **Objections, complaints, queries and disputes/ Appeals in terms of Section 62 of the Systems Act/ Access to court**
- F.3.13.2.1 **Disputes, objections, complaints and queries**
In terms of Regulations 49 and 50 of the Local Government: Municipal Finance Management Act, 56 of 2003 - Municipal Supply Chain Management Regulations (Board Notice 868 of 2005):
 - a) Persons aggrieved by decisions or actions taken by the City of Cape Town in the implementation of its supply chain management system, may lodge within 14 days of the decision or action, a written objection or complaint or query or dispute against the decision or action.
- F.3.13.2.2 **Appeals**
 - a) In terms of Section 62 of the Local Government: Municipal Systems Act, 32 of 2000 a person whose rights are affected by a decision taken by the City, may appeal against that decision by giving written notice of the appeal and reasons to the City Manager within 21 days of the date of the notification of the decision.
 - b) An appeal must contain the following:
 - i) Must be in writing
 - ii) It must set out the reasons for the appeal
 - iii) It must state in which way the Appellant's rights were affected by the decision;
 - iv) It must state the remedy sought; and
 - v) It must be accompanied with a copy of the notification advising the person of the decision
- F.3.13.2.3 **Right to approach the courts and rights in terms of Promotion of Administrative Justice Act, 3 of 2000 and Promotion of Access to Information Act, 2 of 2000**
The sub-clauses above do not influence any affected person's rights to approach the High Court or its rights in terms of the Promotion of Administrative Justice Act and Promotion of Access to Information Act.
- F.3.13.2.4 **All requests referring to this clause must be submitted in writing to:**
The City Manager - C/o the Manager: Statutory Compliance Unit, Legal Services Department, Corporate Services and Compliance Directorate
Via hand delivery at: 20th Floor, Tower Block, 12 Hertzog Boulevard, Cape Town 8001
Via post at: Private Bag X918, Cape Town, 8000
Via fax at
Via email
- F.3.16 **Notice to unsuccessful tenderers**
Replace the heading above with:
Notice to successful and unsuccessful tenderers
- F.3.16.1 *Add the following to F.3.16.1:*
Before accepting the tender of the successful tenderer the Employer shall notify the successful tenderer in writing of the decision of the Employer's Bid Adjudication Committee to award the tender to the successful tenderer. No rights shall accrue to the successful tenderer in terms of this notice, and only once the processes described in F.3.13.2 and F.3.13.3 above have been completed can the Employer sign the Acceptance part of the Form of Offer and Acceptance.
- F.3.16.2 *Replace sub-clause F.3.16.2 with the following:*
The Employer shall, at the same time as notifying the successful tenderer of the Bid Adjudication Committee's decision to award the tender to the successful tenderer, also give written notice to the other tenderers informing them that they have been unsuccessful.
- F.3.17 **Provide copies of the contract**
Add the following:
The number of paper copies of the signed contract to be provided by the Employer is one.

F.4 Additional Conditions of Tender

The additional conditions of tender are:

F.4.1 Compliance with Occupational Health and Safety Act, 85 of 1993

Tenderers are to note the requirements of the Occupational Health and Safety Act, 85 of 1993 and the Construction Regulations, 2014 issued in terms of Section 43 of the Act. The Tenderer shall be deemed to have read and fully understood the requirements of the above Act and Regulations and to have allowed for all costs in compliance therewith.

In this regard the Tenderer shall submit with his tender, appended to Schedule 14: Health and Safety Plan in T2.2 : Returnable Schedules, a Health and Safety Plan in respect of the Works in sufficient detail to demonstrate the necessary competences and resources to perform the construction work all in accordance with the Act, Regulations and Health and Safety Specification in Part C3.5 Management in the Scope of Work. Such Health and Safety Plan shall cover, *inter alia*, the following details:

- a) Management Structure, Site Supervision and Responsible Persons including a succession plan.
- b) Contractor's induction training programme for employees, sub-contractors and visitors to the Site.
- c) Health and safety method statements and procedures (inclusive of PPE requirements) to be adhered to in order to ensure compliance with the Act, Regulations and the project specific Health and Safety Specification.
- d) Regular monitoring procedures to be performed.
- e) Regular liaison, consultation and review meetings with all parties.
- f) Site security, welfare facilities and first aid.
- g) Site rules and fire and emergency procedures.

F.4.2 Claims arising after submission of tender

No claim for any extras arising out of any doubt or obscurity as to the true intent and meaning of anything shown on the Contract Drawings or contained in the Conditions of Contract, Scope of Work and Pricing Data, will be admitted by the Employer after the submission of any tender and the Tenderer shall be deemed to have:

- a) inspected the Contract Drawings and read and fully understood the Conditions of Contract.
- b) read and fully understood the whole text of the Scope of Work and Pricing Data and thoroughly acquainted himself with the nature of the works proposed and generally of all matters which may influence the Contract.
- c) visited the site of the proposed works, carefully examined existing conditions, the means of access to the site, the conditions under which the work is to be done, and acquainted himself with any limitations or restrictions that may be imposed by the Municipal or other Authorities in regard to access and transport of materials, plant and equipment to and from the site and made the necessary provisions for any additional costs involved thereby.
- d) requested the Employer or his duly authorised agent to make clear the actual requirements of anything shown on the Contract Drawings or anything contained in the Scope of Work and Pricing Data, the exact meaning or interpretation of which is not clearly intelligible to the Tenderer.
- e) received any Addenda to the tender documents which have been issued in accordance with the Employer's Supply Chain Management Policy.

Before submission of any tender, the Tenderer should check the number of pages, and if any are found to be missing or duplicated, or the figures or writing indistinct, or if the Pricing Data contain any obvious errors, the Tenderer must apply to the Employer's agent at once to have the same rectified, as no liability will be admitted by the Employer in respect of errors in any tender due to the foregoing.

F.4.3 Imbalance in tendered rates

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

The Tenderer will then have the option to alter and/or amend the rates and lump sums objected to and such other related amounts as are agreed on by the Employer, but this shall be done without altering the tender offer as tendered or, if applicable, the corrected total of prices in accordance with F.3.9.3.

Should the Tenderer fail to amend his tender in a manner acceptable to and within the time stated by the Employer, the Employer may reject the tender.

F.4.4 Targeted labour

It is a requirement of the Contract that the work be executed in such a manner as to maximise the use of labour intensive construction methods in order to provide low and semi-skilled employment opportunities.

To this end, a minimum targeted labour contract participation goal (CPGL) has been specified in Part C3: Scope of Work. This minimum CPGL must be achieved by the Contractor in the performance of the contract, failing which, penalties as described will be applied.

F.4.5 Targeted enterprises
Not used

F.4.6 Community liaison officer
Not used

F.4.7 Invalid tenders

Tenders shall be considered invalid by the Bid Evaluation Committee if:

- a) the tender offer (including the tender price/amount) is not submitted on the Form of Offer and Acceptance (form C1.1, Part C1: Agreements and Contract Data);
- b) the returnable document is not completed in non-erasable handwritten, or printed, ink or toner;
- c) the Form of Offer and Acceptance has not been signed with an original signature;
- d) the Form of Offer and Acceptance is signed, but the name of the tenderer is not stated or is indecipherable;
- e) in a two envelope system, the tenderer fails to submit a separately sealed financial offer.

F.4.8 Negotiations with preferred tenderers

The Employer may negotiate the final terms of a contract with tenderers identified through a competitive tendering process as preferred tenderers provided that such negotiation:

- a) does not allow any preferred tenderer a second or unfair opportunity;
- b) is not to the detriment of any other tenderer; and
- c) does not lead to a higher price than the tender as submitted.

If negotiations fail to result in acceptable contract terms, the Employer may terminate the negotiations and invite the next ranked tenderer for negotiations. The original preferred tenderer will be informed of the reasons for termination of the negotiations. Once negotiations are commenced with the next ranked tenderer, the Employer will not re-open earlier negotiations.

Minutes of any such negotiations shall be kept for record purposes.

F.4.9 General supply chain management conditions applicable to tenders

In terms of its Supply Chain Management Policy, the Employer may not consider a tender unless the provider who submitted the tender:

- a) has furnished the Employer with that provider's:
 - i) full name;
 - ii) identification number or company or other registration number; and
 - iii) tax reference number and VAT registration number, if any.
- b) has indicated whether:
 - i) the provider is in the service of the state, or has been in the service of the state in the previous twelve months;
 - ii) if the provider is not a natural person, whether any of the directors, managers, principal shareholders or stakeholders is in the service of the state, or has been in the service of the state in the previous twelve months; or
 - iii) whether a spouse, child or parent of the provider or of a director, manager, shareholder or stakeholder referred to above is in the service of the state, or has been in the service of the state in the previous twelve months.
- c) has attended a compulsory site inspection, where applicable.

Irrespective of the procurement process followed, the Employer is prohibited from making an award to:

- d) a person who is in the service of the state;
- e) a juristic entity of which any director, manager, principal shareholder or stakeholder is in the service of the state;
- f) an advisor or consultant contracted with the Employer; or
- g) a person, advisor or corporate entity involved with the bid specification committee, or a director of such corporate entity. "Involved with the bid specification committee" includes where a person, advisor or corporate entity (or its director) was involved in the initial stages of the project which resulted in the specification; and they are therefore prohibited from tendering for resulting contracts.

In this regard, tenderers shall complete Schedule 1, Part T2.2 Returnable Schedules: Compulsory Enterprise Questionnaire. Failure to complete this schedule may result in the tender not being considered.

F.4.10 Combating abuse of the Supply Chain Management Policy

In terms of its Supply Chain Management Policy, the Employer may reject the tender of any tenderer if that tenderer or any of its directors has:

- a) failed to pay municipal rates and taxes or municipal service charges and such rates, taxes and charges are in arrears for more than three months;
- b) failed, during the last five years, to perform satisfactorily on a previous contract with the Employer or any other organ of state after written notice was given to that tenderer that performance was unsatisfactory;
- c) abused the supply chain management system of the Employer or has committed any improper conduct in relation to this system;
- d) been convicted of fraud or corruption during the past five years;
- e) wilfully neglected, reneged on or failed to comply with any government, municipal or other public sector contract during the past five years; or
- f) been listed with the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act, 12 of 2004 or has been listed on National Treasury's Database of Restricted Suppliers as a person or juristic entity prohibited from doing business with the public sector.

In this regard, tenderers shall complete Schedules 2 and 4, Part T2.2 Returnable Schedules: Certificate of Independent Tender Determination and Declaration of Tenderer's past Supply Chain Management Practices, respectively. Failure to complete these schedules may result in the tender not being considered.

F.4.11 UIF payments

The Tenderer shall submit to the Employer a letter from the Industrial Council indicating his or her good standing with regard to UIF payments upon being requested to do so.

F.4.12 Requests for contract documents, or parts thereof, in electronic format

The Employer shall not formally issue tender documents in electronic format as contemplated in F.2.13.2 and F.2.13.3 and shall only issue tender documents in hardcopy. An electronic version of the issued tender documents may be made available to the tenderer, upon written request in terms of this clause, subject to the following:

- a) Electronic copies of the issued tender documents, or parts thereof, will only be provided to tenderers who have been issued with the tender documents as contemplated in F.1.2 in hardcopy.
- b) The electronic version shall not be regarded as a substitute for the issued tender documents.
- c) The Employer shall not accept tenders submitted in electronic format. Only those tenders that have been completed on the issued hard copy tender document shall be considered, provided that printed Bills of Quantities, in the same format (that is, layout, billed items and quantities) as those issued electronically by the Employer, may be submitted with the tender as stated in F.2.13.2. Where Addenda have been issued which amend the Bills of Quantities, then the printed Bills of Quantities shall take these into account. The pages of the issued Bills of Quantities should not be removed from the tender document.
- d) The Employer accepts no responsibility or liability arising from any reliance on or use of the electronic version provided in terms of this clause. The Employer further does not guarantee that the electronic version corresponds with the issued tender documents in all respects. Tenderers are alerted to the fact that electronic versions of the tender documents may not reflect any notices or addenda that amend the tender document.
- e) Any non-compliance with these provisions, including effecting any unauthorised alterations to the tender documents as contemplated in F.2.11, shall render the tender non-responsive. The Employer reserves the right to take any action against such tenderer allowed in law including, in circumstances where the tender had already been awarded, the right to cancel the contract.
- f) In requesting the electronic version of the tender documents or parts thereof, the tenderer is deemed to have read, understood and accepted all of the above conditions.

F.4.13 Contracts having future budgetary implications

As this project will exceed the current budget cycle, it is subject to Section 33 of the Municipal Finance Management Act, 56 of 2003, and consequently the Employer must follow the required processes in terms of Section 33. These will run concurrently with the procurement process for this tender/contract.

Annex F (normative)

Standard Conditions of Tender

F.1 General

F.1.1 Actions

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

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

- Note:
- 1) A conflict of interest may arise due to a conflict of roles which might provide an incentive for improper acts in some circumstances. A conflict of interest can create an appearance of impropriety that can undermine confidence in the ability of that person to act properly in his or her position even if no improper acts result.
 - 2) Conflicts of interest in respect of those engaged in the procurement process include direct, indirect or family interests in the tender or outcome of the procurement process and any personal bias, inclination, obligation, allegiance or loyalty which would in any way affect any decisions taken.

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

F.1.2 Tender Documents

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

F.1.3 Interpretation

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

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

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

- a) **conflict of interest** means any situation in which:
 - i) someone in a position of trust has competing professional or personal interests which make it difficult to fulfill his or her duties impartially;
 - ii) an individual or organisation is in a position to exploit a professional or official capacity in some way for their personal or corporate benefit; or
 - iii) incompatibility or contradictory interests exist between an employee and the organisation which employs that employee.
- b) **comparative offer** means the tenderer's financial offer after all tendered parameters that will affect the value of the financial offer have been taken into consideration in order to enable comparisons to be made between offers on a comparative basis.
- 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; and
- 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) **quality (functionality)** means the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs.

F.1.4 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. Communication 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.

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

F.1.5.1 The employer may accept or reject any variation, deviation, tender offer, or alternative tender offer, and may cancel the tender process and reject all tender offers at any time before the formation of a contract. The employer shall not accept or incur any liability to a tenderer for such cancellation and rejection, but will give written reasons for such action upon written request to do so.

F.1.5.2 The employer may not subsequent to the cancellation or abandonment of a tender process or the rejection of all responsive tender offers re-issue a tender covering substantially the same scope of work within a period of six months unless only one tender was received and such tender was returned unopened to the tenderer.

F.1.6 Procurement procedures

F.1.6.1 General

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

F.1.6.2 Competitive negotiation procedure

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

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

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

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

F.1.6.3 Proposal procedure using the two stage-system

F.1.6.3.1 Option 1

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

F.1.6.3.2 Option 2

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

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

F.2 Tenderer's obligations

F.2.1 Eligibility

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

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

F.2.2 Cost of tendering

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.

F.2.3 Check documents

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

F.2.4 Confidentiality and copyright of documents

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

F.2.5 Reference documents

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

F.2.6 Acknowledge addenda

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

F.2.7 Clarification meeting

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

F.2.8 Seek clarification

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

F.2.9 Insurance

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

F.2.10 Pricing the tender offer

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

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

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

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

F.2.11 Alterations to documents

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

F.2.12 Alternative tender offers

F.2.12.1 Unless otherwise stated in the tender data submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted. The alternative tender offer is to be submitted with the main tender offer together with a schedule that compares the requirements of the tender documents with the alternative requirements the tenderer proposes.

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

F.2.13 Submitting a tender offer

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

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

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

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

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

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

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

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

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

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

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

F.2.15 Closing time

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

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

F.2.16 Tender offer validity

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

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

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

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

F.2.17 Clarification of tender offer after submission

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

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

F.2.18 Provide other material

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

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

F.2.19 Inspections, tests and analysis

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

F.2.20 Submit securities, bonds, policies, etc.

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.

F.2.21 Check final draft

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

F.2.22 Return of other tender documents

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

F.2.23 Certificates

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

F.3 The Employer's undertakings

F.3.1 Respond to requests from the tenderer

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

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

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

F.3.2 Issue Addenda

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

F.3.3 Return late tender offers

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

F.3.4 Opening of tender submissions

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

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

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

F.3.5 Two-envelope system

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

F.3.5.2 Evaluate the quality 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 quality evaluation more than the minimum number of points for quality stated in the tender data, and announce the score obtained for the technical proposals and the total price and any preferences claimed. Return unopened financial proposals to tenderers whose technical proposals failed to achieve the minimum number of points for quality.

F.3.6 Non-disclosure

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

F.3.7 Grounds for rejection and disqualification

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

F.3.8 Test for responsiveness

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

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

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

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

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

F.3.9 Arithmetic errors, omissions and discrepancies

F.3.9.1 Check responsive tenders for discrepancies between amounts in words and amounts in figures. Where there is a discrepancy between the amounts in figures and the amount in words, the amount in words shall govern.

F.3.9.2 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.

F.3.9.3 Notify the tenderer of all errors or omissions that are identified in the tender offer and either confirm the tender offer as tendered or accept the corrected total of prices.

F.3.9.4 Where the tenderer elects to confirm the tender offer as tendered, correct the errors as follows:

- a) 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.
- b) 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.

F.3.10 Clarification of a tender offer

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

F.3.11 Evaluation of tender offers

F.3.11.1 General

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

F.3.11.2 Method 1: Financial offer

In the case of a financial offer:

- a) Rank tender offers from the most favourable to the least favourable comparative offer.
- b) Recommend the highest ranked tenderer for the award of the contract, unless there are compelling and justifiable reasons not to do so.
- c) Re-rank all tenderers should there be compelling and justifiable reasons not to recommend the highest ranked tenderer and recommend the highest ranked tenderer, unless there are compelling and justifiable reasons not to do so and the process set out in this subclause is repeated.

F.3.11.3 Method 2: Financial offer and preference

In the case of a financial offer and preferences:

- a) Score each tender in respect of the financial offer made and preferences claimed, if any, in accordance with the provisions of F.3.11.7 and F.3.11.8.
- b) Calculate the total number of tender evaluation points (T_{EV}) in accordance with the following formula:

$$T_{EV} = N_{FO} + N_P$$

where: N_{FO} is the number of tender evaluation points awarded for the financial offer made in accordance with F.3.11.7;
 N_P is the number of tender evaluation points awarded for preferences claimed in accordance with F.3.11.8.

- c) Rank tender offers from the highest number of tender evaluation points to the lowest.
- d) Recommend the tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.
- e) Rescore and re-rank all tenderers should there be compelling and justifiable reasons not to recommend the tenderer with the highest number of tender evaluation points, and recommend the tenderer with the highest number of tender evaluation points, unless there are compelling and justifiable reasons not to do so and the process set out in this subclause is repeated.

F.3.11.4 Method 3: Financial offer and quality

In the case of a financial offer and quality:

- a) Score each tender in respect of the financial offer made and the quality offered in accordance with the provisions of F.3.11.7 and F.3.11.9, rejecting all tender offers that fail to score the minimum number of points for quality stated in the tender data, if any.
- b) Calculate the total number of tender evaluation points (T_{EV}) in accordance with the following formula:

$$T_{EV} = N_{FO} + N_Q$$

where: N_{FO} is the number of tender evaluation points awarded for the financial offer made in accordance with F.3.11.7;
 N_Q is the number of tender evaluation points awarded for quality offered in accordance with F.3.11.9.

- c) Rank tender offers from the highest number of tender evaluation points to the lowest.
- d) Recommend tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.
- e) Rescore and re-rank all tenderers should there be compelling and justifiable reasons not to recommend the tenderer with the highest number of tender evaluation points and recommend the tenderer with the highest number of tender evaluation points, unless there are compelling and justifiable reasons not to do so and the process set out in this subclause is repeated.

F.3.11.5 Method 4: Financial offer, quality and preferences

In the case of a financial offer, quality and preferences:

- a) Score each tender in respect of the financial offer made, preference claimed, if any, and the quality offered in accordance with the provisions of F.3.11.7 to F.3.11.9, rejecting all tender offers that fail to score the minimum number of points for quality stated in the tender data, if any.
- b) Calculate the total number of tender evaluation points (T_{EV}) in accordance with the following formula, unless otherwise stated in the Tender Data:

$$T_{EV} = N_{FO} + N_P + N_Q$$

where: N_{FO} is the number of tender evaluation points awarded for the financial offer made in accordance with F.3.11.7;
 N_P is the number of tender evaluation points awarded for preferences claimed in accordance with F.3.11.8;
 N_Q is the number of tender evaluation points awarded for quality offered in accordance with F.3.11.9.

- c) Rank tender offers from the highest number of tender evaluation points to the lowest.

- d) Recommend the tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.
- e) Rescore and re-rank all tenderers should there be compelling and justifiable reasons not to recommend the tenderer with the highest number of tender evaluation points and recommend the tenderer with the highest number of tender evaluation points, unless there are compelling and justifiable reasons not to do so and the process set out in this subclause is repeated.

F.3.11.6 Decimal places

Score financial offers, preferences and quality, as relevant, to two decimal places.

F.3.11.7 Scoring Financial Offers

Score the financial offers 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 the financial offer,
 W_1 is the maximum possible number of tender evaluation points awarded for the financial offer as stated in the Tender Data.
 A is a number calculated using the formula and option described in Table F.1 as stated in the Tender Data.

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

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

F.3.11.8 Scoring preferences

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

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

F.3.11.9 Scoring quality

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

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

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

where: S_Q is the score for quality allocated to the submission under consideration;
 M_S is the maximum possible score for quality in respect of a submission; and
 W_2 is the maximum possible number of tender evaluation points awarded for the quality as stated in the tender data.

F.3.12 Insurance provided by the employer

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

F.3.13 Acceptance of tender offer

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

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

F.3.14 Prepare contract documents

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

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

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

F.3.15 Complete adjudicator's contract

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

F.3.16 Notice to unsuccessful tenderers

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

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

F.3.17 Provide copies of the contracts

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

F.3.18 Provide written reasons for actions taken

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

Annex G
(normative)

Alpha-numerics associated with the Contractor Grading Designations

Table G1: Contractor grading designations and associated parameters

Contractor Grading Designation	Tender Value Range designation	Maximum value of contract that a contractor is considered capable of performing (R)
1 (class of construction works)	1	200 000
2 (class of construction works)	2	650 000
3 (class of construction works)	3	2 000 000
4 (class of construction works)	4	4 000 000
5 (class of construction works)	5	6 500 000
6 (class of construction works)	6	13 000 000
7 (class of construction works)	7	40 000 000
8 (class of construction works)	8	130 000 000
9 (class of construction works)	9	No Limit

Table G2: Classes of construction work (see next page)

Table G2: Classes of construction work

Description	Designation	Definition	Work types	Examples
Civil engineering works	CE	Construction works that are primarily concerned with materials such as steel, concrete, earth and rock and their application in the development, extension, installation, maintenance, removal, renovation, alteration, or dismantling of building and engineering infrastructure	Water, sewerage, roads, railways, harbours and transport, urban development and municipal services	Structures such as a cooling tower, bridge, culvert, dam, grand stand, road, railway, reservoir, runway, swimming pool, silo or tunnel. The results of operations such as dredging, earthworks and geotechnical processes. Township services, water treatment and supply, sewerage works, sanitation, soil conservation works, irrigation works, storm-water and drainage works, coastal works, ports, harbours, airports and pipelines.
Electrical engineering works (Infrastructure)	EP	Construction works that are primarily concerned with development, extension, installation, removal, renovation, alteration or dismantling of engineering infrastructure: a) relating to the generation, transmission and distribution of electricity; or b) which cannot be classified as EB.	Electrical power generation, transmission, control and distribution equipment and systems.	Power generation Street and area lighting Substations and protection systems Township reticulations Transmission Lines Supervisory control and data acquisition systems
Electrical engineering works (buildings)	EB	Construction works that are primarily concerned with the installation, extension, modification or repair of electrical installations in or on any premises used for the transmission of electricity from a point of control to a point of consumption, including any article forming part of such an installation	All electrical equipment forming an integral and permanent part of buildings and/or structures, including any wiring, cable jointing and laying and electrical overhead line construction	Electrical installations in buildings Electrical reticulations within a plot of land (erf) or building site Standby plant and uninterrupted power supply Verification and certification of electrical installations on premises

Description	Designation	Definition	Work types	Examples
General building works	GB	Construction works that: a) are primarily concerned with the development, extension, installation, renewal, renovation, alteration, or dismantling of a permanent shelter for its occupants or contents; or b) cannot be categorised in terms of the definitions provided for civil engineering works, electrical engineering works, mechanical engineering works, or specialist works.	Buildings and ancillary works other than those categorised as being: a) civil engineering works; b) electrical engineering works; c) mechanical engineering works; or d) specialist works.	Buildings for domestic, industrial, institutional or commercial occupancies Car ports Stores Walls
Mechanical engineering works	ME	Construction works that are primarily concerned with the development, extension, installation, removal, alteration, renewal of engineering infrastructure for gas transmission and distribution, solid waste disposal, heating, ventilation and cooling, chemical works, metallurgical works, manufacturing, food processing and materials handling	Machine systems including those relating to the environment of building interiors: a) gas transmission and distribution systems b) pipelines c) solid waste disposal d) materials handling, lifting machinery, heating, ventilation and cooling, pumps, e) continuous process systems f) chemical works, metallurgical works, manufacturing, food processing such as that in concentrator machinery and apparatus, oil and gas wells, smelters, cyanide plants, acid plants, metallurgical machinery, equipment and apparatus, and works necessary for the beneficiation of metals, minerals, rocks, petroleum and organic chemical processes.	Air-conditioning and mechanical ventilation Boiler installations and steam distribution Central heating Centralised hot water generation Cranes and hoists Dust and sawdust extraction Compressed air, gas and vacuum installations Conveyor and materials handling installations Continuous process systems involving chemical works, metallurgical works, oil and gas wells, acid plants, metallurgical machinery, equipment and apparatus, and works necessary for the beneficiation of metals, minerals, rocks, petroleum and organic substances and other chemical processes Kitchen equipment Laundry equipment Lift installations and escalators Refrigeration and cold rooms Waste handling systems (including compactors)

Description	Designation	Definition	Work types	Examples
Specialist works	SB	A subset of construction works identified and defined by the Board that involves specialist capabilities for its execution	The extension, installation, repair, maintenance or renewal, or removal, of asphalt	
	SC		The development, extension, installation, removal, and dismantling, as relevant, associated with building excavations, shaft sinking and lateral earth support	
	SD		The development, extension, installation, repair, renewal, removal, or alteration of corrosion protection systems (cathodic, anodic and electrolytic)	
	SE		Demolition of buildings and engineering infrastructure and blasting	
	SF		The development, extension, installation, removal, renewal, renovation, alteration or dismantling of fire prevention and protection infrastructure (drencher and sprinkler systems and fire installation)	
	SG		The development, extension, installation, removal, renewal, renovation, alteration or dismantling of glazing, curtain walls and shop fronts	
	SH		The development, extension, installation, maintenance, renewal, removal, alteration or dismantling, as relevant, of landscaping, irrigation and horticultural works	
	SI		The development, extension, installation, repair, maintenance, renewal, removal, renovation, alteration or dismantling of lifts, escalators, travellers and hoisting machinery	
	SJ		The development, installation, removal, or dismantling, as relevant, of piles and other specialized foundations for buildings and structures	
	SK		The installation, renewal, removal, alteration or dismantling, as relevant, road markings and signage	
	SL		The development, extension, installation, removal, renewal, renovation, alteration or dismantling of structural steelwork and scaffolding	
	SM		Timber buildings and structures	
	SN		The extension, installation, repair, maintenance, renewal, removal, renovation or alteration, as relevant, of the waterproofing of basements, roofs and walls using specialist systems.	
	SO		The development, extension, installation, removal, renewal, alteration or dismantling or demolition of water installations and soil and waste water drainage associated with buildings (wet services, plumbing)	
	SQ		The development, extension, installation, repairs, dismantling of precast walls, installation of wire perimeter fencing, diamond perimeter fencing, palisade steel fencing with posts and stay at intervals	

Part T2: Returnable Documents

T2.1 List of Returnable Documents	Pages 32
T2.2 Returnable Schedules	33 – 78

T2.1 LIST OF 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, the tenderers shall provide all information requested.

T2.1 LIST OF RETURNABLE SCHEDULES Failure to submit these applicable schedules will result in the tender offer being disqualified from further consideration.			
Note: "For Contractor's Proposal" means the respective document, where ticked, forms part of the Contractor's Proposal in terms of Clause 12 of the Conditions of Contract, and will be incorporated into the Contract			
1. RETURNABLE SCHEDULES REQUIRED FOR TENDER EVALUATION AND CONTRACT PURPOSES			
SCHEDULE 1	COMPULSORY ENTERPRISE QUESTIONNAIRE	For tender evaluation purposes	Tick if completed and submitted ☒
SCHEDULE 2	CERTIFICATE OF INDEPENDENT TENDER DETERMINATION	For tender evaluation purposes	Tick if completed and submitted ☒
SCHEDULE 3	CERTIFICATE OF AUTHORITY FOR JOINT VENTURES	Forms part of Contractor's Proposal	Tick if completed and submitted ☒
SCHEDULE 4	DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES	For tender evaluation purposes	Tick if completed and submitted ☒
SCHEDULE 5	CERTIFICATE FOR MUNICIPAL SERVICES AND PAYMENTS TO SERVICE PROVIDER	For tender evaluation purposes	Tick if completed and submitted ☒
SCHEDULE 6	BARGAINING COUNCIL CERTIFICATE AND DECLARATION IN RESPECT OF MINIMUM WAGE (not used)	Void	
SCHEDULE 7	CONFIRMATION OF CoCT VENDOR DATABASE REGISTRATION	For tender evaluation purposes	Tick if completed and submitted ☒
SCHEDULE 8	SCHEDULE OF WORK EXPERIENCE	Forms part of Contractor's Proposal	Tick if completed and submitted ☒
SCHEDULE 9	DETAILS OF SITE AGENT'S AND GENERAL FOREMAN/CONSTRUCTION SUPERVISOR'S EXPERIENCE	Forms part of Contractor's Proposal	Tick if completed and submitted ☒
SCHEDULE 10	SCHEDULE OF CONSTRUCTION EQUIPMENT	Forms part of Contractor's Proposal	Tick if completed and submitted ☒
SCHEDULE 11	PRELIMINARY PROGRAMME (FOR INFORMATION PURPOSES ONLY)	For tender evaluation purposes	Tick if completed and submitted ☒
SCHEDULE 12	SCHEDULE OF ESTIMATED MONTHLY EXPENDITURE	Forms part of Contractor's Proposal	Tick if completed and submitted ☒
SCHEDULE 13	SCHEDULE OF SUBCONTRACTORS	Forms part of Contractor's Proposal	Tick if completed and submitted ☒
SCHEDULE 14	HEALTH AND SAFETY PLAN	Forms part of Contractor's Proposal	Tick if completed and submitted ☒
SCHEDULE 15	PROPOSED AMENDMENTS AND QUALIFICATIONS BY TENDERER	Forms part of Contractor's Proposal	Tick if completed and submitted ☒
SCHEDULE 16	QUALITY CRITERIA	Forms part of Contractor's Proposal	Tick if completed and submitted ☒
SCHEDULE 16A	DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS	Forms part of Contractor's Proposal	Tick if completed and submitted ☒
SCHEDULE 16B	CERTIFICATE OF TENDERER'S ATTENDANCE AT THE SITE/CLARIFICATION MEETING	For tender evaluation purposes	Tick if completed and submitted ☒

Continued overleaf

T2.1 LIST OF RETURNABLE SCHEDULES			
Failure to submit these applicable schedules will result in the tender offer being disqualified from further consideration.			
Note: "For Contractor's Proposal" means the respective document, where ticked, forms part of the Contractor's Proposal in terms of Clause 12 of the Conditions of Contract, and will be incorporated into the Contract			
2. OTHER DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES			
a) Joint Venture Agreement (if applicable) - append to Schedule 3	Forms part of Contractor's Proposal	Tick if completed and submitted	
b) Certificate of Compliance issued by the relevant Bargaining Council (if applicable) - append to Schedule 6.	For tender evaluation purposes	Tick if completed and submitted	
c) Health and Safety Plan - append to Schedule 14.	Forms part of Contractor's Proposal	Tick if completed and submitted	
d) Quality Criteria - append to Schedule 16	Forms part of Contractor's Proposal	Tick if completed and submitted	
3. RETURNABLE SCHEDULES THAT WILL BE INCORPORATED INTO THE CONTRACT			
SCHEDULE 17	AUTHORISATION FOR THE DEDUCTION OF OUTSTANDING AMOUNTS OWED TO THE CITY OF CAPE TOWN	Forms part of Contractor's Proposal	Tick if completed and submitted
SCHEDULE 18	RECORD OF ADDENDA TO TENDER DOCUMENTS	Forms part of Contractor's Proposal	Tick if completed and submitted
SCHEDULE 19	PREFERENCE SCHEDULE (where preferences are granted in respect of B-BBEE contribution)	Forms part of Contractor's Proposal	Tick if completed and submitted
4. CONTRACT PART C1: AGREEMENT AND CONTRACT DATA			
C1.1	The offer portion of the C1.1 Form of Offer and Acceptance	Forms part of Contractor's Proposal	Tick if completed and submitted
5. CONTRACT PART C1: AGREEMENT AND CONTRACT DATA			
C1.2	Contract Data (Part 2): Data provided by the Contractor	Forms part of Contractor's Proposal	Tick if completed and submitted
6. CONTRACT PART C2: PRICING DATA			
C2.2	Bill of Quantities	Forms part of Contractor's Proposal	Tick if completed and submitted

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TREATMENT WORKS: CIVIL WORKS

T2.1 List of Returnable Documents

The tenderer must complete the following Returnable Documents in non-erasable **black ink**:

1. Returnable Schedules required for tender purposes

	Pages
1: COMPULSORY ENTERPRISE QUESTIONNAIRE	41 – 42
2: CERTIFICATE OF INDEPENDENT TENDER DETERMINATION	43 – 44
3: CERTIFICATE OF AUTHORITY FOR JOINT VENTURES	45
4: DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES	46
5: CERTIFICATE FOR MUNICIPAL SERVICES AND PAYMENTS TO SERVICE PROVIDER	47
6: BARGAINING COUNCIL CERTIFICATE AND DECLARATION IN RESPECT OF MINIMUM WAGE (not used)	48
7: CONFIRMATION OF CoCT VENDOR DATABASE REGISTRATION	49
8: SCHEDULE OF WORK EXPERIENCE	50 – 51
9: DETAILS OF SITE AGENT'S AND GENERAL FOREMAN/CONSTRUCTION SUPERVISOR'S EXPERIENCE	52
10: SCHEDULE OF CONSTRUCTION EQUIPMENT	53 – 54
11: PRELIMINARY PROGRAMME (FOR INFORMATION PURPOSES ONLY)	55
12: SCHEDULE OF ESTIMATED MONTHLY EXPENDITURE	56 – 57
13: SCHEDULE OF SUBCONTRACTORS	58
14: HEALTH AND SAFETY PLAN	59
15: PROPOSED AMENDMENTS AND QUALIFICATIONS BY TENDERER	60
16: QUALITY CRITERIA	61 – 66
16A: DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS	67 – 71
16B: CERTIFICATE OF TENDERER'S ATTENDANCE AT THE SITE/CLARIFICATION MEETING	72

2. Other documents required for tender purposes

- Joint Venture Agreement (if applicable) - append to Schedule 3.
- Certificate of Compliance issued by the relevant Bargaining Council (if applicable) – append to Schedule 6.
- Health and Safety Plan - append to Schedule 14.
- Quality Criteria – append to Schedule 16

3. Returnable Schedules that will be incorporated into the Contract

17: AUTHORISATION FOR THE DEDUCTION OF OUTSTANDING AMOUNTS OWED TO THE CITY OF CAPE TOWN	73
18: RECORD OF ADDENDA TO TENDER DOCUMENTS	74

Preferencing Schedule

19: PREFERENCE SCHEDULE (where preferences are granted in respect of B-BBEE contribution)	75 – 78

4. C1.1 The offer portion of the C1.1 Form of Offer and Acceptance

5. C1.2 Contract Data (Part 2)

6. C2.2 Bill of Quantities

NOTE: Printed Bills of Quantities, in the same format (that is, layout, billed items and quantities) as those issued electronically by the Employer on request, may be submitted with the tender as stated in F.2.13.2 in the Tender Data.

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T2.2 Returnable Schedules



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SCHEDULE 1 : COMPULSORY ENTERPRISE QUESTIONNAIRE

The following particulars must be furnished. In the case of a joint venture, **separate** enterprise questionnaire respect of each partner must be completed and submitted.

Section 1: Name of enterprise:

Address of enterprise:

Section 2: VAT registration number, if any:

Section 2a: National Treasury Central Supplier Database registration number:

Section 2b: SARS Tax Compliance Status PIN :

Section 3: CIDB registration number, if any:

Section 4: Particulars of sole proprietors and partners in partnerships

Name*	Identity number*	Personal income tax number*
N/A		

* Complete only if sole proprietor or partnership and attach separate page if more than 3 partners

Section 5: Particulars of companies and close corporations

Company registration number:

Close corporation number:

Tax reference number:

Section 6: Record of service of the state

Indicate by marking the relevant boxes with a cross, if any sole proprietor, partner in a partnership or director, manager, principal shareholder or stakeholder in a company or close corporation is currently or has been within the last 12 months in the service of any of the following:

☐ a member of any municipal council	☐ an employee of any provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999)
☐ a member of any provincial legislature	☐ a member of an accounting authority of any national or provincial public entity
☐ a member of the National Assembly or the National Council of Provinces	☐ an employee of Parliament or a provincial
☐ a member of the board of directors of any municipal entity	
☐ an official of any municipality or municipal	

entity		legislature		
If any of the above boxes are marked, disclose the following:				
Name of sole proprietor, partner, director, manager, principal shareholder or stakeholder	Identity Number	Name of Institution, public office, board or organ of state and position held	Status of service (tick appropriate column)	
			current	Within last 12 months
N/A				

*Insert separate page if necessary

Section 7: Record of spouses, children and parents in the service of the state

Indicate by marking the relevant boxes with a cross, if any spouse, child or parent of a sole proprietor, partner in a partnership or director, manager, principal shareholder or stakeholder in a company or close corporation is currently or has been within the last 12 months been in the service of any of the following:

☐ a member of any municipal council	☐ an employee of any provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999)
☐ a member of any provincial legislature	☐ a member of an accounting authority of any national or provincial public entity
☐ a member of the National Assembly or the National Council of Province	☐ an employee of Parliament or a provincial legislature
☐ a member of the board of directors of any municipal entity	
☐ an official of any municipality or municipal entity	

Name of spouse, child or parent	Identity Number	Name of Institution, public office, board or organ of state and position held	Status of service (tick appropriate column)	
			current	Within last 12 months
N/A				

*Insert separate page if necessary

- The undersigned, who warrants that he/she is duly authorised to do so on behalf of the enterprise:
- authorizes the Employer to obtain a tax clearance certificate from the South African Revenue Services that my/our tax matters are in order;
 - confirms that neither the name of the enterprise or the name of any partner, manager, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004;
 - confirms that no partner, member, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears, has within the last five years been convicted of fraud or corruption;
 - confirms that I/we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other relationship with any of the tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest;
 - confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

SIGNED ON BEHALF OF TENDERER:

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SCHEDULE 2 : CERTIFICATE OF INDEPENDENT TENDER DETERMINATION

I, the undersigned, in submitting this tender for Contract No. 179Q/2016/17: CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER TREATMENT WORKS: CIVIL WORKS

in response to the invitation for the tender made by the City of Cape Town, do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of: _____

(Name of Tenderer)

1. I have read and I understand the contents of this Certificate;
2. I understand that this 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 this tender on behalf of the tenderer;
4. Each person whose signature appears on this tender has been authorized by the tenderer to determine the terms of, and to sign, the tender, on behalf of the tenderer;
5. For the purposes of this Certificate and this tender, I understand that the word "competitor" shall include any individual or organization, other than the tenderer whether or not affiliated with the tenderer, who:
 - (a) has been requested to submit a tender in response to this invitation to tender;
 - (b) could potentially submit a tender in response to this invitation to tender, 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 tenderer;
6. The tenderer has arrived at this tender independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium¹ will not be construed as collusive tendering;
7. In particular, without limiting the generality of paragraph 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 tender;
 - (e) the submission of a tender which does not meet the specifications and conditions of the tender; or
 - (f) tendering with the intention not to win the tender;

¹Joint 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.

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 invitation to tender relates;
9. The terms of this tender have not been, and will not be, disclosed by the tenderer, 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 tenders and contracts, tenders 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

24.02.17
.....
Date

.....
Name

.....
Position

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SCHEDULE 3 : CERTIFICATE OF AUTHORITY FOR JOINT VENTURES

N/A

This returnable schedule is to be completed by joint ventures.

We, the undersigned, are submitting this tender offer in joint venture and hereby authorize

Mr/Ms **(COMPANY RESOLUTION ENCLOSED)** authorised signatory of the company, close corporation or partnership

....., 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	DULY AUTHORISED SIGNATORY
Lead partner		Signature..... Name..... Designation.....
		Signature..... Name..... Designation.....
		Signature..... Name..... Designation.....
		Signature..... Name..... Designation.....

Note :

A copy of the Joint Venture Agreement, showing clearly the percentage contribution of each partner to the joint venture, shall be appended to this schedule.

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SCHEDULE 4: DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

Item	Question	Yes	No
1.1	Is the Tenderer or any of its directors listed on the National Treasury's Database of Restricted Suppliers 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 Accounting Officer/Authority of the institution that imposed the restriction 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.	Yes ☐	No ☒
1.1.1	If so, furnish particulars:		
1.2	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, 12 of 2004? The 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.	Yes ☐	No ☒
1.2.1	If so, furnish particulars:		
1.3	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?	Yes ☐	No ☒
1.3.1	If so, furnish particulars:		
1.4	Does the Tenderer or any of its directors owe any municipal rates and taxes or municipal charges to the municipality / municipal entity, or to any other municipality / municipal entity, that is in arrears for more than three months?	Yes ☐	No ☒
1.4.1	If so, furnish particulars:		
1.5	Was any contract between the Tenderer and the municipality / municipal entity or any other organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes ☐	No ☒
1.5.1	If so, furnish particulars:		

I, _____, the undersigned,
(full name in block letters)

certify that the information furnished on this declaration form is true and correct, and accept that, in addition to cancellation of a contract, action may be taken against me should this declaration prove to be false.

Sign

Date

24.02.17

Position

Name of Tenderer/Contractor

Where the entity tendering is a joint venture, each party to the joint venture must sign a declaration in terms of the Municipal Finance Management Act, 56 of 2003, and attach it to this schedule.

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CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIE WASTEWATER TREATMENT WORKS: CIVIL WORKS

SCHEDULE 5: CERTIFICATE FOR MUNICIPAL SERVICES AND PAYMENTS TO SERVICE PROVIDER

To: THE CITY MANAGER, CITY OF CAPE TOWN

**CERTIFICATE FOR MUNICIPAL SERVICES
AND PAYMENTS TO SERVICE PROVIDER**

TENDER NO: 179Q/2016/17: CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIE WASTEWATER TREATMENT WORKS: CIVIL WORKS

NAME OF THE TENDERER:

FURTHER DETAILS OF THE TENDERER/S; Proprietor / Director/s / Partners, etc:

Physical Business address of the Tenderer	Municipal Account number(s)

If there is not enough space for all the names, please attach the additional details to the Contract Document

Name of Director / Member / Partner	Identity Number	Physical residential address of Director / Member / Partner	Municipal Account number(s)

I, _____, (full name in block letters), the undersigned,

certify that the information furnished on this declaration form is correct and that I/we have no undisputed commitments for municipal services towards a municipality or other service provider in respect of which payment is overdue for more than 30 days or 3 (three) months.

Signature

THUS DONE AND SIGNED for and on behalf of the Tenderer/Contractor

at DURBANVILLE (PLACE) on the 24 (DATE) day of FEBRUARY (MONTH) 2017 (YEAR)

Even if the requested information is not applicable to the Tenderer, the table above should be endorsed Not Applicable and THIS DECLARATION MUST STILL BE SIGNED

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SCHEDULE 6: BARGAINING COUNCIL CERTIFICATE AND DECLARATION IN RESPECT OF MINIMUM WAGE

Not used

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SCHEDULE 7: CONFIRMATION OF CoCT VENDOR DATABASE REGISTRATION

CoCT VENDOR DATABASE REGISTRATION		
COMPANY NAME	REGISTERED YES/NO	REGISTRATION NUMBER IF APPLICABLE
	Yes	9854

Tenderers who are not registered on the City of Cape Town's Vendor Database are not precluded from submitting tenders, but must however be registered prior to the evaluation of tenders in order for their tenders to be responsive (the evaluation of tenders takes place when the Employer's Bid Evaluation Committee meets to make a final recommendation to the Bid Adjudication Committee).

In this regard it is the sole responsibility of tenderers to ensure that this requirement is complied with. In the case of Joint Venture Partnerships this requirement will apply to each party to the Joint Venture.

SIGNED ON BEHALF OF TENDERER:

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TREATMENT WORKS: CIVIL WORKS

SCHEDULE 8: SCHEDULE OF WORK EXPERIENCE

The tender offer shall provide comprehensive details in a tabular format (shown overleaf), of the Tenderer's expertise and experience over the last 15 years in work of a similar nature and magnitude to that entailed in this Contract. Where the Tenderer is a joint venture, or where sub-contractors are to be employed, the information shall be provided for the joint venture partners, or the sub-contractors as applicable.

Details to be provided in the table of expertise and experience shall as a minimum include:

- Project name
- Project location
- Employing authority/client with contact details
- Supervising Engineer, with contact details
- Period of construction (commencement and completion)
- Description and value of principle work content, in particular highlighting disciplines as listed in Table 4 of Clause F.2.1.1.3 of T1.2: Tender Data
- Value of contract
- Tenderer's role and percentage participation in terms of value of the work

Furthermore, the Tenderer should provide a written reference letter from the employing authority/client for whom the work was undertaken, commenting on the scope, quality, and timeous completion of the tenderer's work.

The table of expertise and experience and any supporting information shall be included in the Functionality Criteria file, to be submitted in accordance Clause F.2.1.1.3 of T1.2: Tender Data.

The tenderer shall insert in the spaces provided below a list of similar completed contracts awarded to him and those currently being undertaken.

Number of sheets appended by the tenderer to this Schedule ²⁴..... (If nil, enter NIL).

SEE ATTACHED FUNCTIONALITY FILE

SIGNED ON BEHALF OF TENDERER: **DATE:** 10/03/2017

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SCHEDULE 9: DETAILS OF SITE AGENT'S AND GENERAL FOREMAN/CONSTRUCTION SUPERVISOR'S EXPERIENCE

Tenderers shall set out in the Schedule hereunder details of the Site Agent's and General Foreman/Construction Supervisor's experience in work of a similar nature to that for which their Tender is submitted.

SITE AGENT	NAM NQF LEVEL.....			
CONTRACT & CLIENT	NATURE OF WORK	POSITION HELD	VALUE OF WORK	YEAR COMPLETED
SEE	FUNCTIONALITY FILE			

GENERAL FOREMAN/ CONSTRUCTION SUPERVISOR	NAME: NQF LEVEL.....			
CONTRACT & CLIENT	NATURE OF WORK	POSITION HELD	VALUE OF WORK	YEAR COMPLETED
	SEE FUNCTIONALITY FILE			

Number of sheets appended by the tenderer to this Schedule 0..... (If nil, enter NIL).

SIGNED ON BEHALF OF THE TENDERER:

CITY OF CAPE TOWN

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SCHEDULE 10: SCHEDULE OF CONSTRUCTION EQUIPMENT

The tenderer shall state below what construction equipment will be available for this Contract. The tenderer shall differentiate, if applicable, between construction equipment immediately available and construction equipment which will become available by virtue of outstanding orders, and indicate what further construction equipment will be acquired or hired for the work should he be awarded the Contract.

CONSTRUCTION EQUIPMENT IMMEDIATELY AVAILABLE

DESCRIPTION, SIZE, CAPACITY	NUMBER
Refer To ATTACHED.	

CONSTRUCTION EQUIPMENT ON ORDER

(State details of arrangements made, with delivery dates)

DESCRIPTION, SIZE, CAPACITY	NUMBER
N/A	

CONSTRUCTION EQUIPMENT THAT WILL BE ACQUIRED OR HIRED

(State details of delivery arrangements)

DESCRIPTION, SIZE, CAPACITY	NUMBER
N/A	

Number of sheets appended by the tenderer to this Schedule (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:

CITY OF CAPE TOWN

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CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER TREATMENT WORKS: CIVIL WORKS

SCHEDULE 11: PRELIMINARY PROGRAMME (FOR INFORMATION PURPOSES ONLY)

The tenderer shall attach a preliminary programme, to this schedule.

This programme shall be in the form of a bar chart (Gantt chart) or similar acceptable time/activity form reflecting the proposed sequence and tempo of the various activities/ outlining the key activities, milestones and critical path for the Works and the sequencing thereof, with due consideration given to the requirements of the Contract Data and Scope of Works. The programme should show allowance for and interfacing with the Mechanical and Electrical Contractor.

In addition, the quantities forecast that will be carried out every week under each of the elements, comprising the work for this Contract matching the progress of the programme must be submitted. The programme shall also indicate the point where the tenderer intends to commence work operations and the direction in which the work will proceed. The working hours shall be indicated.

The tenderer shall also take into account the additional requirements stated in the Specifications when drawing up the programme.

Details of the preliminary programme shall be appended to this Schedule.

Number of sheets appended by the tenderer to this Schedule 2..... (If nil, enter NIL).

SEE FUNCTIONALITY FILE

SIGNED ON BEHALF OF TENDERER:

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SCHEDULE 12: SCHEDULE OF ESTIMATED MONTHLY EXPENDITURE

The tenderer shall state his estimated expenditure (cash flow forecast) indicating the value of work done and materials not yet built into the Permanent Works for each month of the Contract period which he estimates will arise based on his preliminary programme and tendered rates, as set out in the table below. The total of the monthly amounts shall be equal to the tender sum.

MONTH	VALUE
1	R
2	R
3	R
4	R
5	R
6	R
SEE FUNCTIONALITY FILE	
8	R
9	R
10	R
11	R
12	R
13	R
14	R
15	R
16	R
17	R
18	R
19	R
20	R
21	R
22	R

MONTH	VALUE
23	R
24	R
25	R
26	R
27	R
28	R
29	R
30	R
31	R
32	R
33	R
34	R
35	R
36	R
37	R
Sub-total	R
Add Contingencies @10%	R
Add CPA @ 10%	R
Sub-total	R
Add VAT @ 14%	R
Total (including VAT)	R

SIGNED ON BEHALF OF TENDERER:

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SCHEDULE 13: SCHEDULE OF SUB-CONTRACTORS

We notify you that it is our intention to employ the following sub-contractors for work (excluding work covered by provisional sums and contingencies) in this contract.

Acceptance of this tender shall not be construed as approval of all or any of the listed sub-contractors. Should any of the sub-contractors not be approved subsequent to acceptance of the tender, this shall in no way invalidate the contract, and the tendered unit rates for the various items making up the work activities shall remain final and binding.

SUB-CONTRACTORS		
Sub-contractor's name	Work activities to be undertaken by the Sub-contractor	Estimated value of work (Rand)
	EPOXY COATING TO WALLS	5 000 000 -
	FENCING	1 500 000 -

Number of sheets appended by the tenderer to this Schedule NIL (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:

CITY OF CAPE TOWN

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SCHEDULE 14: HEALTH AND SAFETY PLAN

Tenderers are referred to the requirements of Clause F.4.1 in Part T1.2 Tender Data and shall append the required Health and Safety Plan to this Schedule.

Number of sheets appended by the tenderer to this Schedule ^{28 54} (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:

CITY OF CAPE TOWN

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SCHEDULE 15: PROPOSED AMENDMENTS AND QUALIFICATIONS BY TENDERER

The Tenderer should record any proposed deviations or qualifications he may wish to make to the tender documents in this Returnable Schedule. Alternatively, a tenderer may state such proposed deviations and qualifications in a covering letter attached to his tender and reference such letter in this schedule. Any proposed deviations or qualifications contained in a covering letter which is not referenced in this schedule will not be considered.

The Tenderer's attention is drawn to clause F.3.8 of the Standard Conditions of Tender referenced in the Tender Data regarding the Employer's handling of material deviations and qualifications.

If no deviations or modifications are desired, the schedule hereunder is to be marked NIL and signed by the Tenderer.

PAGE	CLAUSE OR ITEM	PROPOSAL

Number of sheets appended by the tenderer to this Schedule NIL..... (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:

CITY OF CAPE TOWN

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CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER
TREATMENT WORKS: CIVIL WORKS

SCHEDULE 16: QUALITY CRITERIA

Continued overleaf

CITY OF CAPE TOWN

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CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIT WASTEWATER TREATMENT WORKS: CIVIL WORKS

SCHEDULE 16.1: SCHEDULE OF KEY PERSONNEL ASSIGNED TO THE CONTRACT

Tenderers shall insert in the table below, the names, proposed function, qualifications, professional accreditation and experience of the key personnel that the Tenderer proposes to assign to the Contract. Curriculum Vitae (CV), up to a maximum of three (3) pages must be submitted, for each of the key personnel proposed. This information must correspond with the details submitted in accordance with Schedule 16.2: Proposed Organization and Staffing, and Schedule 16.3: Experience of Key Personnel.

The CV's must specifically include the qualifications, professional accreditation and experience in construction projects of a similar nature. Contact details of at least three (3) contactable referees must also be provided. A template for CV's is provided overleaf.

Each CV shall be clearly cross-referenced to and labelled to correspond with the organogram submitted in terms of Schedule: Proposed Organisation and Staffing, so as to indicate which role the person in question is proposed to fulfil in the Contract.

The Tenderer shall include the requisite CVs in the Functionality Criteria file, to be submitted in accordance with Clause F.3.20.1 of T1.2: Tender Data.

KEY PERSONNEL SCHEDULE

Position	Name	Qualifications	Professional accreditation	Relevant experience (years)
Contract Manager/ Director ¹				
Site Agent ²				
Environmental Officer ³				
Health and Safety Agent/ Officer ³				
Construction Manager No. 1 ⁴				
Construction Manager No. 2 ⁴				
Construction Manager No. 3 ⁴				
Construction Manager No. 4 ⁴				
Construction Manager No. 5 ⁴				

SEE FUNCTIONALITY FILE

Notes:

- 1: In terms of the General Conditions of Contract
- 2: Responsible for Contractor's obligations in terms of the General Conditions of Contract; pertaining to the component of the Works as defined in Scope of Works
- 3: Responsible for Contractor's obligations in terms of the Specifications (to be full-time on Site whilst associated work is underway)
- 4: Responsible for the Contractor's associated obligations in terms of Clause 6.8 of the General Conditions of Contract (to be full-time on Site whilst associated work is underway). The specific assignment of the component of the Works to the various foremen is at the Tenderer's discretion, must be clearly shown on the organogram (in accordance with Schedule 16.2: Proposed organisation and staffing) and cross-referenced to CVs (in accordance with Schedule 14.1: Experience of Key Personnel), and must generally cover the spectrum of the Works (such as buildings, reinforced concrete work, roads, earthworks, pipework, etc)

SIGNATURE:
(of person authorized to sign on behalf of the Tenderer)

DATE: 10/03/2017

CITY OF CAPE TOWN

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TREATMENT WORKS: CIVIL WORKS

SCHEDULE 16.2: SCHEDULE OF PROPOSED ORGANIZATION AND STAFFING

The tender offer shall include an organogram showing the team of key personnel that the Tenderer proposes to assign to the Contract, and how responsibilities for the various disciplines or work and components of the Works will be assigned. The names, roles and responsibilities of each person shall be clearly set out, and corresponding job descriptions shall be provided as an addendum to the organogram. In the case of a Joint Venture or where sub-contractors are made use of, the organogram must show how respective responsibilities are to be allocated. As a minimum, the organogram shall include for the personnel detailed in Schedule 16.1: Key personnel assigned to the contract. Further, the organogram must correspond to the details submitted in accordance with Schedule 16.3: Experience of Key Personnel.

The Tenderer shall include the requisite organogram and supporting information in the Functionality Criteria file, to be submitted in accordance with Clause F.2.1.1.3 of T1.2: Tender Data.

Tenderers must note that the Scope of Work requires that key personnel as proposed herein shall not be changed without written permission of the Engineer, and such permission will not be granted unless the alternate scores the same or higher than the original key person in terms of the applicable Functionality Criteria prescribed in Clause F.2.1.1.3 of T1.2: Tender Data.

Number of sheets appended by the tenderer to this Schedule ⁰..... (If nil, enter NIL).

SEE FUNCTIONALITY FILE

SIGNED ON BEHALF OF TENDERER: **DATE:** ...10/03/2017...

CITY OF CAPE TOWN

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TREATMENT WORKS: CIVIL WORKS

SCHEDULE 16.3: SCHEDULE OF EXPERIENCE OF KEY PERSONNEL

Curriculum Vitae (CV), up to a maximum of three (3) pages must be submitted, for each of the key personnel proposed in Schedule 16.1: Key Personnel Assigned to the Contract, and Schedule 16.2: Proposed Organisation and Staffing. The CV's must specifically include the qualifications, professional accreditation and experience in construction projects of a similar nature. Contact details of at least three (3) contactable referees must also be provided. A template for CV's is provided overleaf.

Each CV shall be clearly cross-referenced to and labelled to correspond with the organogram submitted in terms of Schedule 16.2: Proposed Organisation and Staffing, so as to indicate which role the person in question is proposed to fulfil in the Contract.

The Tenderer shall include the requisite CVs in the Functionality Criteria file, to be submitted in accordance with Clause F.2.1.1.3 of T1.2: Tender Data.

Number of sheets appended by the tenderer to this Schedule (If nil, enter NIL).

SEE FUNCTIONALITY FILE

SIGNED ON BEHALF OF TENDERER: ..

DATE: 10/3/2017

Continued overleaf

CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 179Q/2016/17

CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER
TREATMENT WORKS: CIVIL WORKS

SCHEDULE 16.3: SCHEDULE OF EXPERIENCE OF KEY PERSONNEL (Continued)

INSERT KEY PERSONNEL CVs HERE ACCORDING TO THE TEMPLATE BELOW.

Name:
Profession:
Date of Birth:
Parent Firm:
Position in Firm: *Indicate if Director, Senior Contract or Contract Manager, Site Agent, Engineer etc*
Years with Firm:
Nationality:

Tertiary Education (and year obtained):

Professional Accreditation (and year obtained):

Years of Relevant Experience: *Relevant experience shall relate to large diameter continuously welded steel pipelines.*

Languages: *Indicate first language. If the first language is not English, please indicate proficiency in English. In other languages, including South African indigenous languages, please show speaking, reading and writing ability.*

	Speaking	Reading	Writing
English			

Countries of Work Experience:

Proposed Position on Team:

Key Qualifications

Under this heading, give outline of staff member's experience and training most pertinent to the assigned work on the team.

Relevant Experience

Describe degree of responsibility held by staff member on relevant previous assignments, and give dates, project values and locations. For experience in last ten years, also give types of activities performed and client references where appropriate.

Summary of Other Experience

Under this heading, list all positions held by staff member since graduation, giving dates, names of employing organization, title of position held and location, type and value of construction projects.

References

Declaration:

I confirm that the above information contained in the CV is an accurate description of my experience and qualifications and that, at the time of signature, I am available and will to serve in the position indicated for me in the proposal for **CONTRACT NO. 179Q/2016/17: CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER TREATMENT WORKS: CIVIL WORKS**

Signature of Staff Member

Date

SEE ATTACHED FUNCTIONALITY FILE

CITY OF CAPE TOWN

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CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER
TREATMENT WORKS: CIVIL WORKS

SCHEDULE 16.4: SCHEDULE OF METHOD STATEMENT

The Tenderer shall submit a method statement (of between 2 000 and 2 500 words) responding to the Scope of Work and outlining and explaining the proposed approach / methodology to be employed for the construction of the Works and its various components. The method statement should articulate what value the Tenderer will add in achieving the stated objectives for the project.

The method statement must highlight the issues of importance, the critical factors for success or failure of achieving the Employer's objectives, and explain the technical approach the Tenderer will adopt to address them. The method statement must include a quality plan which outlines processes, procedures and associated resources, applied by whom and when, to meet the requirements and indicate how risks will be managed and what contribution can be made regarding value management. Particular attention should be given to the interfacing between the MBR pumpstation (by others), fine screening, existing MBR plant and proposed MBR plant, alleviation of bottlenecks to the existing treatment works, to the requirement for achieving Practical Completion for these Portions of the Works (as defined in Scope of Works) by the corresponding Due Completion Date, and to interfacing with and accommodating other three (3) contractors on site as defined in Scope of Works.

The Tenderer shall include his / her method statement in the Functionality Criteria file to be submitted in accordance with Clause F.2.1.1.3 of T1.2: Tender Data. The method statement must not be longer than 8 pages.

Number of sheets appended by the tenderer to this Schedule (If nil, enter NIL).

SEE FUNCTIONALITY FILE

SIGNED ON BEHALF OF TENDERER:

BLUE

DATE:

10/03/2017

CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 179Q/2016/17

CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER TREATMENT WORKS: CIVIL WORKS

SCHEDULE 16A: DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS

This declaration is based on and replaces Municipal Bid Document 6.2 (MBD 6.2). The amendments made to the MBD 6.2 document have been necessary to clarify this standard document as it relates to local production and content in the designated sector.

Before completing this declaration, bidders must study the General Conditions, Definitions, Directives applicable in respect of Local Content as prescribed in the Preferential Procurement Regulations, 2011 and the South African Bureau of Standards (SABS) approved technical specification number SATS 1286:2011 (Edition 1) and the Guidance on the Calculation of Local Content together with the Local Content Declaration Templates [Annex C (Local Content Declaration: Summary Schedule), D (Imported Content Declaration: Supporting Schedule to Annex C) and E (Local Content Declaration: Supporting Schedule to Annex C)].

Documents listed herein are downloadable from the dti's official website, <http://www.thedti.gov.za>.

This schedule must be completed by tenderers and returned with their tender at the closing date and time for this tender.

1. General Conditions

- 1.1 Preferential Procurement Regulations, 2011 (Regulation 9) makes provision for the promotion of local production and content.
- 1.2 Regulation 9(1) prescribes that in the case of designated sectors, where in the award of bids where local production and content is of critical importance, such bids must be advertised with the specific bidding condition that only locally produced goods, services or works or locally manufactured goods, with a stipulated minimum threshold for local production and content will be considered.
- 1.3 The designated sectors (i) **Valves, Electrical and Telecom Cables**, and (ii) **Valve products and Actuators** is applicable to items tendered for as detailed in Annexure C and all products tendered for these items must comply with the requirements in respect of the local production and content legislation.
- 1.4 A person awarded a contract in relation to a designated sector, may not sub-contract in such a manner that the local production and content of the overall value of the contract is reduced to below the stipulated minimum threshold.
- 1.5 The local content (LC) expressed as a percentage of the bid price must be calculated in accordance with the SABS approved technical specification number SATS 1286: 2011 as follows:

$$LC = [1 - x / y] * 100$$

Where

- x is the imported content in Rand
y is the bid price in Rand excluding value added tax (VAT)

Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by ABSA Bank at close of business on the date of advertisement of the bid as required in paragraph 4.1 below.

NOTE: The SABS approved technical specification number SATS 1286:2011 is accessible on http://www.thedti.gov.za/industrial_development/ip.jsp at no cost.

- 1.6 A bid will be disqualified/declared non-responsive if this Declaration Certificate and Annex C (Local Content Declaration: Summary Schedule) are not submitted as part of the bid documentation.

2 Definitions

- 2.1 "bid" includes written price quotations, advertised competitive bids or proposals;
- 2.2 "bid price" price offered by the supplier, excluding value added tax (VAT);
- 2.3 "contract" means the agreement that results from the acceptance of a bid by an organ of state;

Tender

Part T2: Returnable Documents
Reference No. 179Q/2016/17

67

T2.2
Returnable Schedules

SCHEDULE 16A: DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS (Cont'd)

- 2.4 "designated sector" means a sector, sub-sector or industry that has been designated by the Department of Trade and Industry (dti) in line with national development and industrial policies for local production, where only locally produced services, works or goods or locally manufactured goods meet the stipulated minimum threshold for local production and content;
- 2.5 "duly sign" means a Declaration Certificate for Local Content that has been signed by the Chief Financial Officer or other legally responsible person nominated in writing by the Chief Executive, or senior member / person with management responsibility (close corporation, partnership or individual) as per Returnable Schedule 1.
- 2.6 "imported content" means that portion of the bid price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or its subcontractors) and which costs are inclusive of the costs abroad (this includes labour and intellectual property costs), plus freight and other direct importation costs, such as landing costs, dock duties, import duty, sales duty or other similar tax or duty at the South African port of entry;
- 2.7 "local content" means that portion of the bid price which is not included in the imported content, provided that local manufacture does take place;
- 2.8 "stipulated minimum threshold" means that portion of local production and content as determined by the Department of Trade and Industry; and
- 2.9 "sub-contract" means the primary contractor's assigning, leasing, making out work to, or employing another person to support such primary contractor in the execution of part of a project in terms of the contract.
3. The stipulated minimum threshold(s) for local production and content (refer to Annex A of SATS 1286:2011) for this bid is/are as follows:

<u>Description of services, works or goods</u>	<u>Stipulated minimum threshold</u>
Electrical and Telecom Cable sector	90%
Valve products and Actuators	70%

4. Does any portion of the services, works or goods offered for Items as detailed in Annexure C have any imported content?
(Tick applicable box)

YES	☒	NO	☐

- 4.1 If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.2 of the above General Conditions must be the rate(s) published by Absa Bank at close of business on the date of advertisement of the bid.

Indicate the rate(s) of exchange against the appropriate currency in the table below (refer to Annex A of SATS 1286:2011):

<u>Currency</u>	<u>Rates of exchange</u>
US Dollar	
Pound Sterling	
Euro	
Yen	
Other	

NB: Suppliers must submit proof of the ABSA Bank rate(s) of exchange used.

5. Where, after the award of a bid, challenges are experienced in meeting the stipulated minimum threshold for local content the dti must be informed accordingly in order for the dti to verify and in consultation with the CCT provide directives in this regard.

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CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER TREATMENT WORKS: CIVIL WORKS

SCHEDULE 16A: DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS (Cont'd)

LOCAL CONTENT DECLARATION BY CHIEF FINANCIAL OFFICER OR OTHER LEGALLY RESPONSIBLE PERSON NOMINATED IN WRITING BY THE CHIEF EXECUTIVE OR SENIOR MEMBER/PERSON WITH MANAGEMENT RESPONSIBILITY (CLOSE CORPORATION, PARTNERSHIP OR INDIVIDUAL)

IN RESPECT OF BID NO. 179 Q / 2016 / 17

ISSUED BY: (Procurement Authority / Name of Municipality / Municipal Entity): CITY OF CAPE TOWN

NB

- 1 The obligation to complete, duly sign and submit this declaration cannot be transferred to an external authorized representative, auditor or any other third party acting on behalf of the bidder.
- 2 Guidance on the Calculation of Local Content together with Local Content Declaration Templates (Annex C, D and E) is accessible on http://www.thedti.gov.za/industrial_development/ip.jsp. Bidders should first complete Declaration D. After completing Declaration D, bidders should complete Declaration E and then consolidate the information on Declaration C. Declaration C should be submitted with the bid documentation at the closing date and time of the bid in order to substantiate the declaration made in paragraph (c) below. Declarations D and E should be kept by the bidders for verification purposes for a period of at least 5 years. The successful bidder is required to continuously update Declarations C, D and E with the actual values for the duration of the contract.

I, the undersigned, ..., (full names),
do hereby declare in my capacity as,
of, (name of bidder entity), the following:

- (a) The facts contained herein are within my own personal knowledge.
- (b) I have satisfied myself that:
 - (i) the goods/services/works to be delivered in terms of the above-specified bid comply with the minimum local content requirements as specified in the bid, and as measured in terms of SATS 1286:2011;
- (c) The local content percentages (%) indicated below has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E which has been consolidated in Declaration C;

Bid price, excluding VAT (y)	R 276 754 385.97
Imported content (x), as calculated in terms of SATS 1286:2011	R 233 324
Stipulated minimum threshold for local content (paragraph 3 above)	70%
Local content %, as calculated in terms of SATS 1286:2011	0.08%

If the bid is for more than one product, the local content percentages for each product contained in Declaration C shall be used instead of the table above. The local content percentages for each product has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E.

- (d) I accept that the Procurement Authority / Municipality /Municipal Entity has the right to request that the local content be verified in terms of the requirements of SATS 1286:2011.
- (e) I understand that the awarding of the bid is dependent on the accuracy of the information furnished in this application. I also understand that the submission of incorrect data, or data that are not verifiable as described in SATS 1286:2011, may result in the Procurement Authority / Municipal / Municipal Entity imposing any or all of the remedies as provided for in Regulation 13 of the Preferential Procurement Regulations, 2011 promulgated under the Preferential Policy Framework Act (PPPFA), 2000 (Act No. 5 of 2000).

SIGNATURE:

DATE: 10/03/2017

WITNESS No. 1

DATE: 10/03/17

WITNESS No. 2

DATE:

Annex C

Local Content Declaration - Summary Schedule

(C1)	Tender No.	
(C2)	Tender description:	WBR ZAND VU LIET
(C3)	Designated product(s)	VALVES
(C4)	Tender Authority:	COOT
(C5)	Tendering Entity name:	
(C6)	Tender Exchange Rate:	Pula
(C7)	Specified local content %	

GBP 17.20

EU 15.00

Note: VAT to be excluded from all calculations

Calculation of local content						
Tender item no's	List of items	Tender price per UoM (excl VAT)	Exempted imported value	Tender value net of exempted imported content	Imported value	Local content % (per item)
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C15)
Section AP	Items AP27- AP29 inclusive (Valves)	35498-	0	35498-	9050-	74.5
Section BU	Items BU27 to BU29 inclusive (Valves)	24494	0	24494-	6245-	74.5
Section BQ	Items BQ338 to BQ342 inclusive (Valves)	786166	0	786166-	227078-	71.1
Section AH	Items AH87 - AH94 inclusive, Item AH 107 (Cables)					
Section AJ	Items AJ81 - AJ88 inclusive, Item AJ 101 (Cables)					
Section AK	Item AK9, AK11, AK23 (cables)					
Section BI	Items BI49 - BI54 inclusive, Item BI67 (Cables)					

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Tender
Part T2: Returnable Documents
Reference No. 179Q/2016/17

Tender summary			
Anticipated Annual Tender Qty (m)	Total tender value	Total exempted imported content	Total Imported content
(C16)	(C17)	(C18)	(C19)
VARIOUS	35498	0	35498-
VARIOUS	24494		6245-
VARIOUS	786166		227078-

T2.2
Returnable Schedules

Tender summary											
Calculation of local content								Tender summary			
Tender item no's	List of items	Tender price per UoM (excl VAT)	Exempted imported value	Tender value net of exempted imported content	Imported value	Local value	Local content % (per item)	Anticipated Annual Tender Qty (m)	Total tender value	Total exempted imported content	Total Imported content
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)	(C16)	(C17)	(C18)	(C19)
Section BK	Items BK81 – BK88 inclusive, Item BK101 (Cables)										
Section BM	Items BM28 – BM35 inclusive, Item BM48 (Cables)										
Section BN	Item BN7, BN9, BN20 (cables)										
								</			

Signature of tenderer from Annex B

Date: 10/3/17

Tender
Part T2: Returnable Documents
Reference No. 179Q/2016/17

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T2.2 Returnable Schedules

CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 179Q/2016/17

CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIT WASTEWATER
TREATMENT WORKS: CIVIL WORKS

SCHEDULE 16B: CERTIFICATE OF TENDERER'S ATTENDANCE AT THE SITE/CLARIFICATION MEETING

This is to certify that I, ...

representative of [Tenderer]

of [address]

Telephone number

Fax number

visited and examined the Site on [date]

in the company of [Engineer/Engineer's Representative]

TENDERER'S REPRESENTATIVE:

ENGINEER'S REPRESENTATIVE:

CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 179Q/2016/17

CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIE WASTEWATER
TREATMENT WORKS: CIVIL WORKS

**SCHEDULE 17: AUTHORISATION FOR THE DEDUCTION OF OUTSTANDING AMOUNTS OWED TO THE CITY OF
CAPE TOWN**

To: THE CITY MANAGER, CITY OF CAPE TOWN

From: _____
(Name of Tenderer)

AUTHORISATION FOR THE DEDUCTION OF OUTSTANDING AMOUNTS OWED TO THE CITY OF CAPE TOWN

The Tenderer:

- a) hereby acknowledges that according to SCM Regulation 38(1)(d)(i) the City Manager may reject the tender of the Tenderer if any municipal rates and taxes or municipal service charges owed by the Tenderer or any of its directors/members/partners to the City of Cape Town, or to any other municipality or municipal entity, are in arrears for more than 3 (three) months; and
- b) therefore hereby agrees and authorises the City of Cape Town to deduct the full amount outstanding by the Tenderer or any of its directors/members/partners from any payment due to the Tenderer.

I, _____, the undersigned,
(full name in block letters)
hereby authorise the City of Cape Town to deduct the full amount outstanding by the Tenderer/Contractor or any of its directors/members/partners from any payment due to the Tenderer/Contractor.

Signature

THUS DONE AND SIGNED for and on behalf of the Tenderer/Contractor

at Durbanville on the 24 day of February 2017
(PLACE) (DATE) (MONTH) (YEAR)

CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 179Q/2016/17

CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIT WASTEWATER TREATMENT WORKS: CIVIL WORKS

SCHEDULE 18: RECORD OF ADDENDA TO TENDER DOCUMENTS

We confirm that the following communications received from the Employer 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.	06.02.17	ADDENDUM 1: VRS CHANGES TO DOCUMENT.
2.	22.02.17	ADDENDUM 2: REVISED CLOSING DATE 13.03.17
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Attach additional pages if more space is required.

SIGNED ON BEHALF OF TENDERER:

Acceptance

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

The terms of the contract are contained in:

- Part C1: Agreements and contract data (which includes this agreement)
- Part C2: Pricing data
- Part C3: Scope of work
- Part C4: Site information
- The Contractor's Proposal

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

Deviations from and amendments to the documents listed in the tender data and any addenda thereto as listed in the returnable 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 form of offer and acceptance. No amendments to or deviations from said documents are valid unless contained in this schedule.

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

Notwithstanding anything contained herein, this agreement comes into effect on the date when the tenderer receives one fully completed original copy of this document, including the schedule of deviations (if any). Unless the tenderer (now contractor) within five working 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

CITY OF CAPE TOWN
Tower Block, Civic Centre,
12 Hertzog Boulevard
Cape Town

Name and
signature
of witness

Date

03/09/2019

CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 179Q/2016/17

CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER TREATMENT WORKS: CIVIL WORKS

C1.2 Contract Data

Part 1: Contract Data provided by the Employer

GENERAL CONDITIONS OF CONTRACT

The following standardised General Conditions of Contract:

General Conditions of Contract for Construction Works, Second Edition, 2010

prepared by the South African Institution of Civil Engineering (SAICE) shall apply to and form the General Conditions of Contract for this contract. Copies of these conditions of contract are obtainable from the South African Institution of Civil Engineering (SAICE), Private Bag X200, Halfway House 1685, Tel: (011) 805 5947, Fax: (011) 805 5971, e-mail: civilinfo@saice.org.za.

Copies of the General Conditions of Contract are available for inspection and scrutiny at the offices of the Employer.

The Pro-formas bound with the General Conditions of Contract 2010, shall not apply to this Contract and shall be replaced with the documentation bound into this Contract Document.

The General Conditions of Contract make several references to the Contract Data for specific data, which together with these conditions collectively describe the risks, liabilities and obligations of the contracting parties and the procedures for the administration of the Contract. The Contract Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the general conditions of contract.

The General Conditions of Contract shall be read in conjunction with the variations, amendments and additions set out in the Contract Specific Data below. Each item of data given below is cross-referenced to the clause in the General Conditions of Contract to which it mainly applies.

The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with the following sequence:

- a) the Form of Offer and Acceptance,
- b) the Contract Specific Data within the Contract Data,
- c) the General Conditions of Contract for Construction Works, Second Edition, 2010,
- d) the Drawings,
- e) the Scope of Work, and
- f) the Pricing Data.

If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction.

CONTRACT SPECIFIC DATA

The following contract specific data, referring to the General Conditions of Contract for Construction Works, Second Edition, 2010, are applicable to this Contract:

1 General Provisions

Sub-Clause 1.1 Definitions

1.1.1 The Contract

1.1.1.7 is deleted and replaced by:

"Contract" means the Form of Offer and Acceptance, Contract Data, these General Conditions, the Employer's Requirements, the Drawings, the Schedules, and the further documents (if any) which are listed in the Form of

Offer and Acceptance, and further includes drawings and documents or parts thereof which any of the aforesaid documents incorporate by reference.

Add the following new clauses:

Clause 1.1.1.35:

"Employer's Requirements" means the document called "Scope of Work", as included in the Contract, and any additions and modifications to such document in accordance with the Contract. Such document specifies the purpose, scope, and/or design and/or other technical criteria, for the Works, and includes the Specifications, which may be included in a separate volume (Volume 2A).

Clause 1.1.1.36:

"Schedules" means the Returnable Schedules and Documents that are identified in T2.1 to be part of the Contractor's Proposal, and which are completed by the Contractor and submitted with the tender. Such document(s) may include data, lists and schedules prices.

Clause 1.1.1.37:

"Contractor's Proposal" means the Schedules, plus any other supporting documentation that the Contractor submitted with the Offer, as included in the Contract.

Clause 1.1.1.38:

"Tender" means that section of the Form of Offer and Acceptance called "Offer" and all other documents which the Contractor submitted as Returnable Documents, as included in the Contract."

Clause 1.1.1.2:

Add the following after "Bill of Quantities":

, also referred to as Bills of Quantities,

Clause 1.1.1.13:

The Defects Liability Period is 12 months.

A ATD2 - 4.1 Clause 1.1.1.14:

Delete the entire Clause 1.1.1.14, as amended in ATD1 -2.1, and replace with the following:

"The times for achieving Practical Completion of the Works are:

- a) For Portion A of the Works as defined in C3.1 of the Scope of Work, seventy one (71) weeks, calculated from the Commencement Date.
- b) For Portion B of the Works as defined in C3.1 of the Scope of Work, one hundred and twelve (112) weeks, calculated from the Commencement Date.
- c) For Portion C of the Works as defined in C3.1 of the Scope of Work, one hundred and fifty four (154) weeks, calculated from the Commencement Date.

The above durations are inclusive of the 14 day period referred to in Clause 5.3.2 below, and inclusive of non-working days referred to in Clause 5.8.1 below, but exclusive of Special non-working days (Clause 5.8.1)."

The name of the Employer is: CITY OF CAPE TOWN
WATER AND SANITATION

and is referred to in this Contract Document by the terms "Employer", "City of Cape Town" or "Council" as the context provides.

Clause 1.1.1.26:

The Pricing Strategy is a Re-measurement Contract.

Add the following Clauses after Clause 1.1.1.34:

1.1.1.35 "Drawings" means all drawings, calculations and technical information forming part of the Contract Documents and any modifications thereof or additions thereto from time to time approved in writing by the Engineer or delivered to the Contractor by the Engineer.

1.1.1.36 "Letter of Notification" means the letters of formal notification, signed by the Employer, of the decision of the Supply Chain Management Bid Adjudication Committee sent to all tenderers. The notification of the decision does not form part of the Employer's Acceptance of the successful tenderer's Offer and no rights shall accrue.

Clause 1.2.1.2:

The address of the Employer is:

Physical address: 38 Wale Street
Cape Town
8001

Postal address: P O Box 298
Cape Town
8001

E-mail address:

Clause 1.1.1.16:

The **Engineer**, referred to in the documents, is the firm of Aurecon South Africa Consulting Engineers (Pty) Ltd acting through a director, an associate or an official authorised thereto in writing.

The name of the Engineer is: Aurecon South Africa Consulting Engineers (Pty) Ltd or their successors duly appointed by the Employer

Clause 1.2.1.2:

The address of the Engineer is:

Physical address: 1 Century City Drive
Waterford Precinct
Century City
7441

Postal address: P O Box 494
Cape Town
8000

E-mail address:

Clause 3.1.3:

The Engineer shall obtain the specific approval of the Employer before executing any of his functions or duties according to the following Clauses of the General Conditions of Contract or Contract Data:

- a) Clause 3.2.1 Nomination of Engineer's Representative
- b) Clause 3.2.4 Engineer's authority to delegate
- c) Clause 5.8.1 Non-working times
- d) Clause 5.11.1 Suspension of the Works
- e) Clause 5.12.4 Acceleration Instead of extension of time
- f) Clause 6.10.10 Advance payment, for items not listed in the Advance Payment Schedule.

Clause 4.1:

Add the following Clause after Clause 4.1.2:

- 4.1.3 Where the Contract is based on an alternative tender offer submitted by the Tenderer/Contractor, he shall, notwithstanding acceptance of the offer by the Employer, be liable for any deficiency in the alternatives proposed, for any costs in ensuring that the alternatives meet the Employer's standards and requirements, and for any loss or damage arising out of such error or deficiency.

Clause 4.3:

Add the following Clause after Clause 4.3.2:

- 4.3.3 The Employer and the Contractor shall enter into an agreement to complete the work required for the construction of the Works in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act, 85 of 1993 and the Construction Regulations, 2014 promulgated thereunder.

An agreement is included in the Contract Document (Part C1.5 in Agreements and Contract Data) and shall be completed and submitted to the Employer together with a letter of good standing from the Compensation Commissioner (if not insured with a licenced compensation insurer) within fourteen (14) days after the Commencement Date. The Contractor shall ensure that any letter of good standing shall be timeously renewed in order that it remains in full force for the duration of the Contract.

Clause 4:

Add the following Clause after Clause 4.12.3:

4.12.4 Protection of the Environment

The Contractor shall take all reasonable steps to protect the environment (both on and off the Site) and to limit damage and nuisance to people and property resulting from pollution, noise and other results of his operations.

The Contractor's attention is also drawn to the Environmental Management Specification in the Scope of Work.

Clause 5.3.1:

The documentation required before commencement with Works execution is:

- a) Health and Safety Plan (refer to the Safety Specification in Part C3.5 in the Scope Work)
- b) Initial programme (Refer to Clause 5.6)
- c) Security (Refer to Clause 6.2)
- d) Evidence of insurance (Refer to Clause 8.6)
- e) Occupational Health and Safety Agreement (Part C1.5 in Agreements and Contract Data)
- f) Letter of good standing from the Compensation Commissioner, or a licensed compensation insurer (Refer to Clause 4.3)
- g) Protection of the Environment Declaration (Part C1.6 in Agreements and Contract Data)
- h) Proof of Registration / Letter of Good Standing with the Bargaining Council for the Civil Engineering Industry (BCCEI)

Add the following to Clause 5.3.1:

Such instruction shall, where the Contract Sum exceeds one hundred and thirty million Rand (R130 000 000), also be subject to the issuing, by the Provincial Director of the Department of Labour, of a construction work permit to perform the intended construction work in terms of Clause 5.3.4 below.

Clause 5.3.2:

The time to submit the documentation required before commencement with Works execution is within 14 days.

Clause 5.3.3:

Add the following to Clause 5.3.3:

Notwithstanding the above, where the Contract Sum exceeds one hundred and thirty million Rand (R130 000 000), and a construction work permit from the Provincial Director of the Department of Labour is required, commencement of the Works shall not be deemed to take place until such construction work permit has been issued by the Provincial Director.

Clause 5.3.4:

Add the following Clause after Clause 5.3.3:

5.3.4 Application for Construction Work Permit

Where the Contract Sum exceeds one hundred and thirty million Rand (R130 000 000), the Employer shall, in compliance with Regulation 3 of the Construction Regulations, read together with the exemptions published in the unnumbered Government Notice in July 2015, apply to the Provincial

Director of the Department of Labour for a construction work permit to perform the intended construction work. The employer will apply for the construction work permit as soon as possible after its Bid Adjudication Committee has awarded the contract, and the period that the Department of labour requires to issue the permit will run concurrently with the appeal period (Clause F.3.13.3 of Part T1.2 Tender data, refers).

Should the issuing of a construction work permit delay the Engineer's instruction to commence executing the Works and this in turn causes a delay to Practical Completion, then the Contractor shall be entitled to make a claim in accordance with Clause 10.1. Should, however, the issuing of a construction work permit be delayed by the submission of a unacceptable draft Health and Safety Plan, in the opinion of either the Employer's Health and Safety Agent, or the Provincial Director of the Department of Labour, no claim for an extension of time will be entertained.

Clause 5.4.2:

Access to and possession of the Site shall not be exclusive to the Contractor insofar as the provisions of Clause 4.8 apply, and where ongoing use by the general public is required.

Add the following Clause after Clause 5.4.3:

5.4.4 The Contractor shall bear all costs and charges for special and temporary rights of way required by him in connection with access to the Site.

Clause 5.6.2.3:

Insert the following after "...approvals,":

"permits"

Clause 5.8.1:

The non-working days are Sundays.

The Special non-working days are:

- a) Allowance for at least two (2) anticipated statutory holidays due to national elections/ voting days in RSA;
- b) All gazetted public holidays falling outside the year end break;
- c) The year-end break(s), as defined below, but not exceeding fifteen (15) working days:
 - i) 15 December 2017 to 5 January 2018 inclusive for the first year of the Contract;
 - ii) 14 December 2018 to 4 January 2019 inclusive for the second year of the Contract;
 - iii) 13 December 2019 to 3 January 2020 inclusive for the third year of the Contract; and
 - iv) 15 December 2020 to 3 January 2021 inclusive for the ~~fourth~~ ^{fifth} year of the Contract
 - iv) 15 December 2021 to 3 January 2022 inclusive for the fifth year of the Contract

Clause 5.12.2.2:

No extension of time will be granted in respect of any delays attributed to normal climatic conditions. Normal climatic conditions shall be deemed to include normal rainfall and associated wet conditions and materials, strong winds and extremes of temperature. However, in the event that delays to critical activities exceed the number of working days listed below for each month, then abnormal climatic conditions shall be deemed to exist, and an extension of time may be claimed in accordance with the provisions of Clause 5.12.

The number of days quoted below shall be regarded as a fair estimate of the delays to be anticipated and allowed for under normal climatic conditions where inclement weather prevents or disrupts critical work.

January	2 days
February	2 days
March	2 days
April	2 days
May	2 days
June	4 days
July	4 days
August	4 days
September	4 days
October	2 days
November	2 days
December	2 days

Claims for delays for abnormal climatic conditions shall be accompanied by substantiating facts and evidence, which shall be submitted timeously as each day or half-day delay is experienced.

It shall be further noted that where the critical path is not affected, no extension of time for abnormal climatic conditions or for any other reason will be entertained.

Clause 5.13.1:

The penalty for failing to complete the Works by the respective Due Completion Date shall be:

- a) For Portion A of the Works as defined in C3.1 of the Scope of Work: R 50 000 (exclusive of VAT) per calendar day.
- b) For Portion B of the Works as defined in C3.1 of the Scope of Work: R 20 000 (exclusive of VAT) per calendar day.
- c) For Portion C of the Works as defined in C3.1 of the Scope of Work: R 30 000 (exclusive of VAT) per calendar day.

The above penalties are cumulative.

Insert the following after "actual date of Practical Completion":

... or, in the case of termination by the Employer in terms of Clause 9.2.1, the actual date of termination,

Clause 5.14.5.1:

Delete Clause 5.14.5.1 in its entirety and replace with the following:

The performance guarantee shall be retained by the Employer until Certificates of Completion have been issued for all three portions of the Works. Only then shall the performance guarantee be returned (within 14 days) to the Guarantor.

Clause 5.14.7:

In the second last line of Clause 5.14.7, after the work, "provisions", add:

... with the exception of 5.14.5.1.

Add the following to Clause 5.14.7:

The Performance Guarantee shall be returned within 14 days of the date on which all of the Portions have been issued a Certificate of Completion.

Clause 5.16.3:

The latent defects period is 10 years.

Clause 6.2.1:

The security to be provided by the Contractor shall be a performance guarantee of 7% of the Contract Sum. The performance guarantee shall contain the precise wording of the document included in Part C1.3 of the Contract Data: **Form of Performance Guarantee**, and it shall be issued by a financial institution approved by the Employer, as listed in the Annexure attached thereto.

Clause 6.2.2:

Delete Clause 6.2.2 in its entirety.

Clause 6.2.3:

Delete Clause 6.2.3 in its entirety and replace with the following:

The Contractor shall ensure that the performance guarantee remains valid and enforceable until the Certificates of Completion of the Works for all three portions have been issued.

Clause 6.5.1.2.3:

The percentage allowance to cover overhead charges is 10%

Clause 6.8.2:

Add the following to Clause 6.8.2:

The Contract Price shall be subject to contract price adjustment in accordance with Clause 6.8 of the General Conditions of Contract.

If special materials are specified in Part 1 of the Contract Data then the provisions of Clause 6.8.3 of the General Conditions of Contract shall apply to such special materials.

Where applicable, in terms of the foregoing, the value of the certificates issued shall be adjusted in accordance with the Contract Price Adjustment Schedule with the following values:

The value of "x" is 0,10.

The values of the coefficients for "Concrete works" are:

a = 0,20 b = 0,25 c = 0,50 d = 0,05

The base month is one month prior to the month in which the tender closed.

Furthermore, the Contract Price Adjustment Schedule shall be amended as follows:

"L" is the "Labour Index" and shall be the Consumer Price Index (CPI) for the City of Cape Town, Western Cape, as published in the Statistical News Release, P0141 Additional Tables: Table 14 – CPI – all items, according to area, of Statistics South Africa.

"P" is the "Plant Index" and shall be the Producer Price Index for selected materials, Plant for "Concrete works" as published in the Statistical News Release P0151, Table 4 of Statistics South Africa.

"M" is the "Materials Index" and shall be the Producer Price Index for selected materials, Materials for "Concrete works" as published in the Statistical News Release P0151, Table 4 of Statistics South Africa.

"F" is the "Fuel Index" and shall be the Producer Price Index for selected materials, Diesel fuel – Coast and Witwatersrand, as published in the Statistical News Release P0151, Table 4 of Statistics South Africa.

Clause 6.8.3: Variation in the cost of special materials

Price adjustment for variations in the cost of special materials is provided for in the Special Materials Schedule at the end of this Part1: Contract Data provided by the Employer.

Clause 6.8.4:

Add the following to Clause 6.8.4:

Notwithstanding the above, in the event that a public holiday is proclaimed after 28 days before the closing date for tenders, no costs other than those that can be claimed under Clause 5.12.3 shall be added to the contract price.

Clause 6.10.1.5:

Delete Clause 6.10.1.5 in its entirety and replace with the following:

6.10.1.5 The value of Plant and materials:

6.10.1.5.1 up to a percentage limit of 80% for the Plant and materials referred to in Clause 6.9.1.1 brought on to the Site but not yet built into the Permanent Works;

Provided that the Contractor has produced documentary evidence of ownership of such Plant and/or materials and has delivered to the Employer an indemnity, approved in writing by the Employer, against any claim to or in respect of such Plant and/or materials by reason of the Contractor's sequestration or liquidation, or of any defect in the Contractor's title to the Plant and/or materials;

6.10.1.5.2 which have been manufactured and are stored at places other than the Site, in respect of which the Employer has indicated, on the Advance Payment Schedule, that advance payment will be permitted;

6.10.1.5.3 for which a deposit with order is required from the Contractor by a manufacturer/supplier, only in respect of which the Employer has indicated, on the Advance Payment Schedule, that advance payment will be permitted;

The terms and conditions for advance payment are set out in Clause 6.10.10 and in the Advance Payment Schedule at the end of this Part 1: Contract Data provided by the Employer.

Clause 6.10.1.7:

Add the following after the words "Clause 5.13":

or any other fines or penalties that become due under the Contract.

Clause 6.10.3:

Add the following to Clause 6.10.3:

Notwithstanding the provision of a performance guarantee in terms of Clause 6.2.1, interim payments to the Contractor shall be subject to a retention by the Employer of an amount of 5% of the said amounts due to the Contractor, with no limit. A guarantee in lieu of retention is not permitted.

Clause 6.10.4:

Add the following to the last sentence of Clause 6.10.4:

..., dated as at the date of delivery of the Contractor's statement to the Engineer.

Add the following to Clause 6.10.4:

Notwithstanding the above, the Engineer shall be empowered to withhold the delivery of the payment certificate until the Contractor has complied with his obligations to report in terms of Clause 4.10.2 and as described in the Scope of Work.

Clause 6.10.10:

Add the following Clause after Clause 6.10.9:

6.10.10 Advance payment

Subject to Clauses 6.10.1.5.2 and 6.10.1.5.3, and the Advance Payment Schedule, the Employer shall make an advance payment for Plant and materials stored at places other than the Site, or in respect of which a deposit with order is required, only once the Contractor has submitted an advance payment guarantee in accordance with this Clause.

Unless and until the Employer receives this guarantee, the following paragraphs shall not apply.

The Engineer shall issue an Interim Payment Certificate for, or including, advance payment after receiving a statement under Clause 6.10.1 and after the Employer has received a guarantee in an amount equal to the advance payment requested. This guarantee shall be issued by a financial institution approved by the Employer, as listed in the Annexure in Part C1.3 of the Contract Data, and shall be in the form of and shall contain the precise wording of the document included in Part C1.4: **Form of Advance Payment Guarantee** and shall come into force, be administered and expire in terms thereof.

The Employer shall return the guarantee to the Contractor within 14 days after the expiry date.

The provision of the Advanced Payment Guarantee shall be at the Contractor's cost.

The term "deposit" or "deposit with order" used in the context of this Clause and elsewhere by reference to this Clause, means a sum payable by the Contractor to a manufacturer/supplier prior to the manufacture of an item of Plant or material, required at the time of placing an order, the balance of the value of the item being payable later.

Clause 8.6.1.1.2:

The value of Plant and materials supplied by the Employer to be included in the insurance sum is R 0.00 (Nil).

Clause 8.6.1.1.3:

The amount to cover professional fees for repairing damage and loss to be included in the insurance sum is R1 000 000 (One Million Rand).

Clause 8.6.1.3:

The limit of indemnity for liability insurance is R20 000 000.00 for any single claim – the number of claims to be unlimited during the construction and defects liability periods.

Clause 8.6.1.5:

In addition to the insurances required in terms of General Conditions of Contract Clauses 8.6.1.1 to 8.6.1.4 the following insurance is also required:

- a) Insurance of Construction Equipment (including tools, offices and other temporary structures and contents) and other things (except those intended for incorporation into the Works) brought onto the site for a sum sufficient to provide for their replacement.
- b) Insurance in terms of the provisions of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993.
- c) Motor Vehicle Liability Insurance comprising (as a minimum) "Balance of Third Party" Risks including Passenger Liability Indemnity.
- d) Where the contract involves manufacturing and/or fabrication of the works or part thereof at premises other than the Site, the Contractor shall satisfy the Employer that all materials and equipment for incorporation in the works are adequately insured during manufacture and/or fabrication. In the event of the Employer having an insurable interest in such works during manufacture or fabrication then such interest shall be noted by endorsement to the Contractor's Policies of Insurance.

Clause 8.6.6:

Add the following at the end of Clause 8.6.6:

The evidence that the insurances have been effected in terms of Clause 8.6.1, shall be in the form of an insurance broker's warranty worded precisely as given in Part C1.7 Insurance Broker's Warranty.

Clause 9.1:

In Clause 9.1.6 replace "and 9.1.3" with:

, 9.1.3 and 9.1.7

Add the following Clause after Clause 9.1.6:

9.1.7 Death of Sole Proprietor/Member

Upon the death of the Contractor who was a Sole Proprietor, or a sole member of a Close Corporation, the Contract will terminate forthwith. The Employer shall pay to the Contractor's estate any money which it considers due under the Contract in terms of Clause 9.1.5, in full and final settlement thereof.

Clause 9.2.1:

Delete "or" at the end of Clause 9.2.1.3.6 and add the following Clause after Clause 9.2.1.3.7:

9.2.1.3.8 Has failed to provide the required insurances within the prescribed time,

Clause 10.5.3:

The number of ad-hoc Adjudication Board Members to be appointed is 1 (one).

ADDITIONAL CONDITIONS OF CONTRACT

Add the following Clause after Clause 10:

Clause 11 Details to be confidential

The Contractor shall treat the details of the Works comprised in this Contract as private and confidential (save in so far as may be necessary for the purposes hereof) and shall not publish or disclose the same or any particulars thereof in any trade or technical paper elsewhere without the prior written consent of the Engineer.

SPECIAL MATERIALS SCHEDULE

Each material dealt with as a special material in terms of Clause 4.1 of the Contract Price Adjustment Schedule of the General Conditions of Contract is stated in the list below. The provisions of Clause 6.8.3 of the General Conditions of Contract shall apply to such special materials. The base prices for the special materials (current at the time of tender), shall be furnished by the tenderer/contractor in the schedule below. Only those materials listed by the Employer below shall be considered as special materials.

Special Material	Unit	Base Price
Reinforcing Steel	ton	The Arcelor Mittal prices, as published in their official price lists, current at the time of tender closing, will be used for determining the adjustment in steel prices.
Structural Steelwork	ton	AS PER ABOVE

Conditions:

- 1) When called upon to do so, the contractor shall substantiate the prices to be used to determine the adjustment in respect of the special materials listed above with acceptable documentary evidence.
- 2) Where an adjustment for the variation in the price is claimed, the claim must be substantiated by a declaration from the manufacturer, confirming the source used in such products at the time in question.

ADVANCE PAYMENT SCHEDULE	
This Advance Payment Schedule is to be read in conjunction with Clauses 6.10.1.5.2, 6.10.1.5.3 and 6.10.10 in the Contract Specific Data. The purpose of this schedule is to itemise specific Plant and materials not yet brought on to the Site for building into the Permanent Works and for which the Employer is prepared to make advance payments to the Contractor, subject to the conditions below. The items of Plant and materials which have been identified by the Employer as being suitable for advance payment in terms of the Contract are listed in the table below. Should an item or items be added to the list at tender stage by a tenderer, such item(s) will not be binding on the Employer.	
Plant and materials which have been manufactured and are stored at places other than the Site:	Plant and materials yet to be manufactured and for which a deposit with order is required from the Contractor by a manufacturer/supplier, and which may be stored at places other than the Site after manufacture:
None.	None.
Conditions: 1) The Contractor can only rely on advance payment being permitted by the Employer in respect of the Plant and materials listed in the table above. The Employer may, however, permit advance payment for other Plant and materials in exceptional circumstances and at its sole discretion, during the course of the Contract, and upon reasonable request from the Contractor. 2) Advance payment for the purposes of deposits will only be provided up to a limit of 20% of the value of any one item being claimed. 3) The Contractor shall provide the Employer with documentary evidence of the terms and conditions for which a deposit with order is required by a manufacturer/supplier, together with the advance payment guarantee. 4) The Contractor will also be permitted to obtain advance payment for the balance of the value of the Plant and materials in respect of which he has paid a deposit, for an item which after manufacture is stored at a place other than the Site. The Contractor shall, in respect of such payment, provide an advance payment guarantee, either for such balance or, if the advance payment guarantee in respect of the deposit is to be returned by the Employer upon request, for the whole value of the item.	

Part 2: Data provided by the Contractor

Clause 1.1.1.9:

The name of the Contractor is

Clause 1.2.1.2:

The address of the Contractor is

Physical
Address

Postal
Address

Telephone

Fax:

email :

CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 179Q/2016/17

CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER
TREATMENT WORKS: CIVIL WORKS

C1.3 Form of Performance Guarantee

PERFORMANCE GUARANTEE

For use with the General Conditions of Contract for Construction Works, Second Edition, 2010.

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means:

"Physical address:

"Employer" means: The City of Cape Town, WATER AND SANITATION.

"Contractor" means:

"Engineer" means:

"Works" means: Contract No. 179Q/2016/17: Construction of an MBR Plant and Bottleneck Alleviation at
Zandvliet Wastewater Treatment Works: Civil Works.

"Site" means: The site as defined in Clause 1.1.1.29 of the General Conditions of Contract.

"Contract" means: The Agreement made in terms of the Form of Offer and Acceptance and such amendments or
additions to the Contract as may be agreed in writing between the parties.

"Contract Sum" means: The accepted amount inclusive of tax of R.....

Amount in words:

"Guaranteed Sum" means: The maximum aggregate amount of R.....

Amount in words:

"Expiry Date" means: The date of issue by the Engineer of the Certificate of Completion of the Works.

CONTRACT DETAILS

Engineer issues: Interim Payment Certificates, Final Payment Certificate and the Certificate of Completion of the
Works as defined in the Contract.

PERFORMANCE GUARANTEE

1. The Guarantor's liability shall be limited to the amount of the Guaranteed Sum.
2. The Guarantor's period of liability shall be from and including the date of issue of this Performance
Guarantee and up to and including the Expiry Date or the date of payment in full of the Guaranteed Sum,
whichever occurs first. The Engineer and/or the Employer shall advise the Guarantor in writing of the date
on which the Certificate of Completion of the Works has been issued.

3. The Guarantor hereby acknowledges that:
 - 3.1 any reference in this Performance Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship;
 - 3.2 its obligation under this Performance Guarantee is restricted to the payment of money.
4. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:
 - 4.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Engineer in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 4.2;
 - 4.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 4.1 and the sum certified has still not been paid;
 - 4.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 4.
5. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:
 - 5.1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 5; or
 - 5.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 5; and
 - 5.3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.
6. It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4 and 5 shall not exceed the Guarantor's maximum liability in terms of 1.
7. Where the Guarantor has made payment in terms of 5, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.
8. Payment by the Guarantor in terms of 4 or 5 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.
9. Payment by the Guarantor in terms of 5 will only be made against the return of the original Performance Guarantee by the Employer.
10. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may deem fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
11. The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.
12. This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 2, whereafter no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.

13. This Performance Guarantee, with the required demand notices in terms of 4 or 5, shall be regarded as a liquid document for the purposes of obtaining a court order.
14. Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at

Date

Guarantor's signatory (1)

Capacity

Guarantor's signatory (2)

Capacity

Witness signatory (1)

Witness signatory (2)

ANNEXURE

LIST OF APPROVED FINANCIAL INSTITUTIONS

The following financial institutions are currently (as at 8 March 2016) approved for issue of contract guarantees to the City:

National Banks:

International Banks (with branches in SA):

Insurance companies:

CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 179Q/2016/17

CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER
TREATMENT WORKS: CIVIL WORKS

C1.4 Form of Advance Payment Guarantee

ADVANCE PAYMENT GUARANTEE

For use with the General Conditions of Contract for Construction Works, Second Edition, 2010.

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means:

"Physical address:

"Employer" means: The City of Cape Town, WATER AND SANITATION.

"Contractor" means:

"Engineer" means:

"Works" means: Contract No. 179Q/2016/17: Construction of an MBR Plant and Bottleneck Alleviation at
Zandvliet Wastewater Treatment Works: Civil Works.

"Site" means: The site as defined in Clause 1.1.1.29 of the General Conditions of Contract.

"Contract" means: The Agreement made in terms of the Form of Offer and Acceptance and such amendments or
additions to the Contract as may be agreed in writing between the parties.

"Plant and materials" means: The Plant and materials stored at places other than the Site, or in respect of which
an advance payment prior to manufacture is required, which the Employer has agreed may be subject to advance
payment, such Plant and materials being listed in the Schedule of Plant and materials.

"Schedule of Plant and materials" means: A list of Plant and materials which shows the value thereof to be
included in the Guaranteed Advance Payment Sum.

"Guaranteed Advance Payment Sum" means: The maximum aggregate amount of R.....

Amount in words:

"Expiry Date" means: The date of the payment certificate wherein the Plant and materials have been certified by
the Engineer as having been built into the Permanent Works.

CONTRACT DETAILS

Engineer issues: Interim Payment Certificates and Final Payment Certificate.

ADVANCE PAYMENT GUARANTEE

1. The Guarantor's liability shall be limited to the amount of the Guaranteed Advance Payment Sum.
2. The Guarantor's period of liability shall be from and including the date of issue of this Advance Payment
Guarantee and up to and including the Expiry Date or the date of payment in full of the Guaranteed
Advanced Payment Sum, whichever occurs first.

3. The Guarantor hereby acknowledges that:
 - 3.1 any reference in this Advance Payment Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship;
 - 3.2 its obligation under this Advance Payment Guarantee is restricted to the payment of money.
4. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:
 - 4.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Engineer in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 4.2;
 - 4.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) calendar days has elapsed since the first written demand in terms of 4.1 and the sum certified has still not been paid;
 - 4.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 4.
5. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor undertakes to pay to the Employer the Guaranteed Advance Payment Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Advance Payment Guarantee, such demand stating that:
 - 5.1 the Contract has been terminated due to the Contractor's default and that this Advance Payment Guarantee is called up in terms of 5; or
 - 5.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Advance Payment Guarantee is called up in terms of 5; and
 - 5.3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.
6. It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4 and 5 shall not exceed the Guarantor's maximum liability in terms of 1.
7. Payment by the Guarantor in terms of 4 or 5 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.
8. Payment by the Guarantor in terms of 5 will only be made against the return of the original Advance Payment Guarantee by the Employer.
9. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may deem fit and the Guarantor shall not have the right to claim his release from this Advance Payment Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
10. The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.
11. This Advance Payment Guarantee is neither negotiable nor transferable and shall expire in terms of 2, whereafter no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.
12. This Advance Payment Guarantee, with the required demand notices in terms of 4 or 5, shall be regarded as a liquid document for the purposes of obtaining a court order.

13. Where this Advance Payment Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at

Date

Guarantor's signatory (1)

Capacity

Guarantor's signatory (2)

Capacity

Witness signatory (1)

Witness signatory (2)

For use with Advance Payment Guarantees on contracts using the General Conditions of Contract for Construction Works, Second Edition, 2010.

The City of Cape Town, WATER AND SANITATION

.....

Contract No. 179Q/2016/17: Construction of an MBR Plant and Bottleneck Alleviation at Zandvliet Wastewater Treatment Works:

Payment Certificate No.

[illegible]

C1.4
Form of Advance Payment Guarantee

CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 179Q/2016/17

CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER TREATMENT WORKS:

C1.5 Occupational Health and Safety Agreement

AGREEMENT MADE AND ENTERED INTO BETWEEN THE CITY OF CAPE TOWN (HEREINAFTER CALLED THE "EMPLOYER") AND

(Contractor/Mandatory/Company/CC Name)

IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, 85 OF 1993 AS AMENDED.

I, ..., representing

....., as an employer in its own right, do hereby undertake to ensure, as far as is reasonably practicable, that all work will be performed, and all equipment, machinery or plant used in such a manner as to comply with the provisions of the Occupational Health and Safety Act (OHSA) and the Regulations promulgated thereunder.

I furthermore confirm that I am/we are registered with the Compensation Commissioner and that all registration and assessment monies due to the Compensation Commissioner have been fully paid or that I/We are insured with an approved licensed compensation insurer.

COID ACT Registration Number:

OR Compensation Insurer: .. Policy No.:

I undertake to appoint, where required, suitable competent persons, in writing, in terms of the requirements of OHSA and the Regulations and to charge him/them with the duty of ensuring that the provisions of OHSA and Regulations as well as the Council's Special Conditions of Contract, Way Leave, Lock-Out and Work Permit Procedures are adhered to as far as reasonably practicable.

I further undertake to ensure that any subcontractors employed by me will enter into an occupational health and safety agreement separately, and that such subcontractors comply with the conditions set.

I hereby declare that I have read and understand the appended Occupational Health and Safety Conditions and undertake to comply therewith at all times.

I hereby also undertake to comply with the Occupational Health and Safety Specification and Plan.

Signed at CENTURY CITY on the 03 day of SEPTEMBER 2019

Witness

Mandatory

Signed at CENTURY CITY on the 03 day of SEPTEMBER 2019

Witness

City of Cape Town

OCCUPATIONAL HEALTH AND SAFETY CONDITIONS

1. The Chief Executive Officer of the Contractor shall assume the responsibility in terms of Section 16(1) of the Occupational Health and Safety Act (as amended). Should the Contractor assign any duty in terms of Section 16(2), a copy of such assignment shall immediately be provided to the representative of the Employer as defined in the Contract.
2. All work performed on the Employer's premises shall be performed under the supervision of the construction supervisor who understand the hazards associated with any work that the Contractor performs on the site in terms of Construction Regulations, 2014.
3. The Contractor shall appoint a Competent Person who shall be trained on any occupational health and safety aspect pertaining to them or to the work that is to be performed.
4. The Contractor shall ensure that he familiarises himself with the requirements of the Occupational Health and Safety Act and that he, his employees, and any sub-contractors, comply with them.
5. Discipline in the interests of occupational health and safety shall be strictly enforced.
6. Personal protective equipment shall be issued by the Contractor as required and shall be worn at all times where necessary.
7. Written safe work procedures and appropriate precautionary measures shall be available and enforced, and all employees shall be made conversant with the contents of these practices.
8. No substandard equipment/machinery/articles or substances shall be used on the site.
9. All incidents referred to in terms of Section 24 of the Occupational Health and Safety Act shall be reported by the Contractor to the Department of Labour and the Employer.
10. 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 and into any incident involving a Contractor and/or his employees and/or his sub-contractor/s.
11. No use shall be made of any of the Employer's machinery/plant/equipment/substance/personal protective equipment or any other article without prior arrangement and written approval.
12. No alcohol or any other intoxicating substance shall be allowed on the site. Any person suspected of being under the influence of alcohol or any other intoxicating substance shall not be permitted access to, or allowed to remain on the site.
13. Prior to commencement of any work, verified copies of all documents mentioned in the agreement, must be presented to the Employer.
14. The Contractor shall prepare and maintain a Health and Safety File in respect of the project, which shall be available for inspection on Site at all times and handed over to the Employer on Final Completion of the project.

CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 179Q/2016/17

CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER TREATMENT WORKS: CIVIL WORKS

C1.6 Protection of the Environment Declaration

PROTECTION OF THE ENVIRONMENT DECLARATION

The Contractor will not be given right of access to the Site until this form has been signed

CONTRACT NO.: 179Q/2016/17

CONTRACT TITLE: CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER TREATMENT WORKS: CIVIL WORKS

I/ we (Contractor) record as follows:

1. I/ we, the undersigned, do hereby declare that I/ we am/ are aware of the increasing requirement by society that construction activities shall be carried out with due regard to their impact on the environment.
2. In view of this requirement of society and a corresponding requirement by the Employer with regard to this Contract, I/ we will, in addition to complying with the letter of the terms of the Contract dealing with protection of the environment, also take into consideration the spirit of such requirements and will, in selecting appropriate employees, plant, materials and methods of construction, in-so-far as I/ we have the choice, include in the analysis not only the technical and economic (both financial and with regard to time) aspects but also the impact on the environment of the options. In this regard, I/ we recognise and accept the need to abide by the "precautionary principle" which aims to ensure the protection of the environment by the adoption of the most environmentally sensitive construction approach in the face of uncertainty with regard to the environmental implications of construction.
3. I/ we declare that I/ we have read and understood the contents of the Environmental Management Programme (which is comprised of the Environmental Management Specification and its Annexures) for this Contract, and that I/ we understand my/our responsibilities in terms of enforcing and implementing the Environmental Management Programme. I/ we also declare that I/ we have made appropriate provision in my/ our pricing of the Bills of Materials items for the Environmental Management Programme.
4. I/ we acknowledge and accept the right of the Employer to deduct, should he so wish, from any amounts due to me/ us, such amounts (hereinafter referred to as fines) as the Engineer shall certify as being warranted in view of my/ our failure to comply with the terms of the Contract dealing with protection of the environment, subject to the following:
 - 4.1 The Engineer, in determining the amount of such fine, shall take into account, *inter alia*, the nature of the offence, the seriousness of its impact on the environment, the degree of prior compliance/non-compliance, the extent of the Contractor's overall compliance with environmental protection requirements and, in particular, the extent to which he considers it necessary to impose a sanction in order to eliminate/reduce future occurrences
 - 4.2 The Engineer shall, with respect to any fine imposed, provide me/ us with a written statement giving details of the offence, the facts on which the Engineer has based his assessment and the terms of the Contract (by reference to the specific clause) which has been contravened.

Signed
CONTRACTOR

Date: 03/09/19

CITY OF CAPE TOWN

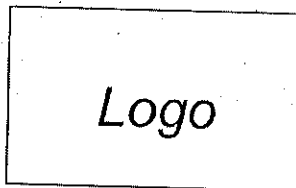
WATER AND SANITATION

CONTRACT NO. 179Q/2016/17

CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER
TREATMENT WORKS: CIVIL WORKS

C1.7 Insurance Broker's Warranty

Pro Forma



Letterhead of Contractor's Insurance Broker

Date _____

CITY OF CAPE TOWN
City Manager
Civic Centre
12 Hertzog Boulevard
Cape Town
8000

Dear Sir

CONTRACT NO.: 179Q/2016/17

CONTRACT TITLE: CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT
ZANDVLIET WASTEWATER TREATMENT WORKS: CIVIL WORKS

NAME OF CONTRACTOR: _____

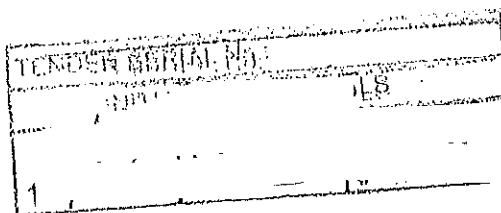
I, the undersigned, do hereby confirm and warrant that all the insurances required in terms of the abovementioned contract have been issued and/or in the case of blanket/umbrella policies, have been endorsed to reflect the interests of the CITY OF CAPE TOWN with regard to the abovementioned contract, and that all the insurances and endorsements, etc, are all in accordance with the requirements of the contract.

I furthermore confirm that all premiums in the above regard have been paid.

Yours faithfully

Signed: _____

For: _____



Part C2: Pricing Data

	Pages
C2.1 Pricing Assumptions.....	110 -- 111
C2.2 Bill of Quantities	112 -- 427

CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 179Q/2016/17

CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER TREATMENT WORKS: CIVIL WORKS

C2.1 Pricing Assumptions

Pricing Assumptions mean the criteria as set out below, read together with all Parts of this contract document, which it will be assumed in the Contract that the tenderer has taken into account when developing his prices.

1. The method of measurement published by the South African Bureau of Standards in clause 8 of the Standardised Specifications for Civil Engineering Construction is applicable, subject to the variations and amendments contained in the section "Applicable SANS 1200 standardised specifications".
2. Descriptions in the Bills of Quantities are abbreviated and comply generally with those in the Standardised Specifications. Clause 8 of each Standardised Specification, read together with the relevant clauses of the Scope of Work, set out what ancillary or associated activities are included in the rates for the operations specified. Should any requirements of the measurement and payment clause of the applicable Standardised Specification, or the Scope of Work, conflict with the terms of the Schedule, the requirements of the Standardised Specification or Scope of Work, as applicable, shall prevail.
3. The clauses in a specification in which further information regarding the schedule item appears under "Reference clause" in the Schedule. The reference clauses indicated are not necessarily the only sources of information in respect of scheduled items. Further information and specifications may be found elsewhere in the contract documents. Standardised Specifications are identified by the letter or letters which follow SANS in the SANS 1200 series of specifications, eg. G for SANS 1200 G.
4. The Tender Data, the Contract Data, the Scope of the Work and the Site Information are to be read in conjunction with the Bill of Quantities.
 - a) The Bill of Quantities comprises items covering the Contractor's profit and costs of general liabilities and of construction of temporary and permanent Works.
 - b) The Tenderer is at liberty to insert a rate of his own choosing for each item in the Bill but his attention is drawn to the fact that the Contractor has the right, under various circumstances, to payment for additional works carried out and that the Engineer is obliged to base his assessment of the rates to be paid for such additional work on the rates inserted in the Bill.
 - c) The measurement and payment clauses of each Specification, read together with the relevant clauses of the Project Specifications, set out what ancillary or associated activities are included in the rate for the operations specified.
2. Descriptions in the Bill are abbreviated and must be read in conjunction with the measurement and payment clauses of the applicable Specifications.
4. Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance is made for waste.
5. The quantities set out in the Bills of Quantities are the estimated quantities of the Contract Works, but the Contractor will be required to undertake whatever quantities may be directed by the Engineer from time to time. The Contract Price for the completed contract shall be computed from the actual quantities of work done, valued at the relevant unit rates and prices.
6. The prices and rates to be inserted in the Bills of Quantities are to be the full inclusive prices for the work described under the several items. Such prices and rates shall cover all costs and expenses that may be

required in and for the execution of the work described, and shall cover the cost of all general risks, liabilities, and obligations set forth or implied in the documents on which the tender is based, as well as overhead charges and profit. Reasonable prices shall be inserted as these will be used as a basis for assessment of payment for additional work that may have to be carried out.

7. A price or rate should be entered against each item in the Bills of Quantities, whether the quantities are stated or not. An item against which no price or a nil rate is entered will be considered to be covered by the other prices or rates in the Bills of Quantities, and that there is no charge for that particular item (even should the quantity subsequently increase).

8. Except where rates only are required, insert all amounts to be included in the total tendered price in the "Amount" column and show the corresponding total tendered price.

9. The units of measurement described in the Bills of Quantities are metric units. Abbreviations which may be used in these Bills of Quantities are as follows:

mm	=	millimetre	h	=	hour
m	=	metre	kg	=	kilogram
km	=	kilometre	t	=	ton (1000 kg)
m ²	=	square metre	No.	=	number
m ² .pass	=	square metre-pass	.sum	=	lump sum
ha	=	hectare	MN	=	meganewton
m ³	=	cubic metre	MN.m	=	meganewton-metre
m ³ .km	=	cubic metre-kilometre	P C sum	=	Prime Cost sum
l	=	litre	Prov sum	=	Provisional sum
kl	=	kilolitre	%	=	per cent
MPa	=	megapascal	kW	=	kilowatt

10. Where fractions of a cent occur in calculations of prices and amounts, they shall be rounded up/down to the nearest whole cent.
11. Clause F.4.12 c) in Part T1.2 Tender Data shall be applicable to the submission of Bills of Quantities which have been priced electronically, and which the Tenderer wishes to submit as a printed version with his/her tender in the place of handwritten priced Bills of Quantities.

If there is found to be any variance between the printed version and the original issued document, the original shall stand. However, where Addenda have been issued which amend the Bills of Quantities, then the printed Bills of Quantities shall take these into account.

The pages of the issued Bills of Quantities should not be removed from the tender document.

12. Tenderers are referred to Clause 8 Measurement and Payment in the Environmental Management (EM) Specification in Part C3.5 in the Scope of Work for the basic principles of measurement and pricing of the EM Specification.
13. Tenderers are referred to Clause 6.8.2 in Part C1.2 Contract Data regarding contract price adjustment.
14. Where quantities are measured as "(Provisional)" it shall be subject to remeasurement as executed and agreed to by the Engineer, and no guarantee is given that the assumption on which the quantities have been based are correct.
15. Where brand names or trade names are mentioned in descriptions, it shall be deemed that "equivalent and approved" be included in such descriptions.

CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 179Q/2016/17

CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET WASTEWATER
TREATMENT WORKS: CIVIL WORKS

C2.2 Bill of Quantities

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
SECTION A: PRELIMINARY AND GENERAL FOR ALL PORTIONS OF WORKS CITY OF CAPE TOWN Fixed-charge items: 11 MAR 2017 ESTABLISHMENT OF FACILITIES ON THE SITE SUPPLY CHAIN MANAGEMENT ENDER SERIAL No. INITIALS OF OFFICIALS						
A1	8.3.1	Contractual requirements (including Performance Guarantee and Insurances)	Sum	-	0,00	0,00
A2						
A3	8.3.2.3 PSA 8.3.2.1 PSA 8.8.9 PSA 8.10	Facilities for the Engineer as listed in C3.4.2.2 of Part C3: Scope of Work	Sum	-	109 368,00	109 368,00
A4	SANS 1200 AB PSAB 8.2.1.1	Computer(s)	Sum	-	0,00	0,00
A5	SANS 1200 AB PSAB 8.2.1.2 PSAB 8.2.1.3	Telephone, internet, fax machine, scan-to-email machine and photocopy machine as specified	Sum	-	0,00	0,00
A6	SANS 1200 A 8.3.2.3 PSA 8.3.2.2 PSA 8.8.9	Facilities for the Contractor, including offices and storage sheds, workshops, laboratories, living accommodation, ablution and latrine facilities, tools and equipment, water supplies, electric power, communications, dealing with water access and plant	Sum	-	3 577 336,52	3 577 336,52
A7	PSA 8.13	Provision of security on site	Sum	-	0,00	0,00
A8	8.3.3	Other fixed-charge obligations:	Sum	-	0,00	0,00
A9		Attendance on the Mechanical and Electrical Contractor as specified in C3.4: Scope of Work	Sum	-	0,00	0,00
A10		Liaison and co-operation with other contractors as specified in C3.4: Scope of Work	Sum	-	0,00	0,00
A11		Setting out of the Works	Sum	-	0,00	0,00
A12	8.3.4 PSA 8.3.4	Removal of Engineer's and Contractor's site establishment and reinstatement of site on completion	Sum	-	0,00	0,00
Carried forward / ...						3 686 704,52

**MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS**

**SECTION A: PRELIMINARY AND GENERAL
FOR ALL PORTIONS OF WORKS**

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						3 686 704,52
A13	OHS Spec PSA 8.15	Health and safety: General safety obligations and all costs related to compliance with the OHS Act and Project Health and Safety Specification, not scheduled separately	Sum	-	0,00	0,00
A14		Risk assessment	Sum	-	0,00	0,00
A15		Health and safety plan	Sum	-	0,00	0,00
A16		Training	Sum	-	0,00	0,00
A17		Medical assessment of employees	Sum	-	0,00	0,00
A18		Monthly Health and safety reports	Sum	-	0,00	0,00
A19	PSA8.16	HIV/AIDS awareness: compliance with the requirements of SANS 1921-6	Sum	-	0,00	0,00
A20		All other costs to comply with the Project requirements of the OHS Act and Health and Safety specification	Sum	-	0,00	0,00
A21	SPEC EM PSA8.14	Environmental Management: General environmental management obligations and all costs related to compliance with the Specification EM (in C3.3 and C3.4) and the Part C4.3: Environmental Management Plan, including the provision for storm water control, bunded areas, dust control etc.	Sum	-	0,00	0,00
A22		All other fixed-charge obligations not scheduled separately	Sum	-	0,00	0,00
A23	PSA8.18	Quality Management Plan: Submission of approved Quality Management Plan as specified in PSHC 7.2.1 and C3.4.3.13 of Part C3: Scope of Work, including the QCP and all pre-manufacturing documentation in compliance with Specification	Sum	-	0,00	0,00
Carried forward / ...						3 686 704,52

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION A: PRELIMINARY AND GENERAL
FOR ALL PORTIONS OF WORKS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						3 686 704,52
A24	PSA 8.2.2 8.4.1 PSA 8.4.1	Time-related items: Contractual requirements (including Performance Guarantee and insurances)	Sum	-	14 470 933,96	14 470 933,96
A25	8.3.2.3 PSA 8.4.2.1	Operation and maintenance of facilities on Site Facilities for the Engineer as listed in C3.4.2.2 of Part C3: Scope of Work	Sum	-	553 784,00	553 784,00
A26	SANS 1200 AB PSAB 8.2.1.1	Computer(s)	Sum	-	0,00	0,00
A27	SANS 1200 AB PSAB 8.2.1.2 PSAB 8.2.1.3	Telephone, internet, fax machine, scan-to-email machine and photocopy machine as specified	Sum	-	0,00	0,00
A28	8.4.2.3 PSA 8.4.2.2	Facilities for Contractor as Item A6	Sum	-	30 445 120,30	30 445 120,30
A29	PSA 8.8.1	Maintain temporary site roads	Sum	-	0,00	0,00
A30	8.4.3 8.4.4	Supervision and company and head office overhead costs	Sum	-	14 474 455,98	14 474 455,98
A31	PSA 8.13	Provision of security on site	Sum	-	0,00	0,00
A32	OHS SPEC PSA 8.15	All other time-related obligations not scheduled separately Health and safety: General safety obligations and all costs related to compliance with the OHS Act and the Specification, not scheduled separately	Sum	-	0,00	0,00
A33		On-going risk assessment	Sum	-	0,00	0,00
A34		Maintain health and safety plan	Sum	-	0,00	0,00
A35		Health and safety officer and other health and safety appointments	Sum	-	0,00	0,00
A36		Training	Sum	-	0,00	0,00
Carried forward / ...						63 630 998,76

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION A: PRELIMINARY AND GENERAL
FOR ALL PORTIONS OF WORKS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						64 180 821,26
	SANS 1200 A 8.7 PSA 8.7	Daywork				
		Personnel:				
		Allow for the cost of all personnel, at full cost of employment including profit:				
		<u>During normal working hours:</u>				
A47		Surveyor	h	225	244,12	54 927,00
A48		Foremen	h	225	254,98	57 370,50
A49		Skilled labour (Artisan)	h	1100	109,37	120 307,00
A50		Semi-skilled labour	h	750	70,74	53 055,00
A51		Unskilled labour	h	1350	55,17	74 479,50
		<u>Outside normal working hours and Saturdays:</u>				
A52		Surveyor	h	30	244,12	7 323,60
A53		Foremen	h	30	254,98	7 649,40
A54		Skilled labour (Artisan)	h	30	134,15	4 024,50
A55		Semi-skilled labour	h	30	86,77	2 603,10
A56		Unskilled labour	h	30	67,66	2 029,80
		<u>Outside normal working hours, Sundays and Public Holidays:</u>				
A57		Surveyor	h	60	244,12	14 647,20
A58		Foremen	h	60	254,98	15 298,80
A59		Skilled labour (Artisan)	h	60	170,89	10 253,40
A60		Semi-skilled labour	h	60	110,53	6 631,80
A61		Unskilled labour	h	60	86,20	5 172,00
Carried forward / ...						64 616 593,86

PORTION A OF THE WORKS

**MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIT WASTEWATER TREATMENT WORKS**

**SECTION AA: GENERAL AND
TEMPORARY WORKS**

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
	SANS 1200 A PSA 8.11	SECTION AA: GENERAL AND TEMPORARY WORKS				
		GENERAL WORKS:				
		General:				
AA1	PSA 8.8.2	Dealing with traffic	Sum	-	0,00	0,00
AA2	PSA 8.8.1	Dealing with access, including construction of temporary site roads	Sum	-	103 031,82	103 031,82
AA3	PSA 8.8.1	Remove temporary site roads and reinstate site	Sum	-	37 167,65	37 167,65
AA4	PSA8.12	Attendance on the Mechanical and Electrical Contractor as specified in C3.4: Scope of Work	Sum	-	0,00	0,00
AA5		Liaison and co-operation with other contractors as specified in C3.4: Scope of Work	Sum	-	0,00	0,00
AA6	PSA8.8.11.2	Setting out of the Works	Sum	-	0,00	0,00
AA7	PSA8.8.11.4	Survey for and preparation of as-built data	Sum	-	0,00	0,00
	SANS 1200 A PSA 8.5	Sums stated provisionally by the Engineer:				
AA8		Provision of furniture for offices	Prov Sum	-	-	175 000,00
AA9		Percentage adjustment on Item AA8 for Contractor's overheads and profit (<i>state % and extend as an amount</i>)	%	175 000	0,10	17 500,00
AA10	PSA 8.5.2	Inspection of corrosion protection of structural steel by an Independent Inspectorate	Prov Sum	-	-	100 000,00
AA11	PSA 8.5	Percentage adjustment on Item AA10 for Contractor's overheads and profit (<i>state % and extend as an amount</i>)	%	100 000	0,10	10 000,00
AA12	PSA 8.5	Inspection by Engineer of structural steel for roof of Machine Building etc.	Prov Sum	-	-	80 000,00
AA13		Percentage adjustment on Item AA12 for Contractor's overheads and profit (<i>state % and extend as an amount</i>)	%	80 000	0,10	8 000,00
Carried forward / ...						530 699,47

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AA: GENERAL AND
TEMPORARY WORKS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						530 699,47
AA14	PSA 8.5	Inspection by Engineer of diesel fuel tanks for the generators etc.	Prov Sum	-	-	125 000,00
AA15		Percentage adjustment on Item AA14 for Contractor's overheads and profit (<i>state % and extend as an amount</i>)	%	125 000	0,10	12 500,00
AA16		Locating, protection, alteration and relocation of existing services carried out by authorities	Prov Sum	-	-	100 000,00
AA17		Percentage adjustment on Item AA16 for Contractor's overheads and profit (<i>state % and extend as an amount</i>)	%	100 000	0,10	10 000,00
AA18		Independent inspectorate for testing of pipes, pipe specials and, valves at factory	Prov Sum	-	-	80 000,00
AA19	PSA8.18	Percentage adjustment on Item AA18 for Contractor's overheads and profit (<i>state % and extend as an amount</i>)	%	80 000	0,10	8 000,00
TEMPORARY WORKS:						
		Provision of temporary accommodation as specified in C3.4.5.4 of Scope of Work:				
AA20		Relocation of plant personnel and equipment into a temporary accommodation	Sum	-	43 394,57	43 394,57
21		Converting existing Sludge Dewatering Building into temporary Administration and Control Building, and later into New Maintenance and Workshop Building and Refurbishment of existing Workshop Building	Sum	-	0,00	0,00
AA22	PSA8.8.9(a)	Provision of temporary Administration and Control Building	Sum	-	613 414,95	613 414,95
Dealing with subsurface water:						
		Supply and install (and later removal) equipment to deal with subsurface water for the following:				
AA23		MBR Fine Screening Facility	Sum	-	0,00	0,00
AA24		Biological Reactor	Sum	-	0,00	0,00
AA25		MBR Filtration Trains	Sum	-	0,00	0,00
AA26		Machine Building	Sum	-	0,00	0,00
AA27		Diesel Fuel Tanks	Sum	-	0,00	0,00
Carried forward / ...						1 523 008,99

**MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS**

**SECTION AA: GENERAL AND
TEMPORARY WORKS**

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 523 008,99
AA28	SANS 1200 A PSA8.8.9(a)	Sundry & other miscellaneous structures	Sum	-	0,00	0,00
		Pipelines as shown on drawings and listed below :				
AA29		Pipeline PEF01 - 900mm diam-GRP	Sum	-	0,00	0,00
AA30		Pipeline PEA01 & PEB01- 800mm diam-GRP	Sum	-	0,00	0,00
AA31		Pipeline CPE01 - 1200mm diam-Concrete	Sum	-	0,00	0,00
AA32		Pipeline CPE02 - 1200mm diam-Concrete	Sum	-	0,00	0,00
	PSA 8.8.9(b)	Maintain and operate the above equipment to deal with subsurface water for the following:				
AA33		MBR Fine Screening Facility	Sum	-	0,00	0,00
AA34		Biological Reactor	Sum	-	0,00	0,00
AA35		MBR Filtration Trains	Sum	-	0,00	0,00
AA36		Machine Building	Sum	-	0,00	0,00
AA37		Diesel Fuel Tanks	Sum	-	0,00	0,00
AA38		Sundry & other miscellaneous structures	Sum	-	0,00	0,00
	SANS 1200 A PSA 8.8.9(b)	Pipelines as shown on drawings and listed below :				
AA39		Pipeline PEF01 - 900mm diam-GRP	Sum	-	0,00	0,00
AA40		Pipeline PEA01 & PEB01- 800mm diam-GRP	Sum	-	0,00	0,00
AA41		Pipeline CPE01 - 1200mm diam-Concrete	Sum	-	0,00	0,00
AA42		Pipeline CPE02 - 1200mm diam-Concrete	Sum	-	0,00	0,00
TOTAL SECTION AA CARRIED TO SUMMARY						R 1 523 008,99

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION AB: SITE CLEARANCE				
	SABS 1200 C	SITE CLEARANCE				
	PSC 8.2.1 PSD 8.3.1	Clear and grub:				
AB1		Platforms	m²	10 000	3,22	32 200,00
AB2		Roads	m²	2 000	3,22	6 440,00
AB3		Fence	m²	100	6,45	645,00
	8.2.2	Remove and grub large trees and tree stumps of girth:				
AB4		Over 1,0 m and up to and including 2,0 m	No.	2	4 540,90	9 081,80
AB5		Over 2,0 m and up to and including 3,0 m	No.	1	5 524,26	5 524,26
AB6	PSC 8.2.11	Take down/ dismantling and re-erecting of fences	m	70	59,84	4 188,80
AB7	PSC 8.2.12	Lift, remove, stack and maintain roll-on lawn	m²	200	42,43	8 486,00
AB8	PSD 8.3.11(c)	Supply and lay roll-on lawn to designated areas (to areas where existing structures have been removed)	m²	4 000	28,21	112 840,00
	PSC 8.2.14	Remove and dispose of existing off site:				
AB9		Kerbs / edging	m	700	34,73	24 311,00
AB10		Asphalt	m²	2 000	17,36	34 720,00
AB11		Concrete (30 MPa) 200 mm thick	m²	300	126,10	37 830,00
AB12		Brick paving	m²	1 500	8,68	13 020,00
AB13	PSC 8.2.15	Remove existing lights, store and reinstate	No.	6	1 250,05	7 500,30
TOTAL SECTION AB CARRIED TO SUMMARY					R	296 787,16

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION AC: EARTHWORKS				
	SANS 1200 D PSD 8.3.6	EARTHWORKS				
AC1	8.3.1.2 PSC 8.2.10	Remove material (see PSC 5.6) for later use as topsoil, stockpile and maintain	m ³	500	37,09	18 545,00
	PSD 8.2 PSD 8.3.2	Bulk excavation:				
	PSD 8.3.2(a)	Excavate in all materials and use for embankment or backfill or dispose as ordered. from:				
AC2		Necessary excavations	m ³	32 000	47,18	1 509 760,00
AC3		Designated borrow areas	m ³	1 000	47,18	47 180,00
AC4		Commercial sources	m ³	1 000	147,76	147 760,00
	PSD 8.3.2(b)	Excavate in all materials and dispose on site:				
AC5		Unsuitable material	m ³	500	37,09	18 545,00
AC6		Sludge	m ³	500	536,99	268 495,00
	PSD 8.3.2(c)	Extra-over Items AC2, AC3 and AC5 for:				
AC7		Hard rock excavation	m ³	800	108,50	86 800,00
	PSD 8.3.3	Restricted excavation:				
	PSD 8.3.3(a)	Excavate for restricted foundations, footings in all materials and use for embankment, backfill or dispose as ordered. for:				
AC8		MBR Plant (Module B)	m ³	1 700	89,84	152 728,00
AC9		Bioreactor (Module B)	m ³	3 300	89,84	296 472,00
AC10		MBR Fine Screens	m ³	1 000	89,84	89 840,00
AC11		Miscellaneous structures	m ³	500	89,84	44 920,00
AC12		MBR Permeate Effluent Chamber	m ³	50	89,84	4 492,00
AC13		Diesel Fuel Tanks	m ³	150	89,84	13 476,00
	PSD 8.3.3(b)	Extra-over subitems PSD 8.3.3(a) for:				
AC14		Hard rock excavation	m ³	150	236,05	35 407,50
Carried forward / ...						2 734 420,50

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AC: EARTHWORKS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						2 734 420,50
AC15	PSD 8.3.3(c)	Extra-over subitem PSD 8.3.3(a) for hand excavation where ordered by the Engineer	m ³	150	262,57	39 385,50
	SANS 1200 D 8.3.5 PSD 8.3.5	Extra excavation in all materials to provide working space around structure:				
AC16		MBR Plant (Module B)	m ²	800	116,02	92 816,00
AC17		Bioreactor (Module B)	m ²	700	232,04	162 428,00
AC18		MBR Fine Screens	m ²	200	116,02	23 204,00
AC19		Miscellaneous structures	m ³	100	116,02	11 602,00
AC20		MBR Permeate Junction Chamber	m ²	60	116,02	6 961,20
AC21		Diesel Fuel Tanks	m ²	50	116,02	5 801,00
	PSD 8.3.8.1	Hand excavation for locating and exposing existing services;				
AC22		In road ways	m ³	30	520,12	15 603,60
AC23		In all other areas	m ³	100	520,12	52 012,00
		FINISHINGS (see also Section AE)				
AC24	PSD 8.3.10	Topsolling	m ²	3 300	9,28	30 624,00
	PSD 8.3.11	Grassing:				
AC25		Hydroseeding	m ²	200	1,30	260,00
AC26		Straw stabilisation	m ²	100	0,65	65,00
AC27		With roll-on lawn from stockpile	m ²	50	8,49	424
AC28		With roll-on lawn from commercial sources	m ²	50	28,21	1 410,50
		Additional Items:				
AC29	PSD 8.3.14	Extra over item PSD 8.3.2 and PSD 8.3.3 for temporary stockpiling	m ³	10 000	28,53	285 300,00
	PSD 8.3.15	Compaction of in-situ material to 98% modified AASHTO density:				
AC30		Underneath structure foundation to a depth of 1000 mm	m ²	7 200	28,07	202 104,00
TOTAL SECTION AC CARRIED TO SUMMARY					R	3 664 421,80

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AD: MBR FINE
SCREENING FACILITY

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION AD : MBR FINE SCREENING FACILITY				
		Drawings No. 110585-WW-0910 to 0919				
	SANS 1200 D	EARTHWORKS				
		as specified in SANS 1200 D and in the project specifications				
	8.3.4 PSD 8.3.4	Importing of materials:				
AD1		(a) Pioneer stone layer 300mm thick to be used as working platform	m³	98	431,53	42 289,94
AD2		(b) Clean sand (600 mm thick) compacted to 100% modified AASHTO density in 150mm thick layers	m³	180	202,83	36 509,40
AD3		(c) 5% Stabilized clean sand compacted to 100% modified AASHTO density in 150mm thick layers for backfilling the void between inlet sump and outlet sump	m³	333	315,65	105 111,45
	SANS 1200 G	CONCRETE WORK				
	8.1.1 PSG 8.1.1	Formwork				
	8.2.1	Rough formwork:				
		Plane vertical to:				
AD4		(a) Sides of perimeter (battered) walls measured from bottom to 300mm below NGL	m²	139	482,46	67 061,94
AD5		(b) External walls under fine screens area	m²	245	482,46	118 202,70
AD6		(c) Sides of columns for skips apron staircases	m²	14	482,46	6 754,44
AD7		(d) Sides of footings up to 350 mm high (at level of 15.55m):	m	156	171,62	26 772,72
Carried forward / ...						402 702,59

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AD : MBR FINE
SCREENING FACILITY

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						402 702,59
	SANS 1200 G 8.2.2	Smooth formwork:				
		Plane vertical to:				
		(a) External walls				
AD8		(i) Overflow sump wall	m ²	106	482,46	51 140,76
AD9		(ii) Fine screens side walls	m ²	120	482,46	57 895,20
AD10		(iii) Inlet sump outer wall	m ²	61	435,81	26 584,41
AD11		(iv) Fine screens outlet front wall	m ²	110	435,81	47 939,10
		(b) Internal walls				
AD12		(i) Inlet pipe chamber walls	m ²	68	482,46	32 801,12
AD13		(ii) Overflow sump walls	m ²	173	435,81	75 395,13
AD14		(iii) Inlet sump walls	m ²	118	435,81	51 425,58
AD15		(iv) Screened sewage sump side walls	m ²	93	435,81	40 530,33
AD16		(v) Reactor distribution chamber side walls	m ²	20	435,81	8 716,20
AD17		(vi) Fine screens outlet sump side walls	m ²	82	435,81	35 736,42
AD18		(vii) Internal dividing, baffle, and weir walls for screened sewage sump, reactor distribution chamber and outlet sump	m ²	446	389,15	173 560,90
AD19		(c) Sides of fine screen mounts	m ²	43	482,46	20 745,78
AD20		(d) Sides of screenings conveyer channel (450 mm to 500 mm high)	m ²	32	482,46	15 438,72
	8.2.5	Narrow sections:				
AD21		(a) Narrow sections over 150 mm up to 300 mm high	m	85	148,00	12 580,00
AD22		(b) Sides of skips apron slab up to 350 mm high	m	76	148,00	11 248,00
AD23		(c) To sides of stairs 300 mm high extreme	m	43	171,62	7 379,66
AD24		(d) To stair risers up to 200 mm high	m	61	114,41	6 979,01
AD25		(e) Sides of 150 mm high upstand beams	m	15	85,81	1 287,15
Carried forward / ...						1 080 092,22

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AD: MBR FINE
SCREENING FACILITY

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 080 092,22
	SANS 1200 G PSG 8.1.1.10	Plane horizontal to:				
AD26		(a) Overflow sump suspended floor slab, with an average prop height of approximately 2.10m measured from inlet pipe chamber FFL at 15.90	m²	27	838,07	22 627,89
AD27		(b) Overflow sump suspended slab / walkway, with an average prop height of approximately 4.35m measured from overflow sump FFL at 18.30	m²	21	756,69	15 890,49
AD28		(c) Inlet sump suspended slab / walkway, with an average prop height of approximately 1.90 measured from inlet inlet sump FFL at 20.450	m²	7	838,07	5 866,49
AD29		(d) Inlet sump cantilever slab / walkway, with an average prop height of approximately 1.90m measured from inlet sump FFL at 20.450	m²	13	838,07	10 894,91
AD30		(e) Screened sewage sump suspended slab / walkway, with an average prop height of approximately 1.15 m measured from screened sewage sumo FFL at 18.30	m²	81	838,07	67 883,67
AD31		(f) Screened sewage sump suspended slab / walkway, with an average prop height of approximately 3.55m measured from screened sewage sumo FFL at 15.90	m²	10	756,69	7 566,90
AD32		(g) Reactor distribution chamber suspended slab / walkway, with an average prop height of approximately 3.55m measured from reactor distribution chamber FFL at 15.90	m²	54	756,69	40 861,26
AD33		(h) Fine screens outlet sump suspended slab / walkway, with an average prop height of approximately 3.55m measured from fine screens outlet sump FFL at 15.90	m²	25	756,69	18 917,25
AD34	(i) Screenings conveyer suspended channel, with an average prop height of approximately 3.10m measured from screened sewage sumo FFL at 15.90	m²	17	756,69	12 863,73	
Carried forward / ...						1 283 464,81

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AD : MBR FINE
SCREENING FACILITY

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 283 464,81
AD35	SANS 1200 G PSG 8.1.1.9 PSG 8.1.1.10	(h) Stair case platforms, with an average prop height of approximately 1.4m measured from fine screens walkway FFL at 19.75 Plane sloping to:	m ²	3	571,29	1 713,87
AD36	8.2.6	(a) Underside/soffit of concrete stairs Box out holes and forming grooves in walls and slabs not exceeding 350mm thick:	m ²	22	973,39	21 414,58
AD37		(a) Small circular box out area up to and including 0.1 m ² for depths up to and including 400 mm	No.	9	658,55	5 926,95
AD38		(b) Large, other than circular of area over 0,1m ² and up to and including 0,5m ²	No.	9	3 327,92	29 951,28
AD39		(c) Large, other than circular of area over 0,85m ² and up to and including 1,2m ²	No.	4	3 559,42	14 237,68
AD40		(d) Form weir bevel	m	15	815,03	12 225,45
AD41		(e) Form slots for sluice gate frames (50 x 80 mm deep refer to drawing)	m	43	359,72	15 467,96
AD42	SANS 1200 A PSA 8.18 SANS 1200 G PSG 8.6	Box out with continuous rebar in terms of PSG 5.5.20				
	PSG 8.1.2	(a) Large, other than circular of area over 0,1m ² and up to and including 0,85m ²	No.	13	3 443,67	44 767,71
	8.3.1	Reinforcement: Mild steel bars:				
AD43		(a) 8 mm dia	t	2,7	11 923,95	32 194,67
AD44		(b) 10 mm dia	t	3,6	11 923,95	42 926,22
AD45		(c) 12 mm dia	t	2,7	11 923,95	32 194,67
Carried forward / ...						1 536 485,84

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 536 485,84
	8.3.1	High tensile steel bars:				
AD46		(a) 10 mm dia	t	4,0	11 923,95	47 695,80
AD47		(b) 12 mm dia	t	8,0	11 923,95	95 391,60
AD48		(c) 16 mm dia	t	11,8	11 923,95	140 702,61
AD49	SANS 1200 G	(d) 20 mm dia	t	28,0	11 923,95	333 870,60
AD50		(e) 25 mm dia	t	24,0	11 923,95	286 174,80
AD51		(f) 32 mm	t	4,0	11 923,95	47 695,80
	SANS 1200 G 8.1.3 PSG 8.1.3	Concrete				
	PSG 8.4.3	Concrete Grade 15 MPa/20 mm (mass concrete) to:				
AD52	8.4.2 PSG 8.1.1.8	(a) 75 mm minimum thickness	m ²	425	118,64	50 422,00
		(b) Pipe encasement				
AD53		(i) Fine screen overflow pipes to overflow sump	m ³	17	1 466,83	24 936,11
AD54		(ii) Overflow pipe under skip apron slab	m ³	7	1 466,83	10 267,81
AD55		(c) Benching	m ³	4	1 399,59	5 598,36
	PSG 8.4.3	Strength concrete Grade 25 MPa/20 mm (watertight reinforced concrete) to:				
AD56		(a) Mass concrete for inlet pipe chamber	m ³	54	1 829,25	98 779,50
AD57		(b) Mass concrete for inlet sump	m ³	58	1 829,25	106 096,50
	PSD 8.3.2(a)	Excavate in all materials and use for embankment or backfill or dispose as ordered, from:				
		(a) Footing up to 350 mm thick				
AD58		(i) Overflow and inlet pipe chamber footing	m ³	19	108,86	2 068,34
AD59		(ii) Fine screens side wall footing	m ³	6	108,86	653,16
Carried forward / ...						2 786 838,83

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AD : MBR FINE
SCREENING FACILITY

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						2 786 838,83
AD60	SANS 1200 G PSG 8.4.3	(iii) Fine screen sump, distribution chamber & outlet sump footing	m³	55	108,86	5 987,30
AD61		(iv) Skips abron slab staircase footings	m³	3	108,86	326,58
AD62		(b) Overflow sump floor slab	m³	6	108,86	653,16
AD63		(c) Screened sewage sump floor slab	m³	25	108,86	2 721,50
AD64		(d) Fine screen mounts	m³	17	108,86	1 850,62
AD65		(e) Skips apron floor slab	m³	96	108,86	10 450,56
Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for suspended slabs (platforms and walkway slabs):						
AD66		(a) Overflow and Inlet sump	m³	16	1 780,93	28 494,88
AD67		(b) Fine screens, distribution and outlet chamber	m³	48	1 780,93	85 484,64
AD68		(c) Screenings conveyer	m³	25	1 780,93	44 523,25
AD69	(d) Staircase landings	m³	2	1 780,93	3 561,86	
AD70	PSG 8.4.3	(e) Stairs	m³	4	1 982,65	7 930,60
Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for walls:						
(a) Walls 300 mm thick						
AD71		(i) Perimeter walls	m³	118	1 740,59	205 389,62
AD72		(ii) Inlet pipe chamber walls	m³	16	1 740,59	27 849,44
AD73		(iii) Overflow sump walls	m³	50	1 740,59	87 029,50
AD74		(iv) Inlet sump walls	m³	17	1 740,59	29 590,03
AD75		(v) Screened sewage sump wall	m³	14	1 780,93	24 933,02
(b) Walls 250 mm thick						
AD76		(i) Rector distribution chamber walls	m³	49	1 740,59	85 288,91
AD77	(ii) Screenings conveyer side wall	m³	4	1 780,93	7 123,72	
Carried forward / ...						3 446 028,02

**MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS**

**SECTION AD: MBR FINE
SCREENING FACILITY**

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						3 446 028,02
AD78	PSG 8.4.3	Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for beams and columns:				
		(a) Upstand beams 250 mm x 250 mm for mounting hand rails	m³	3	1 982,65	5 947,95
AD79		(b) Screened sewage sump 450mm x 1750mm supporting beam	m³	17	1 982,65	33 705,05
AD80		(c) Screened sewage sump 450mm x 1000mm ground beam	m³	8	1 982,65	15 861,20
AD81		(d) Screened sewage sump 450mm x 450mm columns	m³	2	1 982,65	3 965,30
AD82	SANS 1200 G 8.4.4 PSG 8.4.4	(e) Skips apron staircase columns	m³	3	1 982,65	5 947,95
		Unformed surfaces				
		Horizontal wood floated finish to:				
AD83		(a) Top of blinding layer	m²	421	30,65	12 903,65
		(b) Footings				
AD84		(i) Overflow and inlet sump footing	m²	42	30,65	1 287,30
AD85		(ii) Fine screens side wall footing	m²	13	30,65	398,45
AD86		(iii) Fine screen sump, distribution chamber & outlet sump footing	m²	29	30,65	888,85
AD87		(iv) Skips apron staircase footings	m²	7	30,65	214,55
AD88		(c) Overflow and inlet sump walkway	m²	49	30,65	1 501,85
AD89		(d) Fine screens, distribution and outlet chamber walkway	m²	151	30,65	4 628,15
AD90		(e) Screenings conveyer slab	m²	21	30,65	643,65
AD91		(f) Top of staircases landings	m²	3	30,65	91,95
AD92		(g) Top of staircases treads and readings with granolithic screed	m²	19	30,65	582,35
Carried forward / ...						3 534 596,22

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AD: MBR FINE
SCREENING FACILITY

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						3 534 596,22
		Horizontal steel-floated finish:				
AD93		(a) Fine screen mounts	m	77	38,29	2 948,33
AD94		(b) Top of upstand beams 250 mm wide	m	29	38,29	1 110,41
AD95		(c) Overflow sump floor slab	m ²	21	38,29	804,09
AD96		(d) Inlet sump floor slab	m ²	33	38,29	1 263,57
AD97		(e) Screened sewage sump floor slab	m ²	104	38,29	3 982,16
AD98		(f) Reactor distribution chamber floor slab	m ²	49	38,29	1 876,21
AD99		(g) Fine screens outlet sump floor slab	m ²	25	38,29	957,25
		Horizontal power-floated finish				
AD100		(a) Skips apron	m ²	333	56,15	18 691,95
	SANS 1200 G 8.5 PSG 8.1.1 PSG 8.1.1.7 PSG 8.5	Designated Joints Expansion/Construction joints as detailed and indicated on drawings and/or specified in the Project Specification:				
AD101		(a) Joint Type F	m	207	205,29	42 495,03
AD102		(b) Isolation Joint 10mm Jointex between concrete surfaces, 300 mm high	m	40	313,01	12 520,40
AD103		(c) Joint Type T	m	21	215,26	4 520,46
	8.7 PSG 8.7	Grouting				
AD104		(a) Grout in holding down bolts/baseplates supplied by others in 100 x 100 x 150 mm deep pockets	m ³	1	13 813,10	13 813,10
AD105		(b) Grout in holding down bolts for skip-dolly system rails supplied by others in 100 x 100 x 150 mm deep pockets	m ³	5	13 813,10	69 065,50
AD106		(c) Grouting of pockets in concrete after pipe installation	m ³	2	13 813,10	27 626,20
AD107		(d) Grout sluice gates	m ³	2	13 813,10	27 626,20
Carried forward / ...						3 763 903,08

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AD : MBR FINE
SCREENING FACILITY

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						3 763 903,08
	SANS 1200 L PSL 8.2.1 PSL 8.2.19	PIPEWORK				
	8.2.2 PSG 8.6	Cast in of pipes and specials (such as flanges etc. where required) through concrete (including hydrophilic rubber sealant, as specified or shown on drawing DRG-CS-1779):				
AD108		(a) FS 1	No.	1	127 188,89	127 188,89
AD109		(b) FS 2	No.	1	37 398,08	37 398,08
AD110		(c) FS 3	No.	1	22 556,50	22 556,50
AD111		(d) FS 4	No.	1	44 208,63	44 208,63
		Extra-over Item PSG 8.6 above for flexible couplings and/or flanges where applicable:				
AD112		(a) FS 5	No.	1	15 650,47	15 650,47
AD113		(b) FS 6	No.	1	13 409,95	13 409,95
	SANS 1200 LE PSLE 8.2.8 PSLE 8.2.22	UNDERDRAINAGE SYSTEM as specified in SANS 1200 LE and in the project specifications				
AD114	SANS 1200 G PSG 8.13	(a) Filter bed - 120 mm no-fines concrete layer including provision for 20 mm thick packed mortar skin	m²	162	231,11	37 439,82
	SANS 1200 A PSA 8.18	Construct drain complete including excavation, 19 mm stone fill, geofabric blanket and 110 mm dia perforated flexible drainage pipe as shown on drawings				
AD115		(b) Transverse drains including 110mm diameter class 9 uPVC perforated drainage pipe	m	19	198,38	3 769,22
AD116		(c) Trench excavation for non perforated pipes	m³	2	103,22	206,44
AD117		(d) Supply and lay 110 mm dia PVC-U Class 9 connector pipes (non-perforated)	m	21	113,90	2 391,90
Carried forward / ...						4 068 122,98

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AD : MBR FINE
SCREENING FACILITY

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						4 068 122,98
AD118	SANS 1200 LD 8.23 PSLD 8.2.3	(e) Manhole over 3,0 m and up to 5,5 m deep complete as shown on DRG-CS-0116 including cover and frame and puddle pipe	No.	1	16 848,63	16 848,63
	SANS 1200 LC PSLC 8.2.5	CABLE DUCTS				
AD119		(a) 75 mm diameter Type IV Class 4 HDPE cable ducts to SANS 4427 in continuous lengths	m	360	20,40	7 344,00
	SANS 1200 HA 8.3.2	METALWORK as specified in SANS 1200 HA and in the project specifications Supply and install: (a) Grade 316 handrails, complete mounted on				
AD120		(i) Walkway slabs and walls	m	87	940,70	81 840,90
AD121		(ii) Stairs	m	40	940,70	37 628,00
AD122		(b) SS316 Guard chain (8 mm dia) complete with hooks	m	6	251,72	1 510,32
		MISCELLANEOUS				
		Flooring				
	SANS 1200 A PSA 8.18 SPEC AUR 1017 8.1.1	Flooring: Supply and install Glass Reinforced Plastic (GRP) banded grating with a nominal size of 40 x 40mm as shown on drawings, for the following:				
AD123		(a) Overflow sump	m ²	1	1 139,25	1 139
AD124		(b) Inlet sump	m ²	22	1 139,25	25 063,50
AD125		(c) Screenings conveyer channel	m ²	10	1 139,25	11 392,50
AD126		(d) Reactor distribution chamber	m ²	8	1 139,25	9 114,00
AD127		(e) Outlet sump	m ²	4	1 139,25	4 557,00
Carried forward / ...						4 264 561,08

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AD : MBR FINE
SCREENING FACILITY

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						4 264 561,08
AD128	SANS 1200 G PSG 8.22 SANS 1200 A PSA 8.18	(f) 45 x 45 x 5 mm Hot Dip Galvanised (HDG) angle cast in concrete to support GRP grating specified above Epoxy concrete protection: Apply (trowel-on) Sikaguard 720 Epocem in combination with SIKA 63N or similar approved, to a thickness of 2mm to the following: (a) Internal walls of channels, sumps and chambers	m	101	376,50	38 026,50
AD129		(i) Inlet sump internal walls	m ²	106	578,30	61 299,80
AD130		(ii) Screened sewage sump side walls	m ²	83	578,30	47 998,90
AD131		(iii) Reactor distribution chamber side walls	m ²	18	578,30	10 409,40
AD132		(iv) Fline screens outlet sump side walls	m ²	73	578,30	42 215,90
AD133		(v) Internal dividing, baffle, and weir walls (b) Channels and floor slabs	m ²	401	578,30	231 898,30
AD134		(i) Inlet sump mass concrete slab	m ²	30	578,30	17 349,00
AD135		(ii) Screened sewage sump floor slab	m ²	94	578,30	54 360,20
AD136		(iii) Reactor distribution chamber floor slab	m ²	44	578,30	25 445,20
AD137		(iv) Fine screens outlet sump floor slab (c) Soffit of walkways, suspended slabs, and cover slabs	m ²	22	578,30	12 722,60
AD138		(i) Soffit of inlet sump suspended slab / walkway and cantilever slab	m ²	6	615,20	3 691,20
AD139		(ii) Soffit of inlet sump cantilever slab	m ²	11	615,20	6 767,20
AD140		(iii) Soffit of screened sewage sump suspended slab / walkway	m ²	81	615,20	49 831,20
AD141		(iv) Soffit of reactor distribution chamber suspended slab / walkway	m ²	48	615,20	29 529,60
Carried forward / ...						4 896 106,08

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AD : MBR FINE
SCREENING FACILITY

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						4 896 106,08
AD142	SANS 1200 G PSG 8.21 SANS 1200 A PSA 8.18	(v) Soffit of fine screens outlet sump suspended slab / walkway	m ²	22	615,20	13 534,40
AD143		(vi) Soffit of screenings conveyer channel	m ²	15	615,20	9 228,00
		Testing for water tightness				
		Carry out the complete watertightness test for the MBR Fine Screens as follows:				
AD144	SANS 1200 A PSA 8.18	(a) Overflow sump	Sum		9 861,09	9 861,09
AD145		(b) Inlet sump	Sum		9 861,09	9 861,09
AD146		(c) Screened sewage chamber	Sum		9 861,09	9 861,09
AD147		(d) Distribution chamber and outlet sump	Sum		9 861,09	9 861,09
AD148		Perform accelerated shrinkage tests at the University of Cape Town for all grades of structural concrete	Sum		868,00	868,00
TOTAL SECTION AD CARRIED TO SUMMARY						R 4 959 180,84

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AE : BIOLOGICAL REACTOR

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
AE1	SANS 1200 D 8.3.4 PSD 8.3.4	SECTION AE : BIOLOGICAL REACTOR Drawings No. 110585-WW-0930 to 0941 EARTHWORKS as specified in SANS 1200 D and in the project specifications Importing of materials: (a) Pioneer stone layer 300mm thick to be used as working platform	m³	1 407	401,57	565 008,99
		(b) Clean sand (600 mm thick) compacted to 100% modified AASHTO density in 150mm thick layers				
		(i) Inlet flow distribution structure	m³	472	177,83	83 935,76
		(ii) Recycle channels	m³	121	177,83	21 517,43
AE3						
AE4		(iii) Mixed Liquor Distribution Structure and Mixed Liquor Recycle Pumpstation	m³	213	177,83	37 877,79
	SANS 1200 G 8.1.1 PSG 8.1.1 8.2.1	Concrete work Formwork Rough formwork: Plane vertical to: (a) Sides of reactor horizontal bases and footings (at level of 11.65m)				
		(i) 650 mm thick footing under battered perimeter wall	m²	196	435,81	85 418,76
		(ii) 450 mm footings for support columns for Inlet flow distribution structure	m²	31	482,46	14 956,26
		(iii) 450 mm footings for support columns for Mixed Liquor Distribution Structure	m²	21	482,46	10 131,66
AE5						
AE6						
AE7						
AE8		(iv) 400 mm footings for support columns for stair cases	m²	9	482,46	4 342,14
AE9		(b) Sides of inlet flow distribution structure columns measured from soffit level	m²	32	482,46	15 438,72
AE10	8.2.5	(c) Narrow sections over 150 mm up to 300 mm high	m	39	185,62	7 239,18
Carried forward / ...						845 866,69

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						845 866,69
AE11	SANS 1200 G PSG 8.1.1.9 PSG 8.1.1.10	Sloping vertical to: (a) Outside face of perimeter (battered) walls measured from bottom to 300mm below NGL	m ²	1 611	3,42	5 509,62
AE12	8.2.2	Smooth formwork: Plane vertical to: (a) Bioreactor Structure: (i) Inside face of perimeter walls	m ²	1 823	342,50	624 377,50
AE13		(ii) Sides of 300 mm thick internal/dividing and weir walls separating anaerobic and anoxic zones	m ²	1 931	342,50	661 367,50
AE14		(iii) Sides of 700 mm x 700 mm aerobic zone drain sumps (b) Inlet Flow Distribution Structure:	m ²	7	482,46	3 377,22
AE15		(i) Sides of perimeter walls	m ²	239	435,81	104 158,59
AE16		(ii) Sides of baffle wall	m ²	139	435,81	60 577,59
AE17		(iii) Sides of internal/dividing and weir walls (c) Swing Recycle Pumpstation:	m ²	148	435,81	64 499,88
AE18		(i) Sides of perimeter walls	m ²	136	435,81	59 270,16
AE19		(ii) Sides of internal/dividing and weir walls (d) Mixed Liquor Recycle Distribution Structure:	m ²	195	435,81	84 982,95
AE20		(i) Sides of perimeter walls	m ²	203	389,15	78 997
AE21		(ii) Sides of internal/dividing, baffle and weir walls	m ²	91	435,81	39 658,71
AE22		(iii) Sides of concrete encasement surrounding 800 mm diameter GRP pipes for mixed liquor recycle distribution	m ²	53	389,15	20 624,95
Carried forward / ...						2 653 268,81

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Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						2 653 268,81
AE23	SANS 1200 G	(e) B3 AX-AN Recycle Pumpstation (i) Sides of perimeter walls	m²	155	435,81	67 550,55
AE24		(ii) Sides of internal/dividing and weir walls	m²	157	435,81	68 422,17
AE25		(f) B1 & B2: AX-AN Recycle Pumpstation: (i) Sides of perimeter walls	m²	309	435,81	134 665,29
AE26		(ii) Sides of internal/dividing and weir walls	m²	325	389,15	126 473,75
AE27		(g) B1, B2 & B3: AE-AX Recycle Pumpstation: (i) Sides of perimeter walls	m²	389	389,15	151 379,35
AE28		(ii) Sides of internal/dividing and weir walls	m²	430	389,15	167 334,50
AE29		(h) Bioreactor Recycle Channels: (i) Sides of swing recycle channel perimeter walls	m²	288	389,15	112 075,20
AE30		(ii) Sides of mixed liquor recycle channel perimeter walls	m²	175	389,15	68 101,25
AE31		(iii) Sides of B3: AX-AN recycle channel perimeter walls	m²	135	389,15	52 535,25
AE32		(iv) Sides of B1 & B2: AX-AN recycle channel perimeter walls	m²	228	389,15	88 726,20
AE33		(v) Sides of B1: AE-AX recycle channel perimeter walls	m²	296	389,15	115 188,40
AE34		(vi) Sides of B2 & B3: AE-AX recycle channel perimeter walls	m²	492	389,15	191 461,80
AE35		(i) Sides of Mixed Liquor Collection channel perimeter walls	m²	790	389,15	307 428,50
AE36		(j) Sides of aerobic zone scum sumps	m²	356	389,15	138 537,40
AE37		(k) Beams: (i) Sides of support beams for anaerobic zone mixer platforms	m²	83	435,81	36 172,23
AE38		(ii) Sides of support beams for anoxic zone mixer platforms	m²	89	435,81	38 787,09
Carried forward / ...						4 518 107,74

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c	
Brought forward / ...						4 518 107,74	
AE39	SANS 1200 G 8.2.2	(iii) Sides of 300 mm x 300 mm B2 AE-AX recycle channel support beams	m²	15	435,81	6 537,15	
AE40		(iv) Sides of staircase ground beam	m²	7	482,46	3 377,22	
AE41		(v) Sides of upstand beams 150 mm high	m	942	145,88	137 418,96	
		(l) Columns:					
AE42		(i) Sides of 400 mm x 400 mm support columns ('square' shaped) for the swing recvle channels	m²	61	482,46	29 430,06	
AE43		(ii) Sides of 400 mm x 400 mm support columns ('square' shaped) for the swing recvle pumpstation	m²	8	482,46	3 859,68	
AE44		(iii) Sides of 400 mm x 400 mm support columns ('square' shaped) for the mixed liquor recycle distribution structure and mixed liquor recvle channel	m²	60	482,46	28 941,16	
AE45		(iv) Sides of 400 mm x 400 mm support columns ('square' shaped) for the inlet flow distribution structure	m²	48	482,46	23 158,08	
AE46		(v) Sides of anaerobic and anoxic mixer platforms support columns ('diamond' shaped)	m²	1 060	482,46	511 407,60	
AE47		(vi) Sides of 400 mm x 400 mm staircase and walkway/platforms support columns ('square' shaped)	m²	99	482,46	47 763,54	
AE48		(vii) Sides of 500 mm x 500 mm walkway/platforms support columns ('square' shaped)	m²	82	482,46	39 561,72	
AE49		(viii) Sides of 1200 mm x 600 mm Machine Building support columns ('rectangular' shaped) from foundation FFL 11.650m to 18.150m	m²	206	482,46	99 386,76	
		8.2.5	Narrow sections:				
AE50		(a) Up to 150 mm wide	m	55	97,69	5 372,95	
AE51		(b) Over 150 up to 300 mm wide	m	865	185,62	160 561,30	
AE52		(c) Sides of stairs 300 mm high extreme	m	54	309,36	16 705,44	
AE53		(d) Stair risers up to 200 mm high	m	158	213,61	33 750,38	
Carried forward / ...						5 665 346,18	

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Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						5 665 346,18
AE54	8.2.2 PSG 8.1.1.9	Vertical sloping to: (a) Plane battered to bioreactor: (i) Outside face of perimeter (battered) walls measured from TOC to 300 mm below NGL	m²	1 045	3,42	3 573,90
AE55		(ii) Internal division walls for B1, B2 and B3 bioreactors	m²	7 474	3,42	25 561,08
AE56	PSG 8.1.1.10	Plane horizontal to: (a) Mixer platforms, walkway slabs, and staircase landings: (i) Mixer platforms, with an average prop height of approximately 6.20 m measured from reactor FFL	m²	45	757,98	34 109,10
AE57	SANS 1200 G PSG 8.1.1.10	(ii) Walkways in ANAEROBIC zones 1 and 2, with an average prop height of approximately 6.20 m measured from reactor FFL	m²	220	757,98	166 755,60
AE58		(iii) Walkways in ANOXIC zones 1 and 2, with an average prop height of approximately 6.20 m measured from reactor FFL	m²	156	898,02	140 091,12
AE59		(iv) Walkway in B1 AEROBIC Zone, with an average prop height of approximately 6.20 m measured from reactor FFL	m²	55	757,98	41 688,90
AE60		(v) Walkway slab in between reactor and mixed liquor collection channel, with an average prop height of approximately 6.20 m measured from reactor FFL	m²	39	757,98	29 561,22
AE61		(vi) Staircase landings, with an average prop height of approximately 6.20 m measured from reactor FFL	m²	24	804,64	19 311,36
AE62		(b) Top of channel roof/cover slab: (i) Inlet flow distribution structure cover slab, with an average prop height of approximately 2.45 m measured from channel FFL	m²	62	918,56	56 950,72
Carried forward / ...						6 182 949,18

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SECTION AE : BIOLOGICAL REACTOR

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						6 182 949,18
AE63		(ii) B1: AE-AX recycle channel cover slab, with an average prop height of approximately 1.45 m measured from channel FFL	m ²	7	848,04	5 936,28
AE64		(iii) B1 & B2: AX-AN recycle channel cover slab, with an average prop height of approximately 1.15 m measured from channel FFL	m ²	69	988,58	68 212,02
AE65		(iv) B2 & B3: AE-AX recycle channel cover slab, with an average prop height of approximately 1.450 m measured from channel FFL	m ²	191	988,58	188 818,78
AE66		(v) B3 AX-AN and mixed liquor swing recycle channel cover slab, with an average prop height of approximately 1.15 m measured from channel FFL	m ²	19	988,58	18 783,02
AE67		(vi) Cantilevered cover slabs over sluice gates	m ²	30	988,58	29 657,40
		(c) Suspended floor slabs:				
AE68		(i) Inlet flow distribution structure, with an average prop height of approximately 3.45 m measured from reactor FFL	m ³	146	720,01	105 121,46
AE69	SANS 1200 G	(ii) Mixed liquor swing recycle channel, with an average prop height of approximately 4.25 m measured from reactor FFL	m ²	128	720,01	92 161,28
AE70		(iii) Mixed liquor swing recycle pumpstation floor slab, with an average prop height of approximately 1.55 m measured from reactor FFL	m ²	28	918,56	25 719,68
AE71		(iv) Mixed liquor recycle distribution structure floor slab, with an average prop height of approximately 3.95 m measured from reactor FFL	m ²	33	766,66	25 299,78
AE72		(v) Mixed liquor recycle channel, with an average prop height of approximately 3.95 m measured from reactor FFL	m ²	76	766,66	58 266,16
AE73		(vi) Suspended floor slab of scum sumps with an average prop height of approximately 1.90 m measured from reactor FFL	m ³	11	766,66	8 433,26
Carried forward / ...						6 809 358,30

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Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						6 809 358,30
AE74		(vii) Mixed liquor collection channel, with an average prop height of approximately 2.60 m measured from reactor FFL	m ²	96	766,66	73 599,36
		(d) Soffits of beams:				
AE75		(i) Soffit of support beams for anaerobic zone mixer platforms	m ²	59	766,66	45 232,94
AE76		(ii) Soffit of support beams for anoxic zone mixer platforms	m ²	51	766,66	39 099,66
AE77		(iii) Soffit of 300 mm x 300 mm B2 AE-AX recycle channel support beams	m ²	4	766,66	3 066,64
	PSG 8.1.1.9 PSG 8.1.1.10	Plane sloping to:				
		(a) Soffit of sloping suspended slabs:				
AE78		(i) B1, B2 & B3: AX-AN recycle channel, with an average prop height of approximately 4.80 m measured from reactor FFL	m ²	195	766,66	149 498,70
AE79		(ii) B1: AE-AX recycle channel, with an average prop height of approximately 4.45 m measured from reactor FFL	m ²	135	766,66	103 499,10
AE80		(iii) B2 & B3: AE-AX recycle channel, with an average prop height of approximately 4.45 m measured from reactor FFL	m ²	265	766,66	203 164,90
AE81		(iv) Underside/soffit of concrete stairs	m ²	48	766,66	36 799,68
	PSG 8.1.1.11	Grooves, chases and splays in the following ranges:				
AE82		(a) 125 x 125 mm splays (bevel and chamfer) at top of pumpstation weir walls	m	39	283,72	11 065,08
AE83		(c) 150 x 150 mm splays (bevel and chamfer) at top of dividing weirs for anaerobic, anoxic and aerobic zones	m	83	312,47	25 935,01
	8.2.6	Box out holes/form voids:				
AE84		(a) Small circular box out area up to and including 0.1 m ² for depths up to and including 400 mm	No.	14	1 091,31	15 278,34
Carried forward / ...						7 515 597,71

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SECTION AE BIOLOGICAL REACTOR

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						7 515 597,71
AE85		(b) Large, other than circular of area over 0,1 m ² and up to and including 0,5 m ²	No.	30	2 145,07	64 352,10
AE86		(c) Large, other than circular of area over 0,5 m ² and up to and including 1,5 m ²	No.	14	4 030,82	56 431,48
AE87		(d) Form grooves/recesses for sluice gates over 100 mm x 100 mm in walls and slabs as shown on Drawings	m	16	406,97	6 511,52
AE88	SANS 1200 LC PSLC 8.2.7 PSA 8.18	(e) Form box outs on walkway slabs for cable duct drawpits	No.	13	406,97	5 290,61
	SANS 1200 A PSA 8.18 SANS 1200 G PSG 8.6	Box out with continuous rebar in terms of PSG 5.5.20				
AE89		(a) Large, other than circular of area over 0,1m ² and up to and including 0,85m ²	No.	31	2 845,61	88 213,91
	SANS 1200 G PSG 8.1.2	Reinforcement:				
	8.3.1	Mild steel bars:				
AE90		(a) 8 mm dia	t	27,2	11 923,95	324 331,44
AE91		(b) 10 mm dia	t	36,3	11 923,95	432 839,39
AE92		(c) 12 mm dia	t	27,2	11 923,95	324 331,44
	SANS 1200 G 8.3.1	High tensile steel bars:				
AE93		(a) 10 mm dia	t	40,8	11 923,95	486 497,16
AE94		(b) 12 mm dia	t	81,6	11 923,95	972 994,32
AE95		(c) 16 mm dia	t	122,3	11 923,95	1 458 299,09
AE96		(d) 20 mm dia	t	285,4	11 923,95	3 403 095,33
AE97		(e) 25 mm dia	t	244,6	11 923,95	2 916 598,17
AE98		(f) 32 mm	t	40,8	11 923,95	486 497,16
Carried forward / ...						18 541 880,82

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SECTION AEC BIOLOGICAL REACTOR
ZANDVLIET WASTEWATER TREATMENT WORKS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						18 541 880,82
AE99	8.1.3 PSG 8.1.3	Concrete				
	PSG 8.4.3	Concrete Grade 15 MPa/20 mm (mass concrete) to:				
AE99	8.4.2 PSG 8.1.1.8	(a) Blinding 75 mm minimum thickness	m ²	567	110,01	62 375,67
AE100		(b) Concrete encasement for 800mm diameter GRP pipes for mixed liquor recycle distribution	m ³	31	1 466,83	45 471,73
AE101		(c) Concrete encasement for 200mm diameter pipe for scum removal system	m ³	104	1 399,59	145 557,36
AE102		(c) Benching	m ³	6	1 611,04	9 666,24
AE103		Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for footings and floor slabs				
		(a) Bioreactor footings and floor slabs				
AE103		(i) 650 mm thick footing under battered perimeter wall and B1-B2 and B2-B3 dividing walls	m ³	1 475	1 713,70	2 527 707,50
AE104		(ii) 400 mm thick floor slab for anaerobic and anoxic zones	m ³	701	1 713,70	1 201 303,70
AE105		(iii) 200 mm thick floor slab for aerobic zones	m ³	169	1 713,70	289 615,30
AE106		(iv) 450 mm footings for support columns for Inlet flow distribution structure	m ³	17	1 780,93	30 275,81
AE107		(v) 450 mm footings for support columns for Mixed Liquor Distribution Structure	m ³	9	1 780,93	16 028,37
AE108		(vi) 400 mm footings for support columns for stair cases	m ³	3	1 780,93	5 342,79
AE109	SANS 1200 G PSG 8.4.3	Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for suspended slabs (platforms and walkways):				
		(a) Mixer platforms, walkway slabs and staircase landings:				
AE109		(i) Mixer platforms, with an average prop height of approximately 6.20 m measured from reactor FFL	m ³	66	1 780,93	117 541,38
Carried forward / ...						22 992 766,67

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Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						22 992 766,67
AE110		(ii) Walkways in ANAEROBIC zones 1 and 2, with an average prop height of approximately 6.20 m measured from reactor FFL	m³	66	1 780,93	117 541,38
AE111		(iii) Walkways in ANOXIC zones 1 and 2, with an average prop height of approximately 6.20 m measured from reactor FFL	m³	78	1 780,93	138 912,54
AE112		(iv) Walkway in B1 AEROBIC Zone, with an average prop height of approximately 6.20 m measured from reactor FFL	m³	16	1 780,93	28 494,88
AE113		(v) Walkway slab in between reactor and mixed liquor collection channel, with an average prop height of approximately 6.20 m measured from reactor FFL	m³	16	1 780,93	28 494,88
AE114		(vi) Staircase landings, with an average prop height of approximately 6.20 m measured from reactor FFL	m³	7	1 780,93	12 466,
		(b) Top of channel roof/cover slab:				
AE115		(i) Inlet flow distribution structure top slab, with an average prop height of approximately 2.45 m measured from channel FFL	m³	19	1 781,93	33 856,67
AE116		(ii) B1: AE-AX recycle channel top slab, with an average prop height of approximately 1.45 m measured from channel FFL	m³	2	1 780,93	3 561,86
AE117		(iii) B1 & B2: AX-AN recycle channel top slab, with an average prop height of approximately 1.15 m measured from channel FFL	m³	21	1 780,93	37 399,53
AE118		(iv) B2 & B3: AE-AX recycle channel top slab, with an average prop height of approximately 1.450 m measured from channel FFL	m³	58	1 780,93	103 293,94
AE119	SANS 1200 G	(v) B3 AX-AN and mixed liquor swing recycle channel top slab, with an average prop height of approximately 1.15 m measured from channel FFL	m³	6	1 780,93	10 685,58
AE120		(vi) Cantilevered cover slabs over sluice gates	m³	9	1 780,93	16 028,37
Carried forward / ...						23 523 502,81

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Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						23 523 502,81
AE121		(c) Suspended floor slabs: (i) Inlet flow distribution structure, with an average prop height of approximately 3.45 m measured from reactor FFL	m³	59	1 780,93	105 074,87
AE122		(ii) Mixed liquor swing recycle channel, with an average prop height of approximately 4.25 m measured from reactor FFL	m³	69	1 780,93	122 884,17
AE123		(iii) Mixed liquor swing recycle pumpstation floor slab, with an average prop height of approximately 1.55 m measured from reactor FFL	m³	9	1 780,93	16 028,37
AE124		(iv) Mixed liquor recycle distribution structure floor slab, with an average prop height of approximately 3.95 m measured from reactor FFL	m³	10	1 780,93	17 809,30
AE125		(v) Mixed liquor recycle channel, with an average prop height of approximately 3.95 m measured from reactor FFL	m³	23	1 780,93	40 961,39
AE126		(vi) Suspended floor slab of scum sumps with an average prop height of approximately 1.90 m measured from reactor FFL	m³	3	1 780,93	5 342,79
AE127		(vii) Mixed liquor collection channel, with an average prop height of approximately 2.60 m measured from reactor FFL	m³	29	1 780,93	51 646,97
(d) Sloping horizontal suspended floor slabs:						
AE128		(i) B1, B2 & B3: AX-AN recycle channel, with an average prop height of approximately 4.80 m measured from reactor FFL	m³	53	1 780,93	94 389,29
AE129		(ii) B1: AE-AX recycle channel, with an average prop height of approximately 4.45 m measured from reactor FFL	m³	44	1 780,93	78 360,92
AE130		(iii) B2 & B3: AE-AX recycle channel, with an average prop height of approximately 4.45 m measured from reactor FFL	m³	78	1 780,93	138 912,54
AE131		(iv) Stairs, including forming reeding while concrete is still wet	m³	78	1 780,93	138 912,54
Carried forward / ...						24 333 825,96

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Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						24 333 825,96
	SANS 1200 G PSG 8.4.3	Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for walls:				
		(a) Bioreactor walls:				
AE132		(i) 350 mm to 650 mm thick battered sloped perimeter walls	m³	919	1 713,70	1 574 890,30
AE133		(ii) 300 mm to 650 mm thick battered sloped dividing walls for B1-B2 and B2-B3	m³	688	1 713,70	1 179 025,60
AE134		(iii) 300 mm thick internal/dividing and weir walls	m³	285	1 713,70	488 404,50
		(b) Inlet Flow Distribution Structure Walls:				
AE135		(i) Perimeter walls	m³	33	1 780,93	58 776,
AE136		(ii) Baffle wall	m³	22	1 780,93	39 180,46
AE137		(iii) Internal/dividing and weir walls	m³	16	1 780,93	28 494,88
		(c) Swing Recycle Pumpstation Walls:				
AE138		(i) Perimeter walls	m³	24	1 780,93	42 742,32
AE139		(ii) Internal/dividing and weir walls	m³	20	1 780,93	35 618,60
		(d) Mixed Liquor Recycle Distribution Structure				
AE140		(i) Perimeter walls	m³	28	1 780,93	49 866,04
AE141		(ii) Internal/dividing, baffle and weir walls	m³	15	1 780,93	26 713,95
		(e) B3 AX-AN Recycle Pumpstation				
AE142		(i) Perimeter walls	m³	27	1 780,93	48 085
AE143		(ii) Internal/dividing and weir walls	m³	27	1 780,93	48 085,11
		(f) B1 & B2: AX-AN Recycle Pumpstation Walls:				
AE144		(i) Perimeter walls	m³	55	1 780,93	97 951,15
AE145		(ii) Internal/dividing and weir walls	m³	56	1 780,93	99 732,08
Carried forward / ...						28 151 386,75

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Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						28 151 386,75
AE146	SANS 1200 G	(g) B1, B2 & B3: AE-AX Recycle Pumpstation Walls: (i) Perimeter walls	m³	60	1 780,93	106 855,80
AE147		(ii) internal/dividing and weir walls	m³	78	1 780,93	138 912,54
		(h) Bioreactor Recycle Channels Walls: (i) Swing recycle channel perimeter walls	m³	31	1 780,93	55 208,83
AE149		(ii) Mixed liquor recycle channel perimeter walls	m³	21	1 780,93	37 399,53
AE150		(iii) B3: AX-AN recycle channel perimeter walls	m³	16	1 780,93	28 494,88
AE151		(iv) B1 & B2: AX-AN recycle channel perimeter walls	m³	26	1 780,93	46 304,18
AE152		(v) B1: AE-AX recycle channel perimeter walls	m³	34	1 780,93	60 551,62
AE153		(vi) B2 & B3: AE-AX recycle channel perimeter walls	m³	79	1 780,93	140 693,47
AE154		(i) Mixed liquor collection channel perimeter walls	m³	47	1 780,93	83 703,71
AE155		PSG 8.4.3	(j) 300 mm thick walls for scum sumps in aerobic zones	m³	13	1 780,93
	Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for beams and columns: (a) Beams: (i) Mixer platform beams		m³	90	1 780,93	160 283,70
AE157	(ii) Staircase ground beam		m³	3	1 780,93	5 342,79
AE158	(iii) 300 mm x 300 mm B2 AE-AX recycle channel support beams		m³	2	1 982,65	3 965,30
AE159	(iv) Upstand 150 mm x 150 mm beams on perimeter of bioreactor walkways and platforms		m³	22	1 982,65	43 618,30
Carried forward / ...						29 085 873,49

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Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						29 751 148,45
AE174	8.4.4 PSG 8.4.4	(g) Top of staircases landings	m ²	42	30,65	1 287,30
AE175		(h) Top of staircases treads and readings with granolithic screed	m ²	42	30,65	1 287,30
AE176		(i) Top of internal walls	m ²	274	30,65	8 398,10
AE177		(j) Top of perimeter walls	m ²	63	30,65	1 930,95
AE178		(k) Top of sluice gate cantilever slabs up to 500 mm wide	m ²	29	30,65	888,85
AE179		(l) Top of upstand beams 150 mm wide	m ²	142	30,65	4 352,30
		Horizontal steel-floated finish:				
AE180		(a) Bioreactor floor slab	m ²	4 006	38,29	153 38
AE181		(b) Inlet flow distribution structure floor slab	m ²	123	38,29	4 709,67
AE182		(c) Mixed liquor swing recycle channel floor slab	m ²	227	38,29	8 691,83
AE183	SANS 1200 G 8.5 PSG 8.1.1 PSG 8.1.1.7 PSG 8.5	(d) Mixed liquor swing recycle pumpstation floor slab	m ²	21	38,29	804,09
AE184		(e) Mixed liquor recycle distribution structure floor slab	m ²	18	38,29	689,22
AE185		(f) Mixed liquor recycle channel floor slab	m ²	60	38,29	2 297,40
AE186		(g) Mixed liquor collection channel floor slab	m ²	271	38,29	10 376,59
AE187		(h) B1, B2 & B3: AE-AX recycle channel floor slab	m ²	347	38,29	13 286,63
AE188		(i) B1, B2 & B3: AX-AN recycle channel floor slab	m ²	165	38,29	6 317,85
AE189		(j) Top of pipe encasement	m ²	81	38,29	3 101,
		Designated Joints				
		Expansion/Construction joints as detailed and indicated on drawings and/or specified in the Project Specification:				
		(a) Joint Type F:				
AE190		(i) In all walls	m	491	205,29	100 797,39
Carried forward / ...						30 073 755,15

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Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						30 073 755,15
AE191		(b) Joint Type A: (i) In 250-500 mm thick vertical walls	m	12	564,85	6 778,20
AE192		(ii) In 650 mm thick vertical walls	m	12	564,85	6 778,20
AE193		(c) Joint Type B: (i) In 200 mm thick floor slabs	m	318	453,21	144 120,78
AE194		(ii) In 400 mm thick floor slabs	m	184	453,21	83 390,64
AE195		(iii) In 650 mm thick floor slabs/footings	m	149	453,21	67 528,29
AE196		(d) Joint Type R between: (i) B1, B2 & B3: AE-AX recycle channel and wall	m	217	152,74	33 144,58
AE197	SANS 1200 G	(ii) B1 & B2: AX-AN recycle channel and wall	m	154	152,74	23 521,96
AE198	PSG 8.17	(e) SS 316 DSD65 Shear connectors for walkways	No.	22	152,74	3 360,28
	SANS 1200 G 8.7 PSG 8.7	Grouting				
AE199	PSG 8.8	(a) Grout in holding down bolts supplied by others in 100 x 100 x 150 mm deep pockets	No.	124	65,50	8 122,00
AE200		(b) Grout base plates	m³	3	13 813,10	41 439,30
AE201		(c) Grout sluice gates	m³	3	13 813,10	41 439,30
	SANS 1200 LE PSLE 8.2.8 PSLE 8.2.22	UNDERDRAINAGE SYSTEM as specified in SANS 1200 LE and in the project specifications				
AE202	SANS 1200 G PSG 8.13	(a) Filter bed - 120 mm no-fines concrete layer including provision for 20 mm thick packed mortar skin	m²	4 911	231,11	1 134 981,21
	SANS 1200 A PSA 8.18	Construct drain complete including excavation, 19 mm stone fill, geofabric blanket and 110 mm dia perforated flexible drainage pipe as shown on drawings				
Carried forward / ...						31 668 359,89

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						31 668 359,89
AE203		(b) Transverse drains including 110mm diameter class 9 uPVC perforated drainage pipe	m	666	198,38	132 121,08
AE204		(c) Trench excavation for non perforated pipes	m³	126	103,22	13 005,72
AE205		(d) Supply and lay 110 mm dia PVC-U Class 9 non-perforated connector pipes	m	140	113,90	15 946,00
AE206		(e) Extra-over Item AE203 for 110 mm dia 90° PVC-U T-pieces	No.	8	461,12	3 688,96
AE207	SANS 1200 LD 8.23 PSLD 8.2.3	(e) Manhole over 3,0 m and up to 5,5 m deep complete as shown on DRG-CS-0116 including cover and frame and puddle pipe	No.	5	16 848,63	84 243,15
AE208	SANS 1200 A PSA 8.18	(g) Supply and install 110 mm dia groundwater release valves (GWRV) as supplied by Gereg Sewage and Water Equipment or equal approved	No.	108	1 347,57	145 537,16
	SANS 1200 LC PSLC 8.2.5	CABLE DUCTS				
AE209		(a) 110 mm diameter Type IV Class 4 HDPE cable ducts to SANS 4427 in continuous lengths as shown on drawings	m	1 950	76,82	149 799,00
	SANS 1200 L PSL 8.2.1 PSL 8.2.19	PIPEWORK				
AE210	8.2.2 PSG 8.6	Cast in of pipes and specials (such as flanges etc. where required) through concrete (including hydrophilic rubber sealant, as specified or shown on drawing DRG-CS-1779):				
AE211		(a) Item BR1	No.	1	111 967,43	111 967,43
AE212		(b) Item BR3	No.	3	3 371,97	10 115,91
AE213		(c) Item BR6	No.	3	3 099,19	9 297,57
AE214		(d) Item BR7	No.	10	3 345,49	33 454,90
AE215		(e) Item BR8	No.	1	28 732,32	28 732,32
Carried forward / ...						32 406 269,49

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Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						32 406 269,49
	8.2.2 PSL 8.2.2 PSL 8.2.17 PSL 8.2.19 SANS 1200 G PSG 8.6	Extra-over Items PSG 8.6 above for flexible couplings and/or flanges where applicable (see DRG-CS-1778 to 1781):				
AE216		(a) Item BR2	No.	1	15 073,47	15 073,47
AE217		(b) Item BR4	No.	7	1 196,28	8 373,96
AE218		(c) Item BR5	No.	2	1 348,18	2 696,36
AE219		(d) Item BR6	No.	2	4 706,51	9 413,02
AE220		(e) Item BR9	No.	3	16 885,38	50 656,14
AE221		(f) Item BR10	No.	3	20 118,68	60 356,04
AE222		(g) Item BR11	No.	2	3 935,32	7 870,64
AE223		(h) Item BR12	No.	1	3 479,39	3 479,39
AE224		(i) Item BR13	No.	1	5 690,28	5 690,28
AE225		(j) Item BR14	No.	1	3 609,65	3 609,65
AE226		(k) Item BR15	No.	1	2 795,50	2 795,50
	SANS 1200 HA	METALWORK				
		Supply and install:				
	8.3.2	(a) Grade 316 handrails, complete:				
AE227		(i) Horizontal, top/base mounted for on top of walkways and walls	m	1291	940,70	1 214 443,70
AE228		(ii) Sloping, side mounted on sides of staircases	m	44	940,70	41 390,80
AE229		(b) SS 316L guard chain (8 mm dia) complete with hooks	m	14	251,72	3 524,08
Carried forward / ...						33 835 642,52

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						33 835 642,52
		MISCELLANEOUS				
		Flooring				
	SANS 1200 A PSA 8.18 SPEC AUR 1017 8.1.1	(a) Flooring; Supply and install Glass Reinforced Plastic (GRP) banded grating with a nominal size of 40 x 40mm as shown on drawings, for the following:				
AE230		(i) Inlet flow distribution chamber	m ²	53	1 139,25	60 380,25
AE231		(ii) Mixed liquor swing recycle	m ²	97	1 139,25	110 507,25
AE232		(iii) Mixed liquor swing recycle pumpstation	m ²	23	1 139,25	26 202,75
AE233		(iv) Mixed liquor recycle distribution structure	m ²	39	1 139,25	44 430,75
AE234		(v) Mixed liquor recycle channel	m ²	61	1 139,25	69 494,25
AE235		(vi) B1, B2 & B3: AE-AX recycle pumpstation	m ²	51	1 139,25	58 101,75
AE236		(vii) B1 & B2: AX-AN recycle pumpstation	m ²	18	1 139,25	20 506,50
AE237		(viii) B1: AE-AX recycle channel	m ²	110	1 139,25	125 317,50
AE238		(ix) B2 & B3: AE-AX recycle channel	m ²	108	1 139,25	123 039,00
AE239		(x) B1 & B2: AX-AN recycle channel	m ²	33	1 139,25	37 595,25
AE240		(xi) B3: AX-AN recycle channel	m ²	54	1 139,25	61 519,50
AE241		(xii) Mixed liquor collection channel	m ²	68	1 139,25	77 469,00
AE242		(xiii) Scum sumps	m ²	4	1 139,25	4 557,00
AE243		(xiv) 45 x 45 x 5 mm Hot Dip Galvanised (HDG) angle cast in concrete to support GRP grating specified above	m	1 339	298,01	399 035,39
	SANS 1200 G PSG 8.22 SANS 1200 A PSA 8.18	Epoxy concrete protection: Apply (trowel-on) Sikaguard 720 Epocem in combination with SIKA 63N or similar approved, to a thickness of 2mm to the following: (a) Internal walls of channels and structures				
AE244		(i) Inlet flow distribution structure	m ²	392	578,30	226 693,60
Carried forward / ...						35 280 492,26

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Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						35 280 492,26
AE245		(ii) Mixed liquor recycle distribution structure	m ²	199	578,30	115 081,70
AE246		(iii) Mixed liquor recycle channel from the edge of the mixed liquor collection channel to the mixed liquor distribution structure	m ²	164	578,30	94 841,20
(b) Soffits of walkways and mixer platforms						
AE247		(i) Mixer platforms, with an average prop height of approximately 6.20 m measured from reactor FFL	m ²	45	578,30	26 023,50
AE248		(ii) Walkways in ANAEROBIC zones 1 and 2, with an average prop height of approximately 6.20 m measured from reactor FFL	m ²	220	578,30	127 226,00
AE249		(iii) Walkways in ANOXIC zones 1 and 2, with an average prop height of approximately 6.20 m measured from reactor FFL	m ²	156	578,30	90 214,80
AE250		(iv) Walkway in B1 AEROBIC Zone, with an average prop height of approximately 6.20 m measured from reactor FFL	m ²	55	578,30	31 806,50
(c) Cover slabs for recycle channels						
AE251		(i) Inlet flow distribution structure cover slab, with an average prop height of approximately 2.45 m measured from channel FFL	m ²	62	578,30	35 854,60
AE252		(ii) B1: AE-AX recycle channel cover slab, with an average prop height of approximately 1.46 m measured from channel FFL	m ²	7	578,30	4 048,10
AE253		(iii) B1 & B2: AX-AN recycle channel cover slab, with an average prop height of approximately 1.13 m measured from channel FFL	m ²	69	578,30	39 902,70
AE254		(iv) B2 & B3: AE-AX recycle channel cover slab, with an average prop height of approximately 1.460 m measured from channel FFL	m ²	191	578,30	110 455,30
Carried forward / ...						35 955 946,66

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						35 955 946,66
AE255	SANS 1200 G PSG 8.22 SANS 1200 A PSA R 18	(v) B3 AX-AN and mixed liquor swing recycle channel cover slab, with an average prop height of approximately 1.13 m measured from channel FFL	m²	19	578,30	10 987,70
AE256		(vi) Cantilevered cover slabs over sluice gates in the inlet distribution and mixed liquor recycle distribution structure	m²	13	578,30	7 517,90
AE257		(d) Soffits of beams: (i) Soffit of support beams for anaerobic zone mixer platforms	m²	59	615,20	36 296,80
AE258		(ii) Soffit of support beams for anoxic zone mixer platforms	m²	51	615,20	31 375,20
AE259		(iii) Soffit of 300 mm x 300 mm B2 AE-AX recycle channel support beams	m²	4	615,20	2 460,80
AE260		(e) Floors of channels and distribution structures (i) Inlet flow distribution structure floor slab	m²	123	578,30	71 130,90
AE261		(ii) Mixed liquor swing recycle channel floor slab	m²	61	578,30	35 276,30
AE262		(iii) Mixed liquor recycle distribution structure floor slab	m²	54	578,30	31 228,20
AE263		Testing for water tightness Carry out the complete watertightness test for the bioreactor (including channels, division chambers, pumpstations etc) as follows: (a) Inlet flow distribution structure	Sum	1	9 842,09	9 842,09
AE264		(b) Mixed liquor swing recycle & mixed liquor swing recycle pumpstation	Sum	1	19 722,18	19 722,18
AE265		(c) Mixed liquor recycle & mixed liquor recycle distribution structure	Sum	1	29 583,26	29 583,26
AE266		(d) 3 No. Bioreactor streams (anaerobic to aerobic), including various sumps and recycle pumpstations	Sum	3	29 583,26	88 749,78
AE267		(e) B1: AE-AX recycle channel	Sum	1	9 861,09	9 861,09
Carried forward / ...						36 339 978,86

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SECTION AE : BIOLOGICAL REACTOR

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						36 339 978,86
AE268	SANS 1200 G PSG 8.21 SANS 1200 A PSA 8.18	(e) B2 & B3: AE-AX recycle channel	Sum	1	9 861,09	9 861,09
AE269		(f) B1 & B2: AX-AN recycle channel	Sum	1	9 861,09	9 861,09
AE270		(g) B3: AX-AN recycle channel	Sum	1	9 861,09	9 861,09
AE271		(h) Mixed liquor collection channel	Sum	1	9 861,09	9 861,09
AE272	SANS 1200 A PSA 8.18	Perform accelerated shrinkage tests at the University of Cape Town for all grades of structural concrete	Sum	1	868,00	868,00
TOTAL SECTION AE CARRIED TO SUMMARY						R 36 380 291,22

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION AF : ULTRA-FILTRATION MEMBRANE PLANT				
		Drawings No. 110585-CS-0950 to 0988				
	SANS 1200 D	EARTHWORKS				
		as specified in SANS 1200 D and in the project specifications				
	8.3.4 PSD 8.3.4	Importing of materials:				
AF1		(a) Pioneer stone layer 300mm thick to be used as working platform	m³	323	401,57	129 707,11
AF2		(b) Clean sand (600 mm thick) compacted to 100% modified AASHTO density in 150mm thick layers	m³	634	177,83	112 744,22
		(c) 5% Stabilized clean sand compacted to 100% modified AASHTO density in 150mm thick layers for backfilling the void between:				
AF3		(i) Mixed liquor collection channel between levels 13.730 to 15.250 (soffit of channel floor slab)	m³	93	216,03	20 090,79
AF4		(ii) MBR Tanks Distribution Channel between levels 13.730 to 15.850 (soffit of channel floor slab)	m³	157	186,54	29 286,78
AF5		(iii) Mixed Liquor Recycle Channel between levels 13.280m to 15.830 (soffit of channel floor slab)	m³	281	186,54	52 417,74
	SANS 1200 G	CONCRETE WORK				
	8.1.1 PSG 8.1.1	Formwork				
	8.2.1	Smooth formwork:				
		Plane vertical to:				
AF6		(a) Mixed Liquor Collection Channel	m²	383	389,15	149 044,45
AF7		(b) MBR Tanks Feed Pumpstation Sump	m²	325	389,15	126 473,75
AF8		(c) MBR Tanks Feed Pumpstation internal and dividing walls	m²	183	389,15	71 214,45
AF9		(d) MBR Tanks Distribution Channel	m²	211	389,15	82 110,65
Carried forward / ...						773 089,94

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MEMBRANE PLANT

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						773 089,94
AF10	SANS 1200 G	(e) MBR Filtration Trains	m ²	1801	342,50	616 842,50
AF11		(f) MBR Trains Drain Sumps	m ²	46	482,46	22 193,16
AF12		(g) Mixed Liquor Recycle Channel	m ²	468	389,15	182 122,20
AF13		(h) Permeate, Service Water and Backpulse Tanks	m ²	402	389,15	156 438,30
AF14		(i) Scum/WAS Tank	m ²	108	389,15	42 028,20
AF15		(j) MBR Inspection Tank	m ²	80	435,81	34 864,80
	PSG 8.1.1.10	Plane horizontal to:				
AF16	PSG 8.1.1.11	(a) Mixed Liquor Recycle Channel suspended floor slab, with an average prop height of approximately 2.10m measured from Machine Building FFL at 13.730	m ²	92	720,01	66 240,92
AF17		(b) MBR Tanks Feed Pumpstation cover slab, with an average prop height of approximately 4.120 m measured from FFL at 13.730	m ²	48	720,01	34 560,48
		Grooves, chases and splays in the following ranges:				
		(a) 150 x 150 mm splays (bevel and chamfer) at top of pumpstation weir walls				
AF18		(i) MBR Tanks Feed pumpstation weir walls	m	17	311,40	5 293,80
AF19		(ii) MBR Trains outlet weirs	m	31	311,40	9 653,40
AF20	8.2.6	(iii) Service water and backpulse tank weirs	m	5	311,40	1 557,00
		Box out holes and forming grooves in walls and slabs not exceeding 500mm thick:				
AF21		(a) Small circular box out area up to and including 0.1 m ² for depths up to and including 400 mm	No.	11	1 064,86	11 713,46
AF22		(b) Large, other than circular of area over 0,1m ² and up to and including 0,5m ²	No.	4	1 904,65	7 618,60
Carried forward / ...						1 964 216,76

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 964 216,76
AF23	SANS 1200 G	(c) Large, other than circular of area over 0,1m ² and up to and including 0,85m ²	No.	2	4 819,28	9 638,56
AF24		(d) Large, other than circular of area over 0,85m ² and up to and including 1,2m ²	No.	20	4 819,28	96 385,60
AF25		(e) Form slots for sluice gate frames (50 x 80 mm deep refer to drawing)	m	73	406,18	29 651,14
	SANS 1200 A PSA 8.18 SANS 1200 G PSG 8.6	Box out with continuous rebar in terms of PSG 5.5.20				
AF26		(a) Large, other than circular of area over 0,1m ² and up to and including 0,85m ²	No.	30	4 566,78	137 003,40
AF27		(b) Large, other than circular of area over 0,85m ² and up to and including 1,2m ²	No.	15	4 819,28	72 289,20
	SANS 1200 G PSG 8.1.2	Reinforcement:				
	8.3.1	Mild steel bars:				
AF28		(a) 8 mm dia	t	6,0	11 923,95	71 543,70
AF29		(b) 10 mm dia	t	8,0	11 923,95	95 391,60
AF30		(c) 12 mm dia	t	6,0	11 923,95	71 543,70
	8.3.1	High tensile steel bars:				
AF31		(a) 10 mm dia	t	9,0	11 923,95	107 315,55
AF32		(b) 12 mm dia	t	17,9	11 923,95	213 438,71
AF33		(c) 16 mm dia	t	26,8	11 923,95	319 561,86
AF34		(d) 20 mm dia	t	62,3	11 923,95	742 862,09
AF35		(e) 25 mm dia	t	53,4	11 923,95	636 738,93
AF36		(f) 32 mm	t	9,0	11 923,95	107 315,55
Carried forward / ...						4 674 896,34

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SECTION AF : ULTRA-FILTRATION
MEMBRANE PLANT

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						4 674 896,34
	8.1.3 PSG 8.1.3	Concrete				
	PSG 8.4.3	Concrete Grade 15 MPa/20 mm (mass concrete) to:				
AF37	8.4.2 PSG 8.1.1.8	(a) 75 mm minimum thickness blinding layer	m ²	1137	110,01	125 081,37
AF38		(b) Benching for MBR Filtration Trains	m ²	71	270,36	19 195,56
	SANS 1200 G PSG 8.4.3	Strength concrete Grade 25 MPa/20 mm (watertight reinforced concrete) to:				
AF39		(a) Concrete encasing for service water pipe under Service Water / Backpulse tank	m ²	10	1 896,49	18 964,90
AF40		(b) Concrete encasing for Common Permeate Pipeline	m ²	59	1 896,49	111 892,91
	PSG 8.4.3	Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for floor slabs to:				
AF41		(a) Floor slab 450mm thick	m ³	512	1 713,70	877 414,40
AF42	PSG 8.4.3	(b) Mixed Liquor Collection Channel slab 300mm thick	m ³	20	1 780,93	35 618,60
AF43		(c) MBR Tanks Distribution Channel slab 300mm thick	m ³	25	1 780,93	44 523,25
AF44		(d) Mixed Liquor Recycle Channel slab 300mm thick	m ³	16	1 780,93	28 494,88
	PSG 8.4.3	Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for suspended channel and walkway slabs:				
AF45		(a) MBR Tanks Feed Pumpstation 300mm thick walkway/cover slab	m ³	15	1 780,93	26 713,95
AF46		(b) Mixed Liquor Recycle Channel slab 300mm thick (suspended piece)	m ³	24	1 780,93	42 742,32
	PSG 8.4.3	Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for walls:				
AF47		(a) Mixed Liquor Collection Channel wall 300mm to 350mm thick	m ³	77	1 780,93	137 131,61
Carried forward / ...						6 142 670,09

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SECTION AF : ULTRA-FILTRATION
MEMBRANE PLANT

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c	
Brought forward / ...						6 142 670,09	
AF48	SANS 1200 G	(b) MBR Tanks Feed Pumpstation sump perimeter wall 300mm thick	m³	66	1 780,93	117 541,38	
AF49		(c) MBR Tanks Feed Pumpstation walls 300mm thick	m³	53	1 780,93	94 389,29	
AF50		(d) MBR Trains perimeter walls and weir walls 300mm to 400 thick	m³	196	1 713,70	335 885,20	
AF51		(e) MBR Trains internal dividing walls 300mm thick	m³	182	1 713,70	311 893,40	
AF52		(f) MBR Trains Drain Sumps	m³	7	1 780,93	12 466,51	
AF53		(g) Mixed Liquor Recycle Channel Walls 300mm thick	m³	60	1 780,93	106 855,80	
AF54		(h) Scum/WAS Tank walls 300mm thick to 400mm thick	m³	13	1 780,93	23 152,09	
AF55		(i) MBR Inspection Sump walls 300mm thick to 400mm thick	m³	10	1 780,93	17 809,30	
AF56		(j) Backpulse, Service Water, Permeate Tank internal walls 300mm thick to 400mm thick	m³	47	1 780,93	83 703,71	
	SANS 1200 G PSG 8.4.3	Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for beams and columns:					
AF57	8.4.4 PSG 8.4.4	(a) MBR Tanks Feed Pumpstation Sump columns 600mm by 325mm	m³	4	1 982,65	7 930,60	
AF58		(b) MBR Tanks Feed Pumpstation Sump columns 600mm by 900mm	m³	22	1 780,93	39 180,46	
AF59		(c) Mixed Liquor Recycle Channel columns 600mm by 925mm	m³	24	1 780,93	42 742,32	

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**SECTION AF : ULTRA-FILTRATION
MEMBRANE PLANT**

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						7 337 813,95
	SANS 1200 G	Horizontal steel-floated finish:				
AF61		(a) Mixed Liquor Collection Channel floor slab	m ²	64	38,29	2 450,56
AF62		(b) MBR Tanks Feed Pumpstation floor slab	m ²	82	38,29	3 139,78
AF63		(c) MBR Tanks Distribution Channel floor slab	m ²	53	38,29	2 029,37
AF64		(d) MBR Filtration Trains floor slab	m ²	454	38,29	17 383,66
AF65		(e) MBR Filtration Trains Drain Sump slab	m ²	5	38,29	191,45
AF66		(f) Mixed Liquor Recycle Channel floor slab	m ²	116	38,29	4 441,64
AF67		(g) Scum/WAS sump floor slab	m ²	14	38,29	536,06
AF68		(h) MBR Inspection sump floor slab	m ²	14	38,29	536,06
AF69		(i) Backpulse, Service Water, Permeate Tank floor slab	m ²	68	38,29	2 603,72
		(j) Narrow horizontal surfaces up to 300mm wide				
AF70		(i) Mixed Liquor Collection Channel	m	85	11,49	976,65
AF71		(ii) MBR Tanks Feed Pumpstation Sump	m	30	11,49	344,70
AF72		(iii) MBR Tanks Feed Pumpstation	m	42	11,49	482,58
AF73		(iv) MBR Tanks Distribution Channel	m	29	11,49	333,21
AF74		(v) MBR Filtration Trains	m	204	11,49	2 343,96
AF75		(iv) Mixed Liquor Recycle Channel	m	77	11,49	884,73
AF76		(vi) Permeate, Service Water and Backpulse Tanks	m	20	11,49	229,80
AF77		(vii) Scum/WAS Tanks and MBR Inspection Tank dividing wall	m	10	11,49	114,90
AF78		(j) Horizontal surfaces over 300mm wide and up to 450mm wide	m	22	17,23	379,06
AF79		(i) MBR Filtration Trains Weir	m	35	17,23	603,05
Carried forward / ...						7 377 818,89

MBR PLANT AND BOTTLENECK ALLEVIATION
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SECTION AF : ULTRA-FILTRATION
MEMBRANE PLANT

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						7 377 818,89
AF80		(ii) Permeate, Service Water and Backpulse Tanks	m	27	17,23	465,21
AF81		(iii) Scum/WAS Tanks and MBR Inspection Tank dividing wall	m	9	17,23	155,07
	SANS 1200 G 8.5 PSG 8.1.1 PSG 8.1.1.7 PSG 8.5	Designated Joints				
AF82		(a) Joint Type A	m	16	564,85	9 037,60
AF83		(b) Sika-swell joint	m	16	88,32	1 413,12
AF84		(c) Joint Type T	m	46	215,26	9 901,16
		(d) Joint Type F				
AF85		(i) In direction parallel to MBR Trains	m	300	205,29	61 587,00
AF86		(ii) In direction perpendicular to MBR Trains	m	800	205,29	164 232,00
	SANS 1200 G 8.7 PSG 8.7	Grouting				
AF87	PSG 8.8	(a) Grouting of pockets in concrete after pipe installation	m³	2	13 813,10	27 626,20
AF88		(b) Grouting of sluice gates	m³	2	13 813,10	27 626,20
	SANS 1200 LE PSLE 8.2.8 PSLE 8.2.22	UNDERDRAINAGE SYSTEM as specified in SANS 1200 LE and in the project specifications				
AF89	SANS 1200 G PSG 8.13	(a) Filter bed - 120 mm no-fines concrete layer including provision for 20 mm thick packed mortar skin	m²	451	231,11	104 230,61
	SANS 1200 A PSA 8.18	Construct drain complete including excavation, 19 mm stone fill, geofabric blanket and 110 mm dia perforated flexible drainage pipe as shown on drawings				
AF90		(b) Transverse drains including 110mm diameter class 9 uPVC perforated drainage pipe	m	92	198,38	18 250,96
Carried forward / ...						7 802 344,82

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SECTION AF : ULTRA-FILTRATION
MEMBRANE PLANT

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						7 802 344,82
AF91		(c) Trench excavation for non perforated pipes	m³	6	103,22	619,32
AF92		(d) Supply and lay 110 mm dia PVC-U Class 9 connector pipes (non-perforated)	m	66	113,90	7 517,40
AF93		(e) Extra-over Item AF91 for 110 mm dia 90° PVC-U T-pieces	No.	2	461,12	922,24
AF94	SANS 1200 LD 8.23 PSLD 8.2.3	(f) Manhole over 3,0 m and up to 5,5 m deep complete as shown on DRG-CS-0116 including cover and frame and puddle pipe	No.	1	16 848,63	16 848,63
	SANS 1200 L PSL 8.2.1 PSL 8.2.19	PIPEWORK				
AF95	8.2.2 PSG 8.6	Cast in of pipes and specials (such as flanges etc. where required) through concrete (including hydrophilic rubber sealant, as specified or shown on drawing DRG-CS-1779):				
AF96		(a) Item MMB1	No.	1	9 135,27	9 135,27
AF97		(b) Item MMB2	No.	1	62 637,99	62 637,99
AF98		(c) Item MMB4	No.	1	11 332,56	11 332,56
AF99		(d) Item MMB5	m	1	13 224,59	13 224,59
	8.2.2 PSL 8.2.2 PSL 8.2.17 PSL 8.2.19 SANS 1200 G PSG 8.6	Extra-over items PSG 8.6 above for flexible couplings and/or flanges where applicable (as specified or shown on drawing 110585-WWTW-DRG-CS-1779):				
AF100		(a) Item MMB3	No.	1	13 304,88	13 304,88
	SANS 1200 HA	METALWORK				
		as specified in SANS 1200 HA and in the project specifications				
		Supply and install:				
	8.3.2	(a) Grade 316 handrails, complete mounted on				
AF101		(i) Perimeter of MBR inspection sump	m	14	940,70	13 169,80
Carried forward / ...						7 951 057,50

MBR PLANT AND BOTTLENECK ALLEVIATION
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SECTION AF : ULTRA-FILTRATION
MEMBRANE PLANT

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						7 951 057,50
AF102		(b) SS 316 Guard chain (8 mm dia) complete with hooks	m	2	251,72	503,44
		MISCELLANEOUS				
		Flooring				
	SANS 1200 A PSA 8.18 SPEC AUR 1017 8.1.1	Flooring: Supply and install Glass Reinforced Plastic (GRP) banded grating with a nominal size of 40 x 40mm as shown on drawings, for the following:				
AF103		(a) Mixed Liquor Collection Channel	m ²	64	1 139,25	72 912,00
AF104		(b) MBR Tanks Feed Pumpstation	m ²	24	1 139,25	27 342,00
AF105		(c) MBR Tanks Distribution Channel	m ²	46	1 139,25	52 405,50
AF106	SANS 1200 A PSA 8.18 SPEC AUR 1017 8.1.1	(d) Mixed Liquor Recycle Channel	m ²	105	1 139,25	119 621,25
AF107		(e) Scum/WAS Sump	m ²	12	1 139,25	13 671,00
AF108		(f) 45 x 45 x 5 mm Hot Dip Galvanised (HDG) angle cast in concrete to support GRP grating specified above	m	300	376,50	112 950,00
	SANS 1200 G PSG 8.22 PSA 8.18	Epoxy concrete protection: Apply (trowel-on) Sikaguard 720 Epocem in combination with SIKAGUARD 63N or similar approved, to a thickness of 2mm to the following: (a) Internal walls of channels, sumps and tanks				
AF109		(i) MBR Tanks Feed Pumpstation Sump	m ²	194	578,30	112 190,20
AF110		(ii) MBR Tanks Feed Pumpstation internal and dividing walls	m ²	165	578,30	95 419,50
AF111		(iii) MBR Tanks Distribution Channel	m ²	189	578,30	109 298,70
AF112		(iv) Mixed Liquor Recycle Channel	m ²	300	578,30	173 490,00
Carried forward / ...						8 840 861,09

MBR PLANT AND BOTTLENECK ALLEVIATION
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SECTION AF : ULTRA-FILTRATION
MEMBRANE PLANT

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						8 840 861,09
		(b) Floor slabs of channels, sumps and tanks				
AF113		(v) MBR Tanks Feed Pumpstation floor slab	m ²	74	578,30	42 794,20
AF114		(ii) MBR Tanks Distribution Channel	m ²	48	578,30	27 758,40
AF115		(iii) MBR Filtration Trains	m ²	412	578,30	238 259,60
AF116		(iv) MBR Trains Drain Sumps	m ²	4	578,30	2 313,20
AF117		(i) Mixed Liquor Recycle Channel floor slab	m ²	105	578,30	60 721,50
AF118		(vi) Scum/WAS sump floor slab	m ²	12	578,30	6 939,60
AF119		(vii) MBR Inspection sump floor slab	m ²	12	578,30	6 939,60
		(c) Soffit of walkways, suspended slabs, and cover slabs				
AF120		(i) MBR Tanks Feed Pumpstation cover slab	m ²	43	578,30	24 866,90
	SANS 1200 G PSG 8.23 PSA 8.18	HDPE covering (2mm thick with anchor knobs cast into concrete with formwork):				
AF121		(a) Internal walls of MBR Filtration Trains	m ²	1469	311,85	458 107,65
AF122		(b) Internal walls of MBR Filtration Trains Drain Sumps	m ²	16	311,85	4 989,60
AF123		(c) Internal walls of MBR Inspection Sump	m ²	62	311,85	19 334,70
AF124		(d) Internal walls of Scum/WAS Tanks	m ²	62	311,85	19 334,70
	PSG 8.21 PSA 8.18	Testing for water tightness				
		Carry out the complete watertightness test for the as follows:				
AF125		(a) MBR Tanks Feed Pumpstation Sump	Sum		9 861,09	9 861,09
AF126		(b) MBR Trains	Sum		30 523,96	30 523,96
AF127		(c) Backpulse, Service Water, Permeate	Sum		9 861,09	9 861,09
AF128	SANS 1200 A PSA 8.18	Perform accelerated shrinkage tests at the University of Cape Town for all grades of structural concrete	Sum		868,00	868,00
TOTAL SECTION AF CARRIED TO SUMMARY						R 9 804 334,88

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AG: MBR PLANT -
MACHINE BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c	
AG1	SANS 1200 D	SECTION AG: MBR PLANT - MACHINE BUILDING					
		Drawings No. 110585-CS-0950 to 0986					
		EARTHWORKS					
		as specified in SANS 1200 D and in the project specifications					
		Filling:					
		Sand filling in 150mm thick layers to 100% MAMDD	m³	122	202,19	24 667,18	
		CONCRETE WORK					
		FORMWORK					
		Rough:					
		Plane Vertical to:					
AG2	SANS 1200 G 8.1.1 PSG 8.1.1 8.2.1	Shower pit sides	m²	3	482,46	1 447,38	
AG3		Sides of walls	m²	471	358,05	168 641,55	
AG4		Sides of channel walls	m²	90	435,81	39 222,90	
AG5		Edges of raft slab	m²	114	482,46	55 000,44	
AG6		8.2.3	Special smooth:				
			Plane Vertical to:				
AG7		Columns and corbels	m²	1077	435,81	469 367,37	
AG8		Columns	m²	842	435,81	366 952,0	
AG9		Sides of walls	m²	3 722	358,05	1 332 662,10	
AG10		Sides of beams	m²	1036	482,46	499 828,56	
AG11	Sides vertical and horizontal decorative surround	m²	167	482,46	80 570,82		
AG12	Sides of roller shutter door lintol	m²	14	575,77	8 060,78		
AG13	Shower pit sides	m²	3	482,46	1 447,38		
AG14	Sides of channel walls	m²	90	435,81	39 222,90		
		Sides of corbels	m²	50	435,81	21 790,50	
Carried forward / ...						3 108 881,88	

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AG: MBR PLANT -
MACHINE BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						3 108 881,88
AG15	SANS 1200 G	Stepped outer edge of stairs not exceeding 390 mm extreme	m ²	39	435,81	16 996,59
		Plane horizontal to:				
AG16		Soffits of slabs	m ²	1005	829,05	833 195,25
AG17		Soffits of slabs over 5m and up to 6.5m	m ²	296	1 018,92	301 600,32
AG18		Soffits of slabs over 6.5m and up to 8m	m ²	909	1 105,72	1 005 099,48
AG19		Soffits of beams over 3.5m and up to 5m	m ²	299	917,48	274 326,52
AG20		Soffits of beams over 5m and up to 6.5m	m ²	47	1 183,30	55 615,10
AG21		Soffits of decorative surround up to 1.5m	m ²	47	1 073,17	50 438,99
AG22		Soffits of decorative surround over 5m and up to 6.5m	m ²	124	1 275,53	158 165,72
AG23		Soffit of roller shutter door lintol over 3.5m and up to 5m	m ²	14	1 073,17	15 024,38
AG24		Soffits of landings	m ²	13	1 073,17	13 951,21
AG25		Soffits of landings over 6.5m and up to 8m	m ²	3	1 398,67	4 196,01
		Plane sloping to:				
AG26	PSG 8.1.1.9 PSG 8.1.1.10	Soffits of stairs	m ²	65	1 283,23	83 409,95
AG27		Soffits of stairs over 5m and up to 6.5m	m ²	17	1 483,57	25 220,69
AG28		Soffits of stairs over 6.5m and up to 8m	m ²	16	1 700,57	27 209,12
AG29		Soffits of corbels over 6.5m and up to 8m	m ²	5	1 700,57	8 502,85
AG30		Soffits of corbels over 11m and up to 12.5m	m ²	6	1 776,52	10 659,12
AG31		Soffits of beam corbel	m ²	65	1 398,67	90 913,55
	8.2.5	Narrow widths (smooth):				
AG32		Over 20 mm and up to 100 mm	m	290	80,83	23 440,70
AG33		Over 100 mm and up to 200 mm	m	665	161,66	107 503,90
AG34		Over 200 mm and up to 300 mm	m	506	171,62	86 839,72
Carried forward / ...						6 301 191,05

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						6 301 191,05
AG35	8.2.6	Box out holes/form voids: Recess or channel 250 mm wide x 250 mm deep in top of floors	m	48	331,78	15 925,44
AG36		Recess or channel 100 mm wide x 100 mm deep in top of floors	m	44	175,79	7 734,76
	SANS 1200 G PSG 8.1.2	REINFORCEMENT				
	8.3.1	Mild steel bars:				
AG37		8 mm dia	t	3,5	11 923,95	41 733,83
AG38		10 mm dia	t	3,5	11 923,95	41 733,83
AG39		12 mm dia	t	10,4	11 923,95	124 009,08
	8.3.1	High-tensile steel bars:				
AG40		10 mm dia	t	63,5	11 923,95	757 170,83
AG41		12 mm dia	t	104,5	11 923,95	1 246 052,78
AG42		16 mm dia	t	104,5	11 923,95	1 246 052,78
AG43		20 mm dia	t	51,7	11 923,95	616 468,22
AG44		25 mm dia	t	7,0	11 923,95	83 467,65
AG45		32 mm dia	t	3,5	11 923,95	41 733,83
	8.3.2	High-tensile welded mesh:				
AG46		Ref. 395	m ²	60	68,96	4 137,60
	PSG 8.1.3	CONCRETE				
	8.4.2	Blinding layer:				
		Class 15 MPa/19 mm concrete of:				
AG47	8.4.2 PSG 8.1.1.8	75 mm thickness	m ²	1 580	110,01	173 815,80
	PSG 8.4.3	Strength concrete:				
		Class 30 MPa/19 mm concrete to:				
AG48		Columns	m ³	51	1 780,93	90 827,43
Carried forward / ...						10 792 054,88

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIE T WASTEWATER TREATMENT WORKS

SECTION AG: MBR PLANT -
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Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c	
Brought forward / ...						10 792 054,88	
AG49	SANS 1200 G	Beams	m³	132	1 780,93	235 082,76	
AG50		Roller shutter door lintol	m³	7	1 780,93	12 466,51	
AG51		Slabs	m³	448	1 713,70	767 737,60	
AG52		Walls	m³	37	1 780,93	65 894,41	
AG53		Stairs and landings	m³	20	1 780,93	35 618,60	
AG54		Roof slabs	m³	79	1 780,93	140 693,47	
AG55		Plinths	m³	25	1 780,93	44 523,25	
AG56		Crane beam with corbels	m³	33	1 780,93	58 770,69	
	PSG 8.4.3	Class 35 Mpa/26 mm (watertight) concrete to:					
AG57		Raft footing or floor slabs	m³	667	1 713,70	1 143 037,90	
AG58		Channel walls	m³	27	1 780,93	48 085,11	
AG59		Walls	m³	554	1 713,70	949 389,80	
AG60		Columns	m³	83	1 848,17	153 398,11	
AG61		Columns and corbels	m³	175	1 780,93	311 662,75	
AG62		Slabs	m³	6	1 780,93	10 685,58	
AG63		Plinths	m³	46	1 780,93	81 922,78	
AG64		Decorative surround	m³	114	1 780,93	203 026,02	
AG65		Beams	m³	19	1 780,93	33 837,67	
AG66		Aprons	m³	20	1 780,93	35 618,60	
AG67		Stairs and landings	m³	14	1 982,65	27 757,10	
AG68		Shower pits	m³	2	1 982,65	3 965,30	
		8.4.4 PSG 8.4.4	Unformed surface finishes:				
			Wood-floated finishes to:				
AG69			Horizontal surfaces	m²	1804	30,65	55 292,60
Carried forward / ...						15 210 521,49	

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AG: MBR PLANT -
MACHINE BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						15 210 521,49
AG70	SANS 1200 G 8.5 PSG 8.1.1 PSG 8.1.1.7 PSG 8.5	150 mm wide reedings in top of treads and with bullnosed front edge	m	314	30,65	9 624,10
		Steel-floated finishes to:				
AG71		Horizontal surfaces	m²	2 423	38,29	92 776,67
		Broom finish to:				
AG72		Apron	m²	202	25,05	5 060,10
		JOINTS:				
		Isolation Joints:				
AG73		10 mm Jointex between concrete surfaces	m²	2	193,67	387,34
AG74		10 mm Jointex between concrete and brickwork, 100 mm high	m	802	20,13	16 144,26
AG75		10 mm Jointex between concrete and brickwork, 150 mm high	m	65	83,17	5 406,05
AG76		10 mm Jointex between concrete surface and brickwork, 280 mm wide	m	47	56,35	2 648,45
		Expansion joints:				
AG77		10 mm Jointex between concrete surfaces, 250 mm high	m	2	138,61	277,22
		Saw joints:				
AG78		3 mm x 25 mm deep in aprons	m	61	14,48	883,2
AG79	6 mm x 40 mm deep in slabs or paving	m	1 552	28,95	44 930,40	
	Sealing of joints with sealant:					
AG80	10 mm x 10 mm polyurethane sealant in vertical isolation joints in walls	m	810	150,61	121 994,10	
AG81	10 mm x 10 mm polyurethane sealant in horizontal isolation joints in floors	m	52	150,61	7 831,72	
Carried forward / ...						15 518 485,18

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SECTION AG: MBR PLANT -
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Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						15 518 485,18
AG82		6 mm x 20 mm polyurethane sealant in saw joints	m	1 552	157,11	243 834,72
AG83		Joint Type F	m	250	205,29	51 322,50
	SANS 1200 H	STRUCTURAL STEELWORK				
	PSH 8.3.14	Supply, fabrication, delivery and installation of steelwork:				
AG84		Structural steel with hot-dip galvanized corrosion protection system in roof structure complete with all necessary items including purlins, erection bolts and preparation of shop drawings	t	52,00	44 485,00	2 313 220,00
	8.3.6	Holding-down (HD) bolts:				
AG85		20 diameter Hilti HIT HY200 chemical anchor with stainless steel studs	No.	200	244,12	48 824,00
	SANS 1200 HA	SUNDRY STRUCTURAL STEEL				
	PSHA 8.3.2	Supply all material and install (refer to PSHA 5.2.6) stainless steel handrails assembly 1 m high complete (ref to Drg No WWTW-DRG-WW-961) on:				
AG86		Horizontal surface, top and side mounted	m	119	940,70	111 943,30
AG87		Sloping surface, top and side mounted	m	99	940,70	93 129,30
		Extra over to handrails for:				
AG88		90° bends	No.	30	251,72	7 551,60
AG89		End closures	No.	60	418,81	25 128,60
	PSHA 8.3.4	Open grid flooring:				
AG90		Supply and install 80 mm thick HD SS316 (10t) banded grating with nominal opening sizes of 60 mm x 60 mm as shown on drawings	m²	1	2 278,50	2 278,50
AG91		Supply and install 50 mm thick glass reinforced plastic (FRP) banded grating with a nominal opening size of 50 x 50 mm as shown on drawings	m²	156	1 519,00	236 964,00
Carried forward / ...						18 652 681,70

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AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AG: MBR PLANT -
MACHINE BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						18 652 681,70
AG92		50 x 50 x 5 mm SS316 angle with 50 mm x 150 mm x 5 mm thick fishtail lugs at 350 mm centres, cast in concrete to support FRP grating above	m	308	540,87	166 587,96
	SPEC PD	BUILDING WORK				
	PD 10.03	Pre-stressed lintels				
AG93		300 mm x 75 mm lintels	m	283	199,63	56 495,29
	PD 10.04	Construction of brickwork:				
	PD 10.04.1	Brickwork:				
		Brick walls in non-facing engineering bricks including butterfly ties, splayed concrete fillet along bottom and weep holes as specified and shown on drawings for:				
AG94		250 mm cavity walls with 30 mm cavity in superstructures	m ²	493	514,47	253 633,71
AG95		300 mm cavity walls with 80 mm cavity in superstructures	m ²	712	514,21	366 117,52
AG96		300 mm cavity walls with 80 mm cavity in fire walls above beams	m ²	105	514,21	53 992,05
		Brick walls in non-facing engineering plaster bricks inside face and facebrick to match existing outside face including butterfly ties, splayed concrete fillet along bottom and weep holes as specified and shown on drawings for:				
AG97		300 mm cavity walls with 80 mm cavity in superstructures	m ²	1 478	792,00	1 170 576,0
AG98		115mm Face brick wall lining	m ²	15	553,35	8 300,25
AG99		Brick on edge external face brick sill 220 mm wide	m	4	134,36	537,44
AG100		Sloping face brick sill 220 mm wide	m	24	134,36	3 224,64
AG101		Cement mortar splayed fill 170 mm high in 80 mm cavity above lintels	m	283	11,21	3 172,43
AG102		Extra over cavity walls for closing 80 mm cavity vertically at doors	m	513	95,35	48 914,55
Carried forward / ...						20 784 233,54

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AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AG: MBR PLANT -
MACHINE BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						20 784 233,54
AG103	SPEC PD PD 10.04.3	Damp proofing: 250 micron medium density polyethylene damp-proof sheeting: Under floor slab	m²	1 164	11,32	13 176,48
AG104	PD 10.04.6	375 micron embossed polyethylene type B damp-proof sheeting: In walls	m²	69	26,03	1 796,07
AG105		Masonry reinforcing and anchors: 225 mm brick reinforcing for 280 mm and 250 mm cavity walls	m	9 475	2,56	24 256,00
AG106		1,2 mm x 30 mm wide x 750 mm Long galvanised hoop iron straps fixed with 2 x "HILTI HPS - 1 6/5" anchors to concrete and built into brickwork	No.	5 532	17,44	96 478,08
AG107	PD 10.05	Plasterwork: Plaster brick walls in panels up to 20 mm thick	m²	4 109	94,45	388 095,05
AG108	PD 10.06	Floor screeds and finish: Granolithic screed	m²	285	155,56	44 334,60
AG109	PD 10.08	Flowcrete Peran STB 3-4 mm thick to top of floors (light grey)	m²	3 022	479,57	1 449 260,54
AG110		Doors and Windows: Supply and install 3CR12 with powder coated epoxy (grey) purpose-made doors and frames complete including Ironmongery (see 110585-CS-0095.0096.0097.0099.1327.1328.) Double door - Type C	No.	6	61 464,18	368 785,08
AG111		Double door - Type B	No.	1	55 162,67	55 162,67
AG112		Double door - Type G	No.	1	68 811,99	68 811,99
AG113		Single door - Type E	No.	1	61 820,59	61 820,59
AG114		Double door - Type F	No.	1	76 564,91	76 564,91
Carried forward / ...						23 432 775,60

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						23 432 775,60
AG115	SPEC PD PD 10.08	Single door - Type A	No.	1	47 338,83	47 338,83
AG116		Supply and install powder coated heavy duty roller shutter door, electrically operated, complete with locking system, canopy, etc. to suit opening size 4 200 mm wide x 5 000 mm high	No.	3	46 109,11	138 327,33
AG117		Supply and install transformer louvred doors and frames complete including ironmongery (see 110585-WWTW-DRG-CS-0094)				
		Double door including frame Type D2	No.	3	24 001,15	72 003,45
AG118		Supply and install hardwood battened door and solid Meranti frame complete including ironmongery (see 110585-WWTW-DRG-CS-0094)				
		Double door including frame Type D4	No.	3	9 600,89	28 802,67
AG119		Single door including frame Type D6	No.	2	6 029,06	12 058,12
AG120		Winblok precast concrete window surrounds build into brickwork:				
		WB 66 Winblok windows in panels	No.	65	1 470,22	95 564,30
AG121		WB68CV Winblock windows in panels	No.	36	1 553,54	55 927,44
AG122		WB 88 Winblok windows in panels	No.	96	2 038,96	195 740,16
AG123		Powder coated aluminium framed picture windows with 6 mm clear safety glass complete (see 110585-WWTW-DRG-CS-0094):				
		WMB1, size 900 x 3 615mm, including bottom storm proof louvre and adjustable damper with interior grille, size 900 x 700mm high	No.	8	5 634,95	45 079,60
AG124		WMB2 size 600 x 3 615 mm high	No.	10	2 947,51	29 475,10
AG125		WMB3 size 2 000 x 1 800 mm high	No.	19	2 735,88	51 981,72
AG126		WMB4 size 1 840 x 1 360 mm high	No.	2	3 169,28	6 338,56
Carried forward / ...						24 211 412,88

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AG: MBR PLANT -
MACHINE BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						24 211 412,88
AG127	SPEC PD PD 10.08	Powder coated aluminium framed windows with 6 mm clear safety glass: WV(A)66F fixed window including standard burglar bars, fixed into Winblok WB 66 surround	No.	55	0,00	0,00
AG128		WV(A)88F fixed window including standard burglar bars, fixed into Winblok WB 88 surround	No.	96	0,00	0,00
AG129		WV(A)C68FV fixed window including standard burglar bars, fixed into Winblok WB68CV surround	No.	36	0,00	0,00
	SANS 1200 HB PSHB 8.1.1	Roof Sheeting and Cladding				
	PD 10.11	Structural roof and sheeting				
	PD 10.11.1	Roof sheeting:				
AG130	SANS 1200 HB PSHB 8.1.1 HB 8.2.2	Supply and install 0,6 mm thick SS (Grade 316) IBR profile roof sheeting to steel purlins	m ²	2 033	657,55	1 336 799,15
	PSHB 8.2.3	Supply and install 0,8 mm thick SS (Grade 316) ancillaries:				
AG131		Ridge capping to suit	m	14	610,63	8 548,82
AG132		Barge board flashing to suit	m	75	610,63	45 797,25
AG133		L-shaped fascia flashing	m	133	470,59	62 588,47
AG134		Apex flashing	m	45	544,40	24 498,00
AG135		Head wall flashing cover to suit	m	72	397,72	28 635,84
AG136		Cover flashing to suit	m	72	251,99	18 143,28
AG137		Broad or narrow flute closers	m	178	251,99	44 854,22
AG138		Poly closures to suit broad or narrow flutes for dust control	m	178	38,52	6 856,56
AG139		Supply and install Sisalation FR430 insulation under roof sheeting including all straining wires, lapping, etc. (PSHB 3.2.4)	m ²	2 033	46,59	94 717,47
Carried forward / ...						25 882 851,94

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AG: MBR PLANT -
MACHINE BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						25 882 851,94
	SPEC PD PD 10.15	Supply, fix and connect sanitary ware complete:				
AG140		Cobra WC type WC-2301-000	No.	1	7 792,47	7 792,47
AG141		Vaal urinal type 705426/705427 including accessories	No.	2	11 291,60	22 583,20
AG142		Vaal wash-hand basin 703700	No.	1	4 993,17	4 993,17
AG143		Eye wash station and shower	No.	1	29 726,83	29 726,83
AG144		Kwikot EF 200-2DI 200 l hot water cylinder complete	No.	1	11 761,40	11 761,40
AG145		Cobra AC-0905-100 toilet roll holder	No.	1	905,98	905,98
AG146		Soap dish	No.	1	296,20	296,20
AG147		Clothes hook on wall	No.	1	296,20	296,20
		Supply, fix and connect exterior and interior plumbing to dewatering building:				0,00
AG148		PVC-U soil, vent, waste water piping, gulley and plumbing to toilets, showers, and basins up to but excluding the manhole, all in accordance with SANS 967. 2003	Sum	1	12 410,23	12 410,23
AG149		Brick manhole 1,0 m deep, with Type 2A cover and frame to Drg LD-3 of SANS 1200 LD	No.	2	9 235,52	18 471,04
AG150		Fire hose reel with 30m rubber hose, chromlum plated stopcock, shut-off nozzle and wall bracket, including all pipework to hose reel from main connection point outside the building and all required signage	No.	10	7 539,66	75 396,60
	PD 10.13.2	Rainwater goods				
		Supply and install aluminium:				
AG151		150 mm x 150 mm rectangular profile gutter	m	132	217,00	28 644,00
AG152		Extra over gutter for stop ends	No.	4	16,28	65,12
Carried forward / ...						26 096 194,38

**SECTION AG: MBR PLANT -
MACHINE BUILDING**

Contract
Part C2: Pricing Data
Reference No. 179Q/2016/17

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AG: MBR PLANT -
MACHINE BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						26 747 284,22
AG166	PD 10.15	10 kg CO2 fire extinguishers complete with brackets and all required signage	No.	6	1 421,35	8 528,10
AG167		450 x 900mm mirror	No.	1	772,61	772,61
AG168		Supply and install high acoustic performance double louvres Trox type NLH or similar approved				
AG168		Size 3 300 mm x 1 790 mm high	No.	9	61 062,16	549 559,44
AG169		Size 1 500 mm x 800 mm high	No.	11	15 667,62	172 343,82
AG170		Size 5 600 mm x 900 mm high	No.	6	56 129,48	336 776,88
AG171		Size 2 000mm x 1 500mm high	No.	10	41 213,72	412 137,5
AG172		Approved patented type shading screen above windows:				
AG172		3 600 mm x 500 mm wide screen	No.	5		0,00
AG173		3 700 mm x 500 mm wide screen	No.	4		0,00
AG174		4 200 mm x 500 mm wide screen	No.	5		0,00
AG175		19 mm x 120 mm wide Supawood internal window sill	m	4	224,46	897,84
AG176		Decorative mural structure panels including all fixings and cladding as shown on layout drawings	m²	210	2 848,12	598 105,20
AG177		Mural artwork for decorative façade on Machine building	Prov Sum			150 000,00
AG178		Contractor's overheads, charges and profit on item AG175 above (State % and extend as an amount)	%	R 150 000	10,00%	1500
AG179		4 mm thick torch-on waterproofing system including turn-ups and turn-down and painted with two coats aluminium based paint (waterproofing with 5 year guarantee)	m²	340	233,28	79 315,20
TOTAL SECTION AG CARRIED TO SUMMARY						R 29 070 720,51

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
	SPEC BE-01	SECTION AH : MACHINE BUILDING - SMALL POWER AND LIGHTING				
		POWER SUPPLY				
AH1	1.3.13	Liason with M&E Contractor for Permanent Electrical Supplies.	Sum	1	542,50	542,50
	1.3.1	LIGHTING				
		Luminaire A: 1 x 26W CFL bulkhead light fitting.				
AH2		(i) Supply	No.	33	781,20	25 779,60
AH3		(ii) Install	No.	33	103,08	3 401,64
		Luminaire B: 2 x 54W T5 industrial vapour proof fluorescent light fitting - ceiling mounted.				
AH4		(i) Supply	No.	20	805,07	16 101,40
AH5		(ii) Install	No.	20	103,08	2 061,60
		Luminaire C: 1 x 54W T5 industrial vapour proof fluorescent light fitting.				
AH6		(i) Supply	No.	85	602,18	51 185,30
AH7		(ii) Install	No.	85	103,08	8 761,80
AH8		45° 54W Fluorescent Bracket	No.	55	48,82	2 685,10
		Luminaire D: 250W HPS High bay light fitting				
AH9		(i) Supply	No.	26	1 257,52	32 695,52
AH10		(ii) Install	No.	26	103,08	2 680,08
		Luminaire E: 150W HPS floodlight fitting				
AH11		(i) Supply	No.	8	2 942,52	23 540,16
AH12		(ii) Install	No.	8	103,08	824,64
AH13		Floodlight Bracket	No.	8	260,40	2 083,20
Carried forward / ...						172 342,54

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AH : MACHINE BUILDING -
SMALL POWER AND LIGHTING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 071 106,71
AH29	SPEC BE-01	4m GRP street light mast with Double side spigot	No.	12	743,22	8 918,64
	1.3.2	Wall mounted Photocell Day/night switch				
AH30		(i) Supply	No.	3	428,58	1 285,74
AH31		(ii) Install	No.	3	103,08	309,24
		DISTRIBUTION BOARDS				
	1.3.3	MBR Building Distribution Board (DB-MBR-GF)				
AH32		Supply	No.	1	21 379,92	21 379,92
AH33		Install	No.	1	379,75	379,75
		MBR Building Distribution Board DB-MBR-FF)				
AH34		Supply	No.	1	19 188,22	19 188,22
AH35		Install	No.	1	379,75	379,75
		MBR Building Kiosk Board (DB-BR)				
AH36		Supply	No.	1	14 675,71	14 675,71
AH37		Install	No.	1	379,75	379,75
		Fine Screenings Small Power DB (DB-FS)				
AH38		Supply	No.	1	5 301,31	5 301,31
AH39		Install	No.	1	379,75	379,75
		POWER				
	1.3.4	16 Amp 3-pin 250V Power Skirting Modular Outlets single switched socket				
AH40		Supply	No.	14	112,84	1 579,76
AH41		Installation	No.	14	27,12	379,68
Carried forward / ...						1 145 643,93

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AH : MACHINE BUILDING -
SMALL POWER AND LIGHTING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 145 643,93
AH42	SPEC BE-01 1.3.	16 Amp 3-pin 250V single dedicated switched socket outlet				
		Supply	No.	3	128,03	384,09
AH43		Installation	No.	3	27,12	81,36
		16 Amp 3-pin 250V Power Skirting Modular single dedicated switched socket outlet				
AH44		Supply	No.	4	168,18	672,72
AH45		Installation	No.	4	27,12	108,48
		32 Amp 5-pin 400V industrial switched socket outlet				
AH46		Supply	No.	5	933,10	4 665,50
AH47		Installation	No.	5	97,65	488,25
		16 Amp 2-pole 250V isolator				
AH48		Supply	No.	2	159,50	319,00
AH49		Installation	No.	2	27,12	54,24
	1.3.5	32 Amp 4-pole 400V industrial rotary isolator				
AH50		Supply	No.	4	692,23	2 768,92
AH51		Installation	No.	4	97,65	390,60
		Sliding GRP socket outlet housing				
AH52	1.3.4	Supply	No.	5	75,95	379,75
AH53		Installation	No.	5	16,28	81,40
		Single normal switched socket outlet, recessed mounted @ 300mm AFFL unless noted otherwise or mounted on powerskirting				
AH54		Supply	No.	24	87,88	2 109,12
AH55		Installation	No.	24	27,12	650,88
Carried forward / ...						1 158 798,24

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 158 798,24
		Double normal switched socket outlet, recessed mounted @ 300mm AFFL unless noted otherwise or mounted on powerskirting				
AH56		Supply	No.	12	135,62	1 627,44
AH57		Installation	No.	12	27,12	325,44
		16 Amp 3-pin 250V single socket outlet IP 65				
AH58		Supply	No.	4	265,82	1 063,28
AH59		Installation	No.	4	27,12	108,48
	1.3.18	Network outlet				
AH60		Supply	No.	7	59,68	417,76
AH61		Installation	No.	7	16,28	113,96
	SPEC BE-01 1.3.18	IP telephone outlet				
AH62		Supply	No.	2	43,40	86,80
AH63		Installation	No.	2	16,28	32,56
	1.3.6	Industrial Flush Mounted 16A Light Switches complete with boxes, cover plates switches etc; Similar or equivalent to Crabtree Classic Range				
		1-Lever, 1-Way				
AH64		Supply	No.	14	34,72	486,08
AH65		Installation	No.	14	16,28	227,92
		1-Lever, 2-Way				
AH66		Supply	No.	10	48,82	488,20
AH67		Installation	No.	10	16,28	162,80
Carried forward / ...						1 163 938,96

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AH : MACHINE BUILDING -
SMALL POWER AND LIGHTING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 163 938,96
AH68	SPEC BE-01 1.3.6	2-Lever, 1-Way Supply	No.	1	66,18	66,18
AH69		Installation	No.	1	16,28	16,28
AH70		1-Lever, 3-Way Supply	No.	3	91,14	273,42
AH71		Installation	No.	3	16,28	48,84
AH72	1.3.7	1-Lever, 4-Way Supply	No.	4	111,76	447,04
AH73		Installation	No.	4	16,28	65,12
AH74		Power Skirting Double compartment power skirting	m	160	329,84	52 774,40
AH75		Double compartment power skirting: End Cap	No.	36	59,68	2 148,48
AH76	1.3.8	Double compartment power skirting: Internal Bend	No.	40	131,28	5 251,20
AH77		COPPER CONDUCTOR Single core PVC insulated, general purpose, high conductivity, stranded conductor (red, black) 1.5mm ²	m	500	5,42	2 710,00
AH78		2.5mm ²	m	5000	9,76	48 800,00
AH79		4mm ²	m	1500	13,02	19 530,00
AH80	1.3.8	6mm ²	m	250	17,36	4 340,00
AH81		Single core PVC insulated, general purpose, high conductivity, stranded earth conductor (green/yellow) 1.5mm ²	m	250	3,26	815,00
AH82		2.5mm ²	m	2500	6,51	16 275,00
AH83		4mm ²	m	750	8,68	6 510,00
AH84		6mm ²	m	125	10,85	1 356,25
Carried forward / ...						1 325 366,17

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AH : MACHINE BUILDING -
SMALL POWER AND LIGHTING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 325 366,17
	SPEC BE-01 1.3.9	CONDUIT Supply and Install Conduit surface mounted to brickwork, concrete, steel or ceiling voids or cast into concrete or built/chased into brickwork or concrete. Complete with bends, couplings, glue etc.				
AH85		20mm Diameter, PVC	m	1250	6,51	8 137,50
AH86		25mm Diameter, PVC	m	1250	9,76	12 200,00
AH87		32mm Diameter, PVC	m	500	15,19	7 595,00
AH88		20mm Diameter, Hot-dipped Galvanised Steel	m	1250	17,36	21 700,00
AH89		25mm Diameter, Hot-dipped Galvanised Steel	m	1250	20,62	25 775,00
AH90		32mm Diameter, Hot-dipped Galvanised Steel	m	500	23,87	11 935,00
	1.3.10	Supply and Install Round conduit boxes placed in position for casting into concrete or chased into brickwork or concrete				
AH91		20mm Diameter conduit, PVC	No.	50	8,68	434,00
AH92		25mm Diameter conduit, PVC	No.	30	9,76	292,80
AH93		62mm Round box lid, PVC	No.	30	4,34	130,20
AH94		20mm Diameter conduit, Hot-dipped Galvanised Steel	No.	20	36,89	737,8
AH95		25mm Diameter conduit, Hot-dipped Galvanised Steel	No.	20	39,06	781,20
AH96		62mm Round box lid, Hot-dipped Galvanised Steel	No.	20	5,42	108,40
	SPEC BE-01 1.3.11	EARTHING Bare Copper, Stranded Earth conductor				
AH97		70mm ²	m	200	77,04	15 408,00
AH98		1.5m, 16mm diameter Cu earth rods	No.	16	179,02	2 864,32
Carried forward / ...						1 433 465,39

**MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS**

**SECTION AH : MACHINE BUILDING -
SMALL POWER AND LIGHTING**

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 433 465,39
AH99		Copper Earth Bar, 50(H)x10(W)x1200mm(L), mounted in MCC trench or building	No.	3	4 068,75	12 206,25
	1.3.12	MCC TRENCH COVERS				
AH100		100mm wide wooden slabs over MCC room trenches	m ² m ²	30	971,08	29 132,40
		GENERAL (SMALL POWER AND LIGHTING)				
AH101	1.3.20	Delivery to site of equipment	Sum	1	1 085,00	1 085,00
AH102	1.3.21	Labelling of all equipment and conductors	Sum	1	1 898,75	1 898,75
AH103	1.3.22	Testing and Commissioning of Small Power and Lighting System	Sum	1	1 567,82	1 567,82
AH104	1.3.23	Certificates of compliance	Sum	1	1 139,25	1 139,25
AH105	1.3.28	As-Built Drawings	Sum	1	2 647,40	2 647,40
AH106		Additional lighting as directed by the Engineer	PC Sum	1		115 000,00
TOTAL SECTION AH CARRIED TO SUMMARY						R 1 598 142,26

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION AI: TEMPORARY ADMIN BUILDING (REFURBISHED EXISTING DEWATERING BUILDING)				
		Drawings No. 110585-CS-1790 to 1798 Alterations to Existing Dewatering Building				
	SANS 1200 G	CONCRETE (STRUCTURAL)				
	PSG 8.1.1	FORMWORK				
	8.2.1	Rough:				
		Plane Vertical to:				
AI1		Edges of bases and sumps	m ²	10	482,46	4 824,60
AI2		Edges of strip footings	m ²	30	482,46	14 473,80
	8.2.3	Special smooth:				
		Plane Vertical to:				
AI3		Columns	m ²	35	482,46	16 886,10
AI4		Sides of walls	m ²	5	482,46	2 412,30
AI5		Sides of beams	m ²	40	482,46	19 298,40
AI6		Plinth sides	m ²	5	482,46	2 412,30
		Plane horizontal to:				
AI7		Soffits of beams	m ²	20	664,60	13 292,00
	PSG 8.1.2	REINFORCEMENT				
	8.3.1	Mild steel bars:				
AI8		8 mm dia	t	0,15	11 923,95	1 788,59
AI9		10 mm dia	t	0,25	11 923,95	2 980,99
AI10		12 mm dia	t	0,20	11 923,95	2 384,79
	8.3.1	High-tensile steel bars:				
AI11		10 mm dia	t	0,25	11 923,95	2 980,99
AI12		12 mm dia	t	0,70	11 923,95	8 346,77
AI13		16 mm dia	t	0,70	11 923,95	8 346,77
Carried forward / ...						100 428,39

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AI: TEMPORARY ADMIN BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						100 428,39
AI14		20 mm dia	t	0,50	11 923,95	5 961,98
AI15		25 mm dia	t	0,13	11 923,95	1 550,11
AI16		32 mm dia	t	0,13	11 923,95	1 550,11
	8.3.2	High-tensile welded mesh:				
AI17		Ref. 395	m ²	40	62,74	2 509,60
	PSG 8.1.3	CONCRETE				
	8.4.2	Blinding layer:				
		Class 15 MPa/19 mm concrete to:				
AI18		75 mm thick blinding layer	m ²	20	110,01	2 200,20
	PSG 8.4.3	Strength concrete:				
		Class 30 MPa/19 mm concrete to:				
AI19		Columns	m ³	7	1 982,65	13 878,55
AI20		Beams	m ³	13	1 982,65	25 774,45
	PSG 8.4.4	Unformed surface finishes:				
		Wood-floated finishes to:				
AI21		Horizontal surfaces	m ²	50	30,65	1 532,50
		Steel-floated finishes to:				
AI22		Horizontal surfaces	m ²	15	38,29	574,35
	PSG 8.5	JOINTS:				
		Isolation Joints:				
AI23		10 mm Jointex between concrete surfaces	m ²	10	546,84	5 468,40
AI24		10 mm Jointex between concrete and brickwork, 100 mm high	m	60	54,68	3 280,80
AI25		10 mm Jointex between concrete and brickwork, 150 mm high	m	30	58,48	1 754,40
AI26		10 mm Jointex between concrete surface and brickwork, 280 mm wide	m	50	68,36	3 418,00
Carried forward / ...						169 881,84

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						169 881,84
AI27		Expansion joints: 10 mm Jointex between concrete surfaces, 250 mm high	m	20	66,08	1 321,60
AI28		Saw joints: 3 mm x 25 mm deep in aprons	m	350	14,48	5 068,00
AI29		Sealing of joints with sealant: 10 mm x 10 mm polyurethane sealant in vertical isolation joints in walls	m	90	150,61	13 554,90
AI30		10 mm x 10 mm polyurethane sealant in horizontal isolation joints in floors	m	80	150,61	12 048,80
AI31		6 mm x 20 mm polyurethane sealant in saw joints	m	350	307,71	107 698,5
	SANS 1200 H	STRUCTURAL STEELWORK				
AI32	PSH 8.3.14	Supply, fabrication, delivery and installation of steelwork: Structural steel with hot-dip galvanized corrosion protection system in fire escape platform and staircase structure complete with all necessary items including beam, erection bolts and preparation of shop drawings	t	1,00	44 485,00	44 485,00
AI33	8.3.6	Holding-down (HD) bolts: M20 HILTI HIT bolts	No.	20	244,12	4 882,40
	SANS 1200 HA	SUNDRY STRUCTURAL STEEL				
	PSHA 8.3.2	Supply all material and install (refer to PSHA 5.2.6) stainless steel 316 handrails assembly complete (ref to Drg No WWTW-DRG-CS- 100) on:				
AI34		Horizontal surface, top and side mounted	m	12	940,70	11 288,40
AI35		Sloping surface, top and side mounted	m	5	940,70	4 703,50
AI36		Extra over to handrails for: 90° bends	No.	4	251,72	1 006,88
AI37		End closures	No.	4	418,81	1 675,24
Carried forward / ...						377 615,06

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						377 615,06
AI38	SPEC PD	BUILDING WORK				
	PD 10.03	Pre-stressed lintels				
		280 mm x 75 mm lintels	m	10	199,63	1 996,30
	PD 10.04	Construction of brickwork:				
AI39	PD 10.04.1	Brickwork:				
		Brick walls in non-facing engineering bricks including butterfly ties, splayed concrete fillet along bottom and weep holes as specified and shown on drawings for:				
		280 mm cavity walls with 60 mm cavity in superstructures	m ²	25	514,47	12 861,75
		Brick walls in non-facing engineering plaster bricks inside face and facebrick to match existing outside face including butterfly ties, splayed concrete fillet along bottom and weep holes as specified and shown on drawings for:				
AI40		280 mm cavity walls with 60 mm cavity in superstructures	m ²	180	792,00	142 560,00
AI41		Cement mortar splayed fill 170 mm high in 60 mm cavity above lintels	m	20	9,33	186,60
AI42		Extra over cavity walls for closing 60 mm cavity vertically at doors	m	20	66,74	1 334,80
AI43	PD10.04.3	Damp proofing:				
		250 micron medium density polyethylene damp-proof sheeting:				
		In walls	m ²	20	16,58	331,60
	PD10.04.6	Masonry reinforcing and anchors:				
AI44		225 mm brick reinforcing for 280 mm cavity walls	m	400	2,56	1 024,00
AI45		1,2 mm x 30 mm wide x 750 mm Long galvanised hoop iron straps fixed with 2 x "HILTI HPS - 1 6/5" anchors to concrete and built into brickwork	No.	400	17,44	6 976,00
AI46	PD 10.05	Plasterwork:				
		Plaster brick walls in panels up to 20 mm	m ²	100	94,45	9 445,00
Carried forward / ...						554 331,11

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						554 331,11
AI47	PD 10.06	Floor finish: Granolithic screed	m ²	560	155,56	87 113,60
AI48		Flowcrete Peran STB 3-4 mm thick to top of floors (Grey)	m ²	560	479,57	268 559,20
	PD 10.08	Doors and Windows:				
AI49		Supply and install 3CR12 with powder coated epoxy (grey) purpose-made doors and frames complete including ironmongery				
		Double door - Type C as shown on Dra 110585-CS-0097	No.	4	61 464,18	245 856,72
AI50		Single door - Type A as shown on Dra 110585-CS-0095	No.	1	47 338,83	47 338,83
AI51		Single hardwood door - Type D5 as shown on Dra 110585-CS-0108	No.	7	4 576,35	32 034,45
AI52		Supply and install powder coated heavy duty roller shutter door, electrically operated, complete with locking system, canopy, etc. to suit opening size 5000 mm wide x 3 000 mm high	No.	1	39 628,80	39 628,80
AI53		Winblok precast concrete window and insert surrounds build into brickwork: 400mm x 400mm Winblok with Winvent glazed louvre insert including aluminium burglar bars	No.	35	1 960,37	68 612,95
AI54		600mm x 600mm Winblok with Winvent burglar bars insert	No.	20	1 732,93	34 658,60
	PD 10.10	Ceilings:				
AI55		Multi-layer clear polycarbonate ceiling sheeting Twinwall Multilight 30mm thick including support frame or similar approved	m ²	60	1 790,25	107 415,00
AI56		Double layer skimmed rhinoboard ceiling complete with jointing and branding strips	m ²	30	262,57	7 877,10
AI57		Double layer trafficable 16mm plywood ceiling	m ²	120	1 185,90	142 308,00
AI58		Ceiling cornice	m	110	224,60	24 706,00
Carried forward / ...						1 660 440,36

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AI: TEMPORARY ADMIN BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 660 440,36
AI59	PD 10.11.3	Structural timber: 200mm x 50mm rafter	m	85	244,12	20 750,20
AI60		100mm x 100mm column	m	50	596,75	29 837,50
AI61		50mm x 100mm framing timber element	m	90	271,25	24 412,50
AI62		Single skin 16mm thick plywood walls	m²	110	447,02	49 172,20
AI63		Multi-layer clear polycarbonate wall panel sheeting Twinwall Multilight 30mm thick including support frame or similar approved	m²	65	1 790,25	116 366,25
AI64	PD 10.13 PD 10.13.1	Hollow core dry-walling	m²	20	1 185,90	23 718,00
		Plumber:				
		Plumbing and drainage: Supply, fix and connect exterior drain pipes to showers and sumps: PVC-U waste water piping all in accordance with SANS 967-2003: 110 mm diameter pipes in and including trenches not exceeding 1,5 m deep installed on and including flexible pipe bedding				
AI65		110 mm diameter pipes in and including trenches not exceeding 1,5 m deep installed on and including flexible pipe bedding	m	40	241,96	9 678,40
AI66		200 mm diameter pipes in and including trenches not exceeding 1,5 m deep installed on and including flexible pipe bedding	m	30	411,22	12 336,60
AI67		110 mm diameter x 45° bend	No.	4	141,05	564,20
AI68		200 mm diameter x 45° bend	No.	4	274,50	1 098,00
AI69		Cast 110 mm diameter drain pipe through up to 200 mm thick concrete wall	No.	4	130,20	520,80
AI70		Cast 200 mm diameter drain pipe through 200 mm thick concrete wall	No.	2	166,00	332,00
AI71		Connect 200 mm diameter drain pipe to existing manhole and seal watertight	No.	2	1 227,14	2 454,28
Carried forward / ...						1 951 681,29

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 951 681,29
		Supply, fix and connect sanitary ware complete:				
AI72		Cobra WC type WC-2301-000	No.	5	7 792,47	38 962,35
AI73		Vaal urinal type 705426/705427 including accessories	No.	2	11 291,60	22 583,20
AI74		Vaal wash-hand basin 703700	No.	5	4 993,17	24 965,85
AI75		Eye wash station and shower	No.	1	29 726,83	29 726,83
AI76		Kwikol EF 200-2DI 200 / hot water cylinder complete	No.	1	11 761,40	11 761,40
AI77		Cobra AC-0905-100 toilet roll holder	No.	5	905,98	4 529,90
AI78		Soap dish	No.	5	296,20	1 481,00
AI79		Clothes hook on wall	No.	10	296,20	2 962,00
	PD 10.14	Paintwork:				
AI80		Internal plastered walls with approved undercoat and two (water based enamel) top coats	m²	300	64,77	19 431,00
AI81		Smooth off shutter concrete surfaces in columns, beams, etc. with approved undercoat and two (water based enamel) top coats	m²	70	63,58	4 450,60
	PD 10.15	Miscellaneous items and operations:				
		Items measured by number:				
AI82		9 kg fire extinguishers complete with brackets and all required signage	No.	4	840,88	3 363,52
AI83		10 kg Co2 fire extinguishers complete with brackets and all required signage	No.	4	1 421,35	5 685,40
AI84		Fire hose reel with 30m rubber hose, chromium plated stopcock, shut-off nozzle and wall bracket, including all pipework to hose reel from main connection point outside the building and all required signage	No.	2	7 539,66	15 079,32
AI85		Steel HDG burglar and bird proof frames to be mounted around existing 1600mm x 1500mm windows	No.	10	1 085,00	10 850,00
Carried forward / ...						2 147 513,66

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION A1: TEMPORARY ADMIN BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						2 147 513,66
AI86		All labour and materials required to remove existing double door and brick up and make good	No.	2	3 266,44	6 532,88
AI87		All labour and materials required to remove existing single door and brick up and make good	No.	2	1 599,77	3 199,54
AI88		Items measured by volumes: Demolish and remove existing reinforced concrete plinths and bund walls	m³	25	2 796,14	69 903,50
AI89		Items measured by Sum: All materials and labour required to clean and disinfect the Existing Sludge Dewatering Building as specified	Sum		120 805,20	120 805,20
AI90		Remove all Mechanical & Electrical equipment from Sludge Dewatering Building and deliver to Municipal storage yard as specified	Sum		112 128,67	112 128,67
AI91		Provisional sums and budgetary allowances: The supply and installation of new Office Furniture, Kitchen Counters, Workbenches and Toilet Cubicles	Prov Sum		150 000,00	150 000,00
AI92		Contractor's overheads, charges and profit on item AI91 above (State % and extend as an amount)	%	150000	10,00%	15 000,00
AI93	PD 10.14	<u>Drawings No. 110585-CS-1738</u> <u>Existing Workshop (Building G 125 A)</u> Paintwork: Internal plastered walls with approved undercoat and two (water based enamel) top coats	m²	300	64,77	19 431,00
AI94	PD 10.06	Apply two pack epoxy paint to granoscreed	m²	160	130,20	20 832,00
AI95		Floor finish: Granolithic screed	m²	160	155,56	24 889,60
Carried forward / ...						2 690 236,05

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AI: TEMPORARY ADMIN BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						2 690 236,05
AI96	PD 10.15	Miscellaneous items and operations: Items measured by sum: Demolish and remove internal brick walls, door and gantry as shown on drawing	Sum		52 851,44	52 851,44
AI97		Break into brick wall and cable trench and make good for electrical cable access as shown on drawing	Sum		30 190,12	30 190,12
AI98		Remove all Mechanical & Electrical equipment from Existing Workshop Building and deliver to new Workshop and Maintenance Building as specified	Sum		36 265,47	36 265,47
<u>Drawings No. 110585-CS-1739</u> <u>Existing Inlet Works Switchgear Building</u>						
AI99	PD 10.14	Paintwork: Internal plastered walls with approved undercoat and two (water based enamel) top coats	m ²	400	64,77	25 908,00
AI100	PD 10.15	Apply two pack epoxy paint to granoscreed	m ²	155	271,25	42 043,75
AI101		Miscellaneous items and operations: Items measured by sum: Remove all Mechanical & Electrical equipment from Existing Inlet Works Switchgear Building and deliver to new Workshop and Maintenance Building as specified	Sum		36 265,47	36 265,47
TOTAL SECTION AI CARRIED TO SUMMARY						R 2 913 760,30

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AJ : TEMPORARY ADMIN
BUILDING - SMALL POWER AND LIGHTING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
	SPEC BE-01	SECTION AJ : TEMPORARY ADMIN BUILDING - SMALL POWER AND LIGHTING				
		POWER SUPPLY				
AJ1	1.3.13	Liason with M&E Contractor for Permanent Electrical Supplies.	Sum	1	542,50	542,50
	1.3.1	LIGHTING				
		Luminaire A: 1 x 26W CFL bulkhead light fitting.				
AJ2		(i) Supply	No.	15	781,20	11 718,00
AJ3		(ii) Install	No.	15	103,08	1 546,20
		Luminaire B: 2 x 54W T5 Industrial vapour proof fluorescent light fitting - ceiling mounted.				
AJ4		(i) Supply	No.	35	805,07	28 177,45
AJ5		(ii) Install	No.	35	103,08	3 607,80
		Luminaire C: 1 x 54W T5 industrial vapour proof fluorescent light fitting.				
AJ6		(i) Supply	No.	5	602,18	3 010,90
AJ7		(ii) Install	No.	5	103,08	515,40
AJ8		45° 54W Flourecent Bracket	No.	20	48,82	976,40
		Luminaire D: 250W HPS High bay light fitting				
AJ9		(i) Supply	No.	6	1 257,52	7 545,12
AJ10		(ii) Install	No.	6	103,08	618,48
		Luminaire E: 150W HPS floodlight fitting				
AJ11		(i) Supply	No.	2	2 942,52	5 885,04
AJ12		(ii) Install	No.	2	103,08	206,16
AJ13		Floodlight Bracket	No.	2	260,40	520,80
Carried forward / ...						64 870,25

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AJ : TEMPORARY ADMIN
BUILDING - SMALL POWER AND LIGHTING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						64 870,25
AJ14	SPEC BE-01	Luminaire F: 70W HPS industrial bulkhead light fitting				
		(i) Supply	No.	4	1 784,82	7 139,28
AJ15		(ii) Install	No.	4	103,08	412,32
		Luminaire H: 2 x 28W T5 surface mounted fluorescent light fitting with double parabolic reflector				
AJ16		(i) Supply	No.	24	757,33	18 175,92
AJ17		(ii) Install	No.	24	26,04	624,96
		Luminaire L1 – 10W LED wall mounted downlight, IP65				
AJ18		(i) Supply	No.	0	1 151,18	0,00
AJ19		(ii) Install	No.	0	103,08	0,00
		Luminaire L2 – 10W LED recessed downlight, with specular reflector				
AJ20	1.3.2	(i) Supply	No.	0	669,44	0,00
AJ21		(ii) Install	No.	0	103,08	0,00
		Luminaire L3 – 20W LED recessed downlight.				
AJ22		(i) Supply	No.	0	1 024,24	0,00
AJ23		(ii) Install	No.	0	103,08	0,00
		Luminaire EM: 2 x 10W Emergency light fitting, 1.5 hr backup				
AJ24		(i) Supply	No.	8	1 291,15	10 329,20
AJ25		(ii) Install	No.	8	103,08	824,64
		Wall mounted Photocell Day/night switch				
AJ26		(i) Supply	No.	1	428,58	428,58
AJ27		(ii) Install	No.	1	103,08	103,08
Carried forward / ...						102 908,23

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AJ : TEMPORARY ADMIN
BUILDING - SMALL POWER AND LIGHTING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						102 908,23
	SPEC BE-01	DISTRIBUTION BOARDS				
AJ28	1.3.3	Temp Admin Building Distribution Board (DB-Temp) (in Dewatering Building)	PC Sum	1		50 000,00
AJ29		Install	No.	1	1 356,25	1 356,25
	SPEC BE-01	POWER				
	1.3.4	16 Amp 3-pin 250V Power Skirting Modular Outlets single switched socket				
AJ30		Supply	No.	10	113,92	1 139,20
AJ31		Installation	No.	10	27,12	271,20
		16 Amp 3-pin 250V single dedicated switched socket outlet				
AJ32		Supply	No.	10	128,03	1 280,30
AJ33		Installation	No.	10	27,12	271,20
		16 Amp 3-pin 250V Power Skirting Modular single dedicated switched socket outlet				
AJ34		Supply	No.	10	168,18	1 681,80
AJ35		Installation	No.	10	27,12	271,20
		32 Amp 5-pin 400V Industrial switched socket outlet				
AJ36		Supply	No.	6	933,10	5 598,60
AJ37		Installation	No.	6	97,65	585,90
	1.3.5	16 Amp 2-pole 250V isolator				
AJ38		Supply	No.	10	159,50	1 595,00
AJ39		Installation	No.	10	27,12	271,20
	1.3.5	32 Amp 4-pole 400V Industrial rotary isolator				
AJ40		Supply	No.	2	692,23	1 384,46
AJ41		Installation	No.	2	97,65	195,30
Carried forward / ...						168 809,84

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AJ : TEMPORARY ADMIN
BUILDING - SMALL POWER AND LIGHTING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						168 809,84
AJ42	SPEC BE-01 1.3.4	Sliding GRP socket outlet housing				
		Supply	No.	2	75,95	151,90
AJ43		Installation	No.	2	16,28	32,56
		Single normal switched socket outlet, recessed mounted @ 300mm AFFL unless noted otherwise or mounted on powerskirting				
AJ44		Supply	No.	10	87,88	878,80
AJ45		Installation	No.	10	27,12	271,20
		Double normal switched socket outlet, recessed mounted @ 300mm AFFL unless noted otherwise or mounted on powerskirting				
AJ46		Supply	No.	10	135,62	1 356,20
AJ47		Installation	No.	10	27,12	271,20
		16 Amp 3-pin 250V single socket outlet IP 65				
AJ48		Supply	No.	1	265,82	265,82
AJ49		Installation	No.	1	27,12	27,12
	1.3.18	Network outlet				
AJ50		Supply	No.	10	59,68	596,80
AJ51		Installation	No.	10	16,28	162,80
		IP telephone outlet				
AJ52		Supply	No.	10	43,40	434,00
AJ53		Installation	No.	10	1,08	10,80
		Floorbox For Projector				
AJ54		Supply	No.	2	1 052,45	2 104,90
AJ55	1.3.20	Installation	No.	2	48,82	97,64
Carried forward / ...						175 471,58

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AJ : TEMPORARY ADM
BUILDING - SMALL POWER AND LIGHTIN

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						175 471,56
	1.3.6	Industrial Flush Mounted 16A Light Switches complete with boxes, cover plates switches etc; Similar or equivalent to Crabtree Classic Range				
		1-Lever, 1-Way				
AJ56		Supply	No.	8	34,72	277,76
AJ57	SPEC BE-01	Installation	No.	8	16,28	130,24
		1-Lever, 2-Way				
AJ58		Supply	No.	2	48,82	97,64
AJ59		Installation	No.	2	16,28	32,56
		2-Lever, 1-Way				
AJ60		Supply	No.	3	66,18	198,54
AJ61		Installation	No.	3	16,28	48,84
		1-Lever, 3-Way				
AJ62		Supply	No.	1	91,14	91,14
AJ63		Installation	No.	1	16,28	16,28
		1-Lever, 4-Way				
AJ64		Supply	No.	0	111,76	0,00
AJ65		Installation	No.	0	16,28	0,00
	1.3.7	Power Skirting				
AJ66		Double compartment power skirting	m	40	329,84	13 193,60
AJ67		Double compartment power skirting: End Cap	No.	8	59,68	477,44
AJ68		Double compartment power skirting: Internal Bend	No.	8	131,28	1 050,24
Carried forward / ...						191 085,86

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AJ : TEMPORARY ADMIN
BUILDING - SMALL POWER AND LIGHTING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						191 085,86
	1.3.8	COPPER CONDUCTOR				
		Single core PVC insulated, general purpose, high conductivity, stranded conductor (red, black)				
AJ69		1.5mm ²	m	60	5,42	325,20
AJ70		2.5mm ²	m	600	9,76	5 856,00
AJ71		4mm ²	m	400	13,02	5 208,00
AJ72		6mm ²	m	100	17,36	1 736,00
	SPEC BE-01 1.3.8	Single core PVC insulated, general purpose, high conductivity, stranded earth conductor (green/yellow)				
AJ73		1.5mm ²	m	30	3,26	97,80
AJ74		2.5mm ²	m	300	6,51	1 953,00
AJ75		4mm ²	m	200	8,68	1 736,00
AJ76		6mm ²	m	50	10,85	542,50
	1.3.9	CONDUIT				
		Supply and Install Conduit surface mounted to brickwork, concrete, steel or ceiling voids or cast into concrete or built/chased into brickwork or concrete. Complete with bends, couplings, glue etc.				
AJ77		20mm Diameter, PVC	m	50	6,51	325,50
AJ78		25mm Diameter, PVC	m	50	9,76	488,00
AJ79		32mm Diameter, PVC	m	10	15,19	151,90
AJ80		20mm Diameter, Hot-dipped Galvanised Steel	m	100	17,36	1 736,00
AJ81		25mm Diameter, Hot-dipped Galvanised Steel	m	150	20,62	3 093,00
AJ82		32mm Diameter, Hot-dipped Galvanised Steel	m	100	23,87	2 387,00
Carried forward / ...						216 721,76

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AJ : TEMPORARY ADMIN
BUILDING - SMALL POWER AND LIGHTING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						216 721,76
AJ83	1.3.10	Supply and Install Round conduit boxes placed in position for casting into concrete or chased into brickwork or concrete				
AJ83		20mm Diameter conduit, PVC	No.	20	8,68	173,60
AJ84		25mm Diameter conduit, PVC	No.	20	9,76	195,20
AJ85		62mm Round box lid, PVC	No.	2	4,34	8,68
AJ86		20mm Diameter conduit, Hot-dipped Galvanised Steel	No.	20	36,89	737,80
AJ87		25mm Diameter conduit, Hot-dipped Galvanised Steel	No.	20	39,06	781,20
AJ88	SPEC BE-01	62mm Round box lid, Hot-dipped Galvanised Steel	No.	20	5,42	108,40
	1.3.11	EARTHING				
		Bare Copper, Stranded Earth conductor				
AJ89		70mm ²	m	200	77,04	15 408,00
AJ90		1.5m, 16mm diameter Cu earth rods	No.	8	179,02	1 432,16
		GENERAL (SMALL POWER AND LIGHTING)				
AJ91	1.3.20	Delivery to site of equipment	Sum	1	813,75	813,75
AJ92	1.3.21	Labelling of all equipment and conductors	Sum	1	1 898,75	1 898,75
AJ93	1.3.22	Testing and Commissioning of Small Power and Lighting System	Sum	1	1 567,82	1 567,82
AJ94	1.3.23	Certificates of compliance	Sum	1	1 139,25	1 139,25
AJ95	1.3.28	As-Built Drawings	Sum	1	2 647,40	2 647,40
AJ96		Additional lighting as directed by the Engineer	PC Sum	1	54 250,00	54 250,00
TOTAL SECTION AJ CARRIED TO SUMMARY						297 883,77

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
	SPEC BE-02	SECTION AK : BUILDING - INFORMATION MANAGEMENT				
	1.3.13	POWER SUPPLY				
AK1		Liaison with LV Electrical Subcontractor to arrange power supplies	Sum	1	2 983,75	2 983,75
	1.3.19	INTERNET CONNECTIVITY				
AK2		Liaison with internet service provider for temporary internet Connectivity.	Sum	1	2 766,75	2 766,75
	1.3.14	INTRUDER DETECTION				
AK3		Intruder Alarm Control Panel	No.	3	4 692,62	14 077,86
AK4		Long Range PIR Detector, 90° Wide	No.	30	292,95	8 788,50
AK5		Beam detector	No.	4	3 488,28	13 953,12
AK6		Magnetic Door Monitor	No.	30	70,52	2 115,60
AK7		Intruder Detection Keypad	No.	3	1 866,20	5 598,60
AK8		Siren	No.	3	168,18	504,54
AK9		Intruder Detection Loop Conductor	m	3 000	16,28	48 840,00
	1.3.15	FIRE DETECTION				
AK10		Fire Detection Control Panel	No.	3	18 607,75	55 823,25
AK11		Fire Detection Loop Conductor	m	3000	21,70	65 100,00
AK12		Optical Smoke Detector	No.	28	656,42	18 379,76
AK13		Break Glass Unit	No.	25	896,21	22 405,25
AK14		Siren/Strobe Light/Optical Smoke Detector Combination	No.	6	1 741,42	10 448,52
AK15		I/O unit	No.	5	704,16	3 520,80
AK16		Power Supply 24V dc 5A	No.	4	217,00	868,00
AK17		Aspirated fire detection system panel	No.	3	64 232,00	192 696,00
AK18		Aspirated fire detection system pipes	m	500	16,28	8 140,00
AK19		Aspirated fire detection Sampling point	No.	30	6 324,46	189 733,80
Carried forward / ...						666 744,10

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AK : BUILDING -
INFORMATION MANAGEMENT

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c	
Brought forward / ...						666 744,10	
AK20	SPEC BE-02 1.3.16	CCTV Fixed Camera (including waterproof housing and mounting bracket)	No.	22	5 842,72	128 539,84	
AK21		Dome Camera (including wall bracket)	No.	15	4 636,20	69 543,00	
AK22		PTZ Camera (including wall bracket)	No.	6	18 363,62	110 181,72	
AK23		Camera Data Cable (CAT5)	m	3000	10,85	32 550,00	
AK24		Video Server including data storage, rack	No.	2	81 103,75	162 207,50	
AK25		Video Monitor (including 19" monitor, software)	No.	2	5 419,58	10 839,16	
AK26		Power-over-Ethernet switch	No.	3	9 455,78	28 367,34	
AK27		POE Power Supply Module	No.	3	1 936,72	5 810,16	
AK28		1.3.17	TIME-LAPSE CAMERA Supply	No.	2	10 416,00	20 832,00
AK29			Installation	No.	2	905,98	1 811,96
AK30	3Yr Camera Extended Guarantee		Sum	1	3 255,00	3 255,00	
AK31	32 GB SD Card		No.	4	1 193,50	4 774,00	
AK32	1.3.9	CONDUIT PVC, 20mm	m	6000	20,62	123 720,00	
AK33		PVC, 25mm	m	0	23,87	0,00	
AK34		GENERAL (BUILDING INFORMATION MANAGEMENT) Acces Control Access Control System	Sum	1	33 119,62	33 119,62	
AK35		RFID Tags	No.	20	48,82	976,40	
AK36		RFID Scanners	No.	2	4 367,12	8 734,24	
AK37		Telephone and data network as directed by the Engineer	PC Sum	1		80 000,00	
Carried forward / ...						1 492 006,04	

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AK : BUILDING -
INFORMATION MANAGEMENT

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 492 006,04
AK38	SPEC BE-02 1.3.21	Delivery to site of equipment	Sum	1	4 340,00	4 340,00
AK39	1.3.21	Labelling of all equipment and conductor	Sum	1	217,00	217,00
AK40	1.3.27	Training	Hrs	8	922,25	7 378,00
AK41	1.3.25	Testing and Commissioning of Building Information Management Systems	Sum	1	19 041,75	19 041,75
AK42	1.3.26	Certificates of compliance	Sum	4	542,50	2 170,00
AK43	1.3.28	As-Built Drawings	Sum	1	9 222,50	9 222,50
TOTAL SECTION AK CARRIED TO SUMMARY						R 1 534 375,29

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
AL1	SANS 1200 DB 8.3.2 PSDB 8.3.2 SANS 1200LB 8.1.1 PSLB 8.1.1	SECTION AL : INTERCONNECTING PIPEWORK				
		Excavation (Pipe Trenches)				
		Excavate in all materials for pipe trenches, backfill, compact and dispose of surplus material for:				
		Pipes up to 160 mm dia for depths: <u>Pipeline WAS01 as shown on</u> <u>Drawing No. 110585-WWTW-DRG-CC-1574</u>				
		Over and Up to				
		2,5 m 3,5 m	m	112	389,39	43 611,68
		Pipes over 315 mm dia and up to 600 mm dia for depths: <u>Pipeline PEF02 as shown on</u> <u>Drawing No. 110585-WWTW-DRG-CC-1515</u>				
AL2		Over and Up to				
		1,5 m 2,5 m	m	47	209,35	9 839,45
AL3		Over and Up to				
		2,5 m 3,5 m	m	4	412,65	1 650,60
		Pipes over 600 mm dia and up to 1000 mm dia for depths: <u>Pipeline PEF03 as shown on</u> <u>Drawing No. 110585-WWTW-DRG-CC-1577</u>				
AL4		Over and Up to				
		1,5 m 2,5 m	m	30	418,70	12 561,00
		<u>Pipeline PEA01 as shown on</u> <u>Drawing No. 110585-WWTW-DRG-CC-1570</u>				
AL5		Over and Up to				
		1,5 m 2,5 m	m	47	418,70	19 678,90
AL6		Over and Up to				
		2,5 m 3,5 m	m	44	622,00	27 368,00
AL7		Over and Up to				
		3,5 m 4,5 m	m	25	825,30	20 632,50
Carried forward / ...						135 342,13

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AL : INTERCONNECTING
PIPEWORK

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						135 342,13
AL8	SANS 1200 DB 8.3.2 PSDB 8.3.2 SANS 1200LB 8.1.1 PSLB 8.1.1	<u>Pipeline PEB01 as shown on Drawing No. 110585-WWTW-DRG-CC-1571</u> Over and Up to 3,5 m 4,5 m	m	27	825,30	22 283,10
AL9		<u>Pipeline PEB02 as shown on Drawing No. 110585-WWTW-DRG-CC-1571</u> Over and Up to 4,5 m 5,5 m	m	15	1 028,60	15 429,90
AL10		<u>Pipeline PEF01 as shown on Drawing No. 110585-WWTW-DRG-CC-1571</u> Over and Up to 1,5 m 2,5 m	m	15	418,70	6 280,50
AL11		2,5 m 3,5 m	m	27	622,00	16 794,00
AL12		3,5 m 4,5 m	m	26	825,30	21 457,80
AL13		4,5 m 5,5 m	m	7	1 028,60	7 200,20
		<u>Pipes over 1000 mm dia and up to 2000 mm dia for depths:</u> <u>Pipeline CPE01 as shown on Drawing No. 110585-WWTW-DRG-CC-1571</u> Over and Up to 3,5 m 4,5 m	m	13	1 362,86	17 717,18
AL14		4,5 m 5,5 m	m	8	1 718,63	13 749,04
AL15		<u>Pipeline CPE02 as shown on Drawing No. 110585-WWTW-DRG-CC-1572</u> Over and Up to 3,5 m 4,5 m	m	103	1 362,86	140 374,58
AL16		4,5 m 5,5 m	m	40	1 718,63	68 745,20
AL17						
Carried forward / ...						465 372,73

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AL : INTERCONNECTING
PIPEWORK

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						465 372,73
AL18	SANS 1200 DB 8.3.2 PSDB 8.3.2 SANS 1200LB 8.1.1 PSLB 8.1.1	Pipeline CPE03 as shown on Drawing No. 110585-WWTW-DRG-CC-1572 Over and Up to 3,5 m 4,5 m	m	108	1 362,86	147 188,88
AL19	SANSDB PSDB 8.3.2(b)	Extra-over Items AL1 to AL18 for Hard rock excavation	m³	90	157,32	14 158,80
AL20	PSDB 8.3.2(b)(3)	Hand excavation and backfill where directed by the Engineer in:	m³	130	386,62	50 260,60
AL21		(a) Soft material	m³	130	773,24	100 521,20
AL22	PSDB 8.3.2(b)(4)	(b) Hard material	m³	210	186,54	39 173,40
AL23	PSDB 8.3.2(b)(5)	Backfill stabilized with 5% cement where directed by the Engineer	m³	50	186,54	9 327,00
AL24	SANS 1200D PSD 8.3.15	Soilcrete backfill where directed by the Engineer	m³	150	73,72	11 058,00
AL25	SANS 1200DB 8.3.2(c)	Backfill with clean sand (in-situ material) and compact (in depths not exceeding 150 mm thick) to 100% Modified AASHTO density	m³	30	72,49	2 174,70
AL26	8.3.3 PSDB 8.3.3.3	Excavate and dispose of unsuitable material from trench bottom Excavation ancillaries Compaction in road reserves (i.e. for areas subject to traffic loads)	m³	200	131,62	26 324,00
AL27	PSDB 8.3.4 PSDB 8.3.4(a) SANS 1200A PSA 8.18	Particular Items: Shore trench opposite structure or service or in unsuitable excavated materials on both sides of trench for depths:	m	50	0,00	0,00
AL28		(i) Over 1,5 m up to 2,5 m (ii) Over 2,5 m up to 3,5 m	m	120	0,00	0,00
Carried forward / ...						865 559,31

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AL : INTERCONNECTING
PIPEWORK

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						865 559,31
	SANS 1200DB	Existing services that intersect or adjoin a pipe trench:				
AL29	8.3.5	<u>Services that intersect a trench:</u>				
AL30		(a) Telkom and Neotel fibre-optic cable	No.	2	386,62	773,24
AL31		(b) Overhead electric cable (medium voltage up to 11 kV)	No.	2	386,62	773,24
AL32		(c) Overhead electric cable (high voltage up to 275 kV)	No.	2	386,62	773,24
AL33		(d) Underground electrical cables (medium voltage up to 11 kV)	No.	20	386,62	7 732,40
AL34		(e) Watermains of pipe diameters up to DN 500 mm	No	10	386,62	3 866,24
AL35		(f) Sewer gravity mains of pipe diameters up to DN 2000 mm	No.	3	386,62	1 159,86
AL36		(g) Fences	No.	5	386,62	1 933,10
	PSDB 8.3.5 (b)	<u>Services that adjoin a trench:</u>				
AL37		(a) Sewer gravity mains of pipe diameters up to DN 2000 mm	m	20	57,99	1 159,80
AL38		(b) Watermains of pipe diameters up to DN 500 mm	m	20	57,99	1 159,80
AL39		(c) Medium voltage electric cable (up to 11 kV)	m	50	57,99	2 899,50
AL40		(d) Telkom and Neotel fibre-optic cable	m	10	57,99	579,90
AL41		(e) Fencing along pipeline to be dismantled and re-erected after completion of pipeline.	m	200	369,53	73 906,00
	PSDB 8.3.6	Finishing				
		<u>Reinstate road surfaces complete with all courses:</u>				
AL42		(a) Asphalt of thickness 40 mm in roadway	m²	80	196,18	15 694,40
AL43		(b) Paving complete with bedding sand	m²	100	202,69	20 269,00
AL44		(c) Gravel wearing course (150 mm thick)	m²	100	57,15	5 715,00
Carried forward / ...						1 003 953,99

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIE T WASTEWATER TREATMENT WORKS

SECTION AL : INTERCONNECTING
PIPEWORK

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 003 953,99
	SANS 1200 LB PSLB 8.1	BEDDING				
	PSLB 8.2.1	<u>Provision of bedding from trench excavation:</u>				
AL45		(a) Selected granular material	m³	1347	63,63	85 709,61
AL46		(b) Selected fill material	m³	706	63,63	44 922,78
	PSLB 8.2.2.1	<u>From other necessary excavations on site:</u>				
AL47		(a) Selected granular material	m³	159	87,84	13 966,56
AL48		(b) Selected fill material	m³	82	87,84	7 202,88
	8.2.2.3	<u>From commercial sources:</u>				
AL49		(a) Selected granular material	m³	1347	155,85	209 929,95
AL50		(b) Selected fill material	m³	706	155,85	110 030,10
AL51	PSLB 8.2.4	Encasing of pipes in reinforced concrete (Grade 20 MPa/19 mm @ 100 kg of steel per m³ of concrete) under areas subject to traffic loads (i.e. road crossings and pavements etc) as well as areas where directed by the Engineer	m³	10	3 564,31	35 643,10
	PSLB 8.2.6	<u>Provision of stone/geofabric to deal with water:</u>				
AL52	SANS 1200 DB PSDB 8.3.2 (e)	(a) 19mm crushed stone bedding layer of 200 mm thick	m³	600	483,74	290 244,00
AL53		(b) Geofabric (Bidim A2 or equivalent approved)	m²	2600	23,01	59 826,00
AL54	PSDB 8.3.2 (f)	(c) Temporary stockpiling of wet material from trench excavations	m³	600	34,42	20 652,00
Carried forward / ...						1 882 080,97

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AL : INTERCONNECTING
PIPEWORK

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 882 080,97
AL55	SANS 1200 L 8.2.1 PSL 8.2.1	MEDIUM-PRESSURE PIPELINES Supply, lay, joint, bed and test the following material for pipelines - Note all pipelines to include jointing				
AL56	SANS 1200A PSA 8.18	PVC-U (Class 10): Pipeline WAS01 - 160 mm dia	m	112	98,18	10 996,16
	SPEC GRP 8.1.1	GRP pipes Class PN10 SN10000 manufactured to SANS 1748, complete with REKA couplings				
AL57		Pipeline PEF02 - 600 mm dia	m	51	3 421,28	174 485,20
AL58		Pipeline PEF03 - 700 mm dia	m	30	4 303,73	129 111,90
AL59		Pipeline PEA01, PEAB01, PEB02- 800 mm dia	m	158	5 008,98	791 418,84
AL60		Pipeline PEF01 - 900 mm dia	m	75	6 533,97	490 047,75
AL61	SANS 1200 L PSL 8.21	Concrete Class 75D (spigot and socket) complete with 3 mm HDPE anchor-knob liner: (Complete with HDPE strip welded insitue across pipe joints after laying)				
	PSL 8.2.2	Pipeline CPE01, CPE02, CPE03- 1200 mm dia	m	280	4 871,91	1 364 134,80
		Extra-over for supply, lay, joint, bed, specials and fittings for PVC-U pipes: PVC-U (Class 10) specials: <u>Pipeline WAS01 - 200 mm dia:</u>				
AL62		45 degree bend	No.	2	238,70	477,40
AL63		90 degree bend	No.	1	238,70	238,70
AL64		Flange adaptor	No.	2	471,98	943,96
Carried forward / ...						4 843 935,76

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AL : INTERCONNECTING
PIPEWORK

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						4 843 935,76
AL65	PART SPEC GRP 8.1.2	Extra-over for supply, lay, joint, bed, specials, fittings for GRP pipes and valves complete with couplings (with stainless steel bolts) and corrosion protection as per specification: <u>Pipeline PEF02 - 600 mm dia:</u> 45 degree bend	No.	1	16 170,49	16 170,49
AL66		<u>Pipeline PEF03 - 700 mm dia:</u> 45 degree bend	No.	1	20 271,79	20 271,79
AL67		700 x 500mm dia reducer	No.	1	19 371,24	19 371,24
AL68		<u>Pipeline PEF01 - 900 mm dia:</u> 90 degree bend	No.	2	45 415,24	90 830,48
AL69		Extra-over for supply, lay, joint, bed, specials, fittings for Stainless Steel pipes and valves complete with couplings (with stainless steel bolts) and corrosion protection as per specification: <u>Pipeline WAS01 - 200 mm dia:</u> Stainless steel grade 304L pipe special, both ends plain ended, L=1850mm	No.	1	2 898,69	2 898,69
AL70		Stainless steel grade 304L pipe special, both ends plain ended, L=1250mm	No.	1	2 192,68	2 192,68
AL71		Stainless steel grade 304L 90 deg. bend	No.	2	3 096,61	6 193,22
AL72		Stainless steel grade 304L pipe special, both ends plain ended, L=600mm	No.	1	1 427,83	1 427,83
AL73		SANS 1200 G PSG 8.6 Casting pipes and specials into concrete				
AL74		Cast in of pipes and specials (such as flanges etc. where required) through concrete (including hydrophilic rubber sealant, as specified or shown on drawing DRG-CS-1779): (a) Item MH11-A	No.	1	1 072,52	1 072,52
		(b) Item MH12-A	No.	1	1 072,52	1 072,52
Carried forward / ...						5 005 437,22

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AL : INTERCONNECTING
PIPEWORK

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						5 005 437,22
AL75		(c) Item MH12-B	No.	1	1 072,52	1 072,52
AL76		(d) Item MH13	No.	2	1 113,75	2 227,50
AL77		(e) Item MH14	No.	2	1 113,75	2 227,50
	8.2.2 PSL 8.2.2 PSL 8.2.17 PSL 8.2.19 SANS 1200 G PSG 8.6	Extra-over Item PSG 8.6 above for flexible couplings and/or flanges where applicable (as specified or shown on drawing 110585-WWTW-DRG-CS-1779);				
AL78		(a) Item MH11-B	No.	1	14 559,62	14 559,62
AL79		(b) Item MH12-C	No.	2	13 454,00	26 908
	SANS 1200 L 8.2.13 PSL 8.2.14	Construct valve chambers complete as shown on Drg No 110585-CC-1574 110585-WWTW-DRG-CC-1666 including cover and frame and building in of pipes, for depths:				
		Pipes up to 200 mm dia for depths:				
		On pipeline WAS01				
		Over and Up to				
AL80		2,5 m 3,5 m	No.	1	3 335,58	3 335,58
	8.2.14 PSL 8.2.14 PSLD 8.2.5	Construct manholes (precast concrete), inspections chambers, etc complete as shown on drawings including cover and frame and building in of pipes, for depths: Construct concrete manholes complete as shown on drawing 110585-WWTW-DRG-CS-1306 including cover and frame and building in of pipes, for depths:				
		Pipes over 600 mm dia and up to 1000 mm dia for depths:				
		Pipeline PEA01 (MH11) shown on Drawing No. 110585-WWTW-DRG-CC-1570				
		Over and Up to				
AL81		1,5 m 2,5 m	No.	1	41 471,97	41 471,97
Carried forward / ...						5 097 239,91

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AL : INTERCONNECTING
PIPEWORK

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						5 097 239,91
AL82	SANS 1200 L	<u>Pipeline PEB01 (MH12) as shown on Drawing No. 110585-WWTW-DRG-CC-1571</u> Over and Up to 4,5 m 5,5 m Pipes over 1000 mm dia and up to 2000 mm dia for depths: <u>Pipeline CPE01 (MH13) as shown on Drawing No. 110585-WWTW-DRG-CC-1571</u> Over and Up to 4,5 m 5,5 m	No.	1	62 207,96	62 207,96
AL83		<u>Pipeline CPE02 (MH14) as shown on Drawing No. 110585-WWTW-DRG-CC-1572</u> Over and Up to 4,5 m 5,5 m	No.	1	62 207,96	62 207,96
AL84		Over and Up to 4,5 m 5,5 m	No.	1	62 207,96	62 207,96
	8.2.5	Supply, lay and test flanged RSV valves: Resilient seal valves				
AL85		63 mm dia	No.	1	2 107,07	2 107,07
AL86		160 mm dia	No.	1	3 914,68	3 914,68
AL87		250 mm dia	No.	1	11 014,92	11 014,92
AL88		315 mm dia	No.	1	20 487,77	20 487,77
AL89		355 mm dia	No.	1	28 652,39	28 652,39
AL90		400 mm dia	No.	1	34 360,39	34 360,39
AL91	PSL 8.2.11	Anchor/Thrust blocks, with reinforced concrete Grade 20 MPa/ 19 mm @ 85 kg of steel per m ³ of concrete volume	m ³	2	3 623,22	7 246,44
	PSL 8.2.21	Concrete support structure where pipes cross each other for:				
AL92		WAS01, Pipeline Nr. 37 and FEF06	m ³	2	3 371,69	6 743,38
AL93		PEF02 & PEF01	m ³	2	3 371,69	6 743,38
Carried forward / ...						5 405 134,21

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AL : INTERCONNECTING
PIPEWORK

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						5 405 134,21
	SANS 1200LE	Miscellaneous				
AL94	8.2.13	Raising and lowering of existing manholes	No.	5	8 028,70	40 143,50
AL95	PSLE 8.2.20	Break into existing manhole and install pipe up to 700 mm dia and make good	No.	1	4 331,88	4 331,88
AL96	SANS 1200 LD 8.2.9	Marker posts	No.	20	86,80	1 736,00
AL97	PSA 8.18	Stand pipes complete as per drawing (Refer to Drg No 110585-CC-605)	No.	10	3 569,30	35 693,00
AL98	PSA 8.18	Training of Employer's staff for GRP pipe installation	Sum	1	0,00	0,00
TOTAL SECTION AL CARRIED TO SUMMARY						R 5 487 038,59

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AM: SLEEVES

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION AM: SLEEVES				
	SABS 1200 DB PSLB 8.1.6	EARTHWORKS (PIPE TRENCHES)				
	8.3.2	EXCAVATION				
	PSDB 8.3.2(a) PSLB 8.1.5	Excavate in all materials for trenches up to 1000 mm wide, backfill, compact and dispose of surplus material for ducts up to 160 mm dia for depth:				
AM1		Over 0,5 m up to 1,0 m	m	50	87,23	4 361,50
AM2		Over 1,0 m up to 1,5 m	m	350	145,38	50 883,00
	PSDB 8.3.2(a) PSLB 8.1.5	Excavate in all materials for trenches up to 1500 m wide, backfill, compact and dispose of surplus material for ducts up to 160 mm dia for depth:				
AM3		Over 0,5 m up to 1,0 m	m	50	218,07	10 903,50
AM4		Over 1,0 m up to 1,5 m	m	200	218,07	43 614,00
	PSDB 8.3.2(b)	Hand excavation and backfill where directed by the Engineer in:				
AM5		Soft material	m³	10	386,62	3 866,20
AM6	8.3.2(c)	Excavate and dispose of unsuitable material from trench bottom	m³	10	73,72	737,20
	PSDB 8.3.3	EXCAVATION ANCILLARIES				
	8.3.3.1	Make up deficiency in backfill material:				
AM7		From other necessary excavations on site	m³	10	73,72	737,20
	SABS 1200 LB PSLB 8.1.1	BEDDING (PIPES)				
	8.2.1	Provision of Bedding from Trench Excavations				
AM8		Selected granular material	m³	220	63,63	13 998,60
AM9		Selected fill material	m³	120	63,63	7 635,60
	8.2.2.1	From other necessary excavations on site				
AM10		(a) Selected granular material	m³	60	84,84	5 090,40
AM11		(b) Selected fill material	m³	40	84,84	3 393,60
Carried forward / ...						145 220,80

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						145 220,80
	SABS 1200 LC	CABLE DUCTS				
	PSLC 8.2.5	Supply, handle, lay bed as for flexible pipes and prove the following class 6 uPVC ducts, including provision of draw wire. 110 mm dia				
AM12		2 Pipes per trench	m	250	57,89	14 472,50
		160 mm dia				
AM13		2 Pipes per trench	m	80	104,78	8 382,40
AM14		3 Pipes per trench	m	150	104,78	15 717,00
AM15		6 Pipes per trench	m	120	104,78	12 573,6
AM16		10 Pipes per trench	m	50	104,78	5 239,00
	PSLC 8.2.7	Draw pits/ electrical manholes:				
		Manholes complete as shown on drawings (110585-CC-0619):				
AM17		Type 1	No.	2	15 682,66	31 365,32
AM18		Type 2	No.	2	15 682,66	31 365,32
AM19		Type 3	No.	3	15 682,66	47 047,98
AM20		Type 4	No.	3	15 682,66	47 047,98
	PSLC 8.2.10	Duct destinations				
		All labour and materials required to construct duct destination details (Drg 110585-CC-0619)				
AM23		Type 1	No.	4	2 352,40	9 409,60
AM24		Type 2	No.	4	2 352,40	9 409,60
	8.2.8	Cable markers:				
AM25		Route markers	No.	20	336,35	6 727,00
AM26		Kerb markers	No.	20	336,35	6 727,00
TOTAL SECTION AM CARRIED TO SUMMARY						R 390 705,10

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AN: ROADWORKS

AT ZANDVLIET WASTEWATER TREATMENT WORKS						
Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
AN1	SABS 1200 DM PSDM 8.3.12 PSDM 8.3.3	SECTION AN: ROADWORKS				
		EARTHWORKS (ROADS, SUBGRADE)				
		Treatment of roadbed:				
		PSDM 8.3.3(a)	Roadbed preparation and compaction of material to minimum of 93% MAASHTO density (100% for sand)	m³	1 500	29,23
AN2	PSDM 8.3.4	Cut to fill, borrow to fill				
		Cut to fill, material compacted to minimum of 93% MAASHTO density (100% for sand)				
AN3		to Roads	m³	1 500	61,54	92 310,00
AN4		to Shoulder	m³	50	61,54	3 077,00
AN5		Borrow to fill, material compacted to minimum of 93% MAASHTO density (100% for sand)				
		to Roads	m³	500	61,54	30 770,00
AN6		to Shoulder	m³	50	61,54	3 077,00
AN7	PSDM 8.3.5	Selected layer using material from designated borrow pits or excavations:				
		G7 material compacted to 100% of modified AASHTO density (sand)	m³	1 500	93,74	140 610,00
AN8	PSDM 8.3.7	Cut to Spoil from:				
		Soft Excavation	m³	5 500	48,12	264 660,00
AN9	SABS 1200 ME PSME 8.3.9	SUBBASE				
		Construct the subbase course/shoulders/gravel wearing course with material from commercial sources:				
AN10	PSME 8.3.3	150 mm G5 material compacted to 95% modified AASHTO density for roads	m³	1 300	333,98	434 174,00
AN11		150 mm C4 material compacted to 95% modified AASHTO density for paved roads	m³	1 100	333,98	367 378,00
Carried forward / ...						1 379 901,00

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AN: ROADWORKS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 379 901,00
AN10	SABS 1200 ME	100 mm G5 material compacted to 95% modified AASHTO density for Walkways	m³	100	365,15	36 515,00
AN11		100 mm G5 gravel wearing course compacted to 95% modified AASHTO density for road shoulder	m³	50	421,68	21 084,00
	8.3.5	Process subbase material by the following processes, as relevant, and use in the subbase				
AN12		Stabilization	m³	1 400	15,28	21 392,00
	8.3.8	Stabilization agent				
AN13		Portland cement (CEM II 32.5N)	t	60	1 519,00	91 140,00
	SABS 1200 MF PSMF 8.3.9	BASE				
	8.3.3	Construct base with material from commercial sources or designated borrow areas:				
AN14		150 mm G4 material compacted to 97% modified AASHTO density for Asphalt Roads	m³	270	470,62	127 067,40
	SABS 1200 MH PSMH 8.1.2	ASPHALT BASE AND SURFACING				
	8.5.1	Prime coat:				
AN15		MC-30 cutback bitumen	m²	900	8,81	7 929,00
AN16		Col Prime E	m²	900	10,09	9 081,00
	PSMH 8.5.4	Asphalt surfacing:				
		Continuously graded (medium grade) asphalt surfacing using:				
AN17		40 mm on Roads	m²	1 800	130,18	234 324,00
	SABS 1200 MJ	SEGMENTED PAVING				
AN18	PSMJ 8.2.1	Provision of edge restraints	m	1 000	128,74	128 740,00
Carried forward / ...						2 057 173,40

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AN: ROADWORKS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						2 057 173,40
AN19	SABS 1200 MJ PSMJ 8.2.2	Construction of paving complete: 80 mm Interlocking grey concrete pavers (35 MPa) on 20 mm sand bedding	m ²	6 500	202,69	1 317 485,00
AN20		50 mm grey concrete pavers for sidewalks on 20 mm sand	m ²	1 000	178,21	178 210,00
KERBING AND CHANNELLING						
	SABS 1200 MK PSMK 8.2.1	Concrete kerbing:				
	8.2.2	BK2				
AN21		Radius up to 15 m	m	20	289,71	5 794,20
AN22		Radius over 15 m and straight sections	m	100	209,36	20 936,00
	8.2.2	BK2 + C1				
AN23		Radius up to 15 m	m	20	382,24	7 644,80
AN24		Radius over 15 m and straight sections	m	100	297,61	29 761,00
	8.2.2	E-3 Edging as per detail:				
AN25		Radius up to 15 m	m	200	131,76	26 352,00
AN26		Radius over 15 m and straight sections	m	1 600	131,76	210 816,00
	8.2.2	2 x C1 V-channel (on 150 mm thick concrete)				
AN27		Radius up to 15 m	m	10	494,20	4 942,00
AN28		Radius over 15 m and straight sections	m	50	413,91	20 695,50
AN29	PSMK 8.2.16	Kerb markings	No.	20	379,70	7 594,00
ANCILLARY ROADWORKS						
	SABS 1200 MM 8,2	GUARDRAILS				
	8.2.1	Guardrails on Posts				
AN30		Galvanised	m	50	404,89	20 244,50
AN31	8.2.2	Extra-Over item 8.2.1 for Horizontal curved Guardrails Factory-Bent to radius of less than 150 m	m	40	271,25	10 850,00
Carried forward / ...						3 918 498,40

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AN: ROADWORKS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						3 918 498,40
AN32	SABS 1200 MM 8.2.3	End Units				
		End Wings	No.	2	542,50	1 085,00
	8,3	PERMANENT ROADSIGNS				
	8.3.6	Statutory signs, street names and the like, supplied and erected, complete				
AN33		Type R1 Stop Sign (600 mm)	No.	2	1 267,93	2 535,86
AN34		Type R2 Yield Sign (600 mm)	No.	1	1 267,93	1 267,93
	8,4	ROAD MARKINGS				
	8.4.1	Non reflectorized paint applied at nominal rate of 0.42 l/m²:				
		White/yellow lines (broken or unbroken):				
AN35		100 mm wide	m	30	5,42	162,60
AN36		300 mm wide	m	10	10,85	108,50
AN37		White characters and symbols	m²	10	81,38	813,80
AN38		Yellow characters and symbols	m²	1	81,38	81,38
		Sundry:				
AN39	PSDM 8.3.19	Tie-in with existing road edge: Site roads	m	100	21,70	2 170,00
TOTAL SECTION AN CARRIED TO SUMMARY						R 3 926 723,47

**MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS**

**SECTION AO: STORMWATER
DRAINAGE**

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION AO: STORMWATER DRAINAGE				
	SABS 1200 DB	EARTHWORKS (PIPE TRENCHES)				
	8.3.2 PSLB 8.1.6	EXCAVATION				
	PSDB 8.3.2(a) PSLB 8.1.5	Excavate in all materials, for trenches, backfill, compact and dispose of surplus material:				
		Pipes over 200 mm dia up to 600 mm dia for depths:				
AO1		Over 0,5 and up to 1,0 m	m	50	164,20	8 210,00
AO2		Over 1,0 m and up to 1,5 m	m	300	273,67	82 101,00
AO3		Over 1,5 m and up to 2,0 m	m	100	383,14	38 314,00
	PSDB 8.3.2(b)	Extra over subitems PSDB 8.3.2(a) above for:				
AO4		Hard rock excavation	m³	10	472,09	4 720,90
		Hand excavation and backfill where directed by the Engineer in:				
AO5		Soft material	m³	20	386,62	7 732,40
AO6	8.3.2(c)	Excavate and dispose of unsuitable material from trench bottom	m³	5	73,72	368,60
	PSDB 8.3.3	EXCAVATION ANCILLARIES				
	8.3.3.1	Make up deficiency in backfill material:				
AO7		From other necessary excavations on site	m³	20	73,72	1 474,40
	SABS 1200 LB PSLB 8.1.1	BEDDING (PIPES)				
	8.2.1	Provision of Bedding from Trench Excavations				
AO8		Selected granular material	m³	50	63,63	3 181,50
AO9		Selected fill material	m³	150	63,63	9 544,50
	8.2.2.1	From other necessary excavations on site				
AO10		Selected granular material	m³	20	84,84	1 696,80
AO11		Selected fill material	m³	70	84,84	5 938,80
Carried forward / ...						163 282,90

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AO: STORMWATER
DRAINAGE

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						163 282,90
	SABS 1200 LE	STORMWATER PIPES				
AO12	8.2.2	Supply, handle and lay uPVC pipes on a class C bedding: 250 mm dia class 12	m	250	310,47	77 617,50
AO13	8.2.2	Supply, handle and lay spigot and socket type reinforced precast concrete pipes type SC on a class C bedding: 375 mm dia class 100D	m	200	668,98	133 796,00
AO14		450 mm dia class 100D	m	20	766,63	15 332,60
AO15		525 mm dia class 100D	m	10	853,43	8 534,30
	PSLE 8.2.8	HEADWALLS				
AO16		Construct pipe culvert inlet/outlet (headwall) structure complete to detail drawing 110585-WWTW-DRG-CC1678 for the following pipes: 375 mm dia	No.	2	36 999,85	73 999,70
AO17		450 mm dia	No.	1	36 999,85	36 999,85
AO18		525 mm dia	No.	1	36 999,85	36 999,85
	PSLE 8.2.8	MANHOLES				
		Supply and install precast concrete manholes, complete as per the detail drawing 110585-WWTW-DRG-CC-1682 for depths for:				
		Pipes up to 600 mm diameter:				
AO19		Over 0,5 m and up to 1,0 m	No.	1	12 857,40	12 857,40
AO20		Over 1,0 m and up to 1,5 m	No.	1	15 084,47	15 084,47
AO21		Over 1,5 m and up to 2,0 m	No.	1	15 812,21	15 812,21
AO22		Over 2,0 m and up to 2,5 m	No.	1	16 283,10	16 283,10
		Supply and install precast concrete manholes, complete as per the detail drawing 110585-WWTW-DRG-CC-1682 for depths for:				
Carried forward / ...						606 599,88

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AO: STORMWATER
DRAINAGE

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						606 599,88
AO23	PSLE 8.2.8	Pipes over 600 mm diameter: Over 0,5 m and up to 1,0 m	No.	1	12 857,40	12 857,40
AO24		Over 1,0 m and up to 1,5 m	No.	1	15 084,47	15 084,47
AO25		Over 1,5 m and up to 2,0 m	No.	1	15 812,21	15 812,21
AO26		Over 2,0 m and up to 2,5 m	No.	1	16 283,10	16 283,10
	PSLE 8.2.8	CATCHPITS Supply and install Grid Inlet Type G1 complete as per the detail drawing 110585-WWTW-DRG-CC-1677 for depths:				
AO27	PSLE 8.2.20	Over 0,5 m and up to 1,0 m	No.	1	6 199,41	6 199,41
AO28		Over 1,0 m and up to 1,5 m	No.	1	7 339,08	7 339,08
AO29		Over 1.5 m and up to 2.0 m	No.	1	8 443.32	8 443.32
		Supply and install Grid Inlet Type G2 complete as per the detail drawing 110585-WWTW-DRG-CC-1677 for depths:				
AO30	PSLE 8.2.20	Over 0,5 m and up to 1,0 m	No.	1	7 781,77	7 781,77
AO31		Over 1,0 m and up to 1,5 m	No.	1	12 009,05	12 009,05
AO32		Over 1,5 m and up to 2,0 m	No.	1	13 293,81	13 293,81
AO33		Break into existing manhole and install: 375 mm dia class 100D	No.	1	3 246,88	3 246,88
	PSLE 8.2.22	450 mm dia class 100D	No.	1	3 572,38	3 572,38
		525 mm dia class 100D	No.	1	4 006,38	4 006,38
		SUBSURFACE DRAINS Supply and install subsurface drains complete as per the detail drawings 110585-WWTW-DRG-CC-1655, including all materials, excavations and disposal of surplus material for the following pipes:				
AO34		110 mm dia	m	1 500	437,86	656 790,00
Carried forward / ...						1 389 319,14

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AO: STORMWATER
DRAINAGE

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 389 319,14
AO35	PSLE 8.2.25	MISCELLANEOUS Construct grass lined stormwater channel, including excavation, shaping and compaction to 93% MAASHTO density (100% for sand), complete as per the detail drawing 110585-WWTW-DRG-CC-1657 and 1683	m	650	93,09	60 508,50
AO36	PSLE 8.2.26	Mentis Grid Stormwater Channel as per detail drawing 110585-WWTW-DRG-CC-1681	m	80	2 704,26	216 340,80
	SABS 1200 DK	GABIONS AND PITCHING				
AO37	PSDK 8.2.2	Construct Gabions with mesh type 80 openings, with 2.7 mm Class A Galfan (ZN95Al5) and PVC coated wire, for the following dimensions: 3.0 m x 1.0 m x 0.5 m	m³	50	1 766,02	88 301,00
AO38	PSDK 8.2.2	Construct Reno Mattresses with mesh type 60 openings, with 2.2 mm Class A Galfan (ZN95Al5) and PVC coated wire, for the following dimensions: 2.0 m x 1.0 m x 0.3 m	m³	40	1 941,43	77 657,20
AO39	PSDK 8.2.3	Extra Over PSDK 8.2.2 for packing selected stone for exposed face	m²	50	168,22	8 411,00
AO40	8.2.4	Supply and installation of non-woven geotextile (min 210 g/m²) and strength of 9.8 Kn/m in all directions	m²	80	11,24	899,20
TOTAL SECTION AO CARRIED TO SUMMARY						R 1 841 436,84

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AP: WATER
RETICULATION

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION AP: WATER RETICULATION				
	SABS 1200 DB	EARTHWORKS (PIPE TRENCHES)				
	8.3.2 PSLB 8.1.6	EXCAVATION				
	PSDB 8.3.2(a) PSLB 8.1.5	Excavate in all materials, for trenches, backfill, compact and dispose of surplus material for main pipes: Pipes up to 125 mm dia for depths:				
AP1		Over 0,5 and up to 1,0 m	m	200	98,60	19 720,00
AP2		Over 1,0 m and up to 1,5 m	m	500	164,33	82 165,00
AP3		Over 1,5 m and up to 2,0 m	m	100	230,06	23 006,00
	PSDB 8.3.2(b)	Extra over items PSDB 8.3.2(a) above for: Hand excavation and backfill where directed by the Engineer in:				
AP4		Soft material	m³	20	386,62	7 732,40
AP5	8.3.2(c)	Excavate and dispose of unsuitable material from trench bottom	m³	10	73,72	737,20
	PSDB 8.3.3	EXCAVATION ANCILLARIES				
	8.3.3.1	Make up deficiency in backfill material:				
AP6		From other necessary excavations on site	m³	20	98,29	1 965,80
AP7	PSDB 8.3.3.3	Compaction in road crossings	m³	40	73,72	2 948,80
	SABS 1200 LB PSLB 8.1.1	BEDDING (PIPES)				
	8.2.1	Provision of Bedding from Trench Excavations				
AP8		Selected granular material	m³	50	63,63	3 181,50
AP9		Selected fill material	m³	200	63,63	12 726,00
Carried forward / ...						154 182,70

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AP: WATER
RETICULATION

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						154 182,70
AP10	SABS 1200 LB 8.2.2.1	From other necessary excavations on site				
		Selected granular material	m³	25	84,84	2 121,00
AP11		Selected fill material	m³	50	84,84	4 242,00
	SABS 1200 L	MEDIUM PRESSURE PIPELINES				
	PSL 8.2.1	Supply, lay, joint, bed and test as for flexible pipes, complete with couplings:				
		HDPE PN12.5 PE63 pipes (Screw type couplings)				
AP12		25mm dia	m	150	25,49	3 823,50
AP13		50mm dia	m	150	43,06	6 459,00
		uPVC Class 12 pipes				
AP14		110 mm dia	m	750	98,18	73 635,00
		SPECIALS AND FITTINGS				
	PSL 8.2.2	Extra over items PSL 8.2.1 for the supplying, laying and bedding of specials complete with couplings:				
		11,25 degree bends:				
AP15		110 mm dia uPVC	No.	4	258,66	1 034,64
		22,5 degree bends:				
AP16		110 mm uPVC	No.	2	258,66	517,32
		45 degree bends:				
AP17		110 mm dia uPVC	No.	2	258,66	517,32
		90 degree bends:				
AP18		50 mm dia HDPE	No.	4	109,80	439,20
AP19		110 mm dia uPVC	No.	4	258,66	1 034,64
		Tees:				
AP20		50 mm dia HDPE	No.	2	167,52	335,04
AP21		110 mm dia uPVC	No.	2	524,49	1 048,98
Carried forward / ...						249 390,34

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AP: WATER
RETICULATION

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						249 390,34
AP22		Reducing Tees: 110 mm x 50mm CI Flanged branch	No.	7	942,21	6 595,47
AP23		End caps: 50 mm HDPE	No.	2	80,51	161,02
AP24		110 mm uPVC	No.	2	274,94	549,88
AP25		Flange adaptors: 50 mm HDPE	No.	1	226,11	226,11
AP26		110 mm uPVC	No.	2	345,46	690,92
VALVES AND HYDRANTS						
AP27	8.2.3	Extra over items PSL 8.2.1 for supplying, fixing and bedding flanged gate valves: 50 mm dia	No.	1	1 509,67	1 509,67
AP28		110 mm dia	No.	4	2 074,88	8 299,52
AP29		250 mm dia	No.	1	9 229,01	9 229,01
AP30	8.2.3	Extra over item PSL 8.2.1 for supplying, fixing and bedding of fire hydrants (pedestal) including double flanged distance piece between hydrant and tee complete as per detail drawings:	No.	4	1 175,06	4 700,24
AP31	8.2.3	Extra over items PSL 8.2.1 for installing a Stand pipe complete as per detail drawings	No.	8	3 569,30	28 554,40
ANCILLARIES						
AP32	PSL 8.2.11	Anchor blocks / thrust blocks and pedestals: Class 15 MPa/19 mm Concrete	m³	10	1 783,74	17 837,40
VALVE AND HYDRANT CHAMBERS						
AP33	PSG 8.18	Valve chamber	No.	5	3 335,58	16 677,90
Carried forward / ...						344 421,88

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AP: WATER
RETICULATION

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						344 421,88
AP34	PSL 8.2.18	Connection to existing main supply pipe of 110 mm	No.	2	1 584,10	3 168,20
	SABS 1200 LF	ERF CONNECTIONS (WATER)				
	PSLF 8.2.1	Provide water connections complete as per drawings				
AP35		25 mm Standpipe less than 15 m	No.	5	3 569,30	17 846,50
AP36		50 mm dia building connection less than 15 m	No.	6	3 148,67	18 892,02
AP37	8.2.8	Marker posts	No.	10	86,80	868,00
TOTAL SECTION AP CARRIED TO SUMMARY						R 385 196,60

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AQ: SEWER
RETICULATION

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
SECTION AQ: SEWER RETICULATION						
EARTHWORKS (PIPE TRENCHES)						
EXCAVATION						
	SABS 1200 DB 8.3.2 PSLB 8.1.6 PSDB 8.3.2(a) PSLB 8.1.5	Excavate in all materials, for trenches, backfill, compact and dispose of surplus material for main pipes: Pipes up to 125 mm dia for depths:				
AQ1		Over 0,5 and up to 1,0 m	m	20	98,60	1 972,00
AQ2		Over 1,0 m and up to 1,5 m	m	100	164,33	16 433,00
AQ3		Over 1,5 m and up to 2,0 m	m	20	230,06	4 601,20
	PSDB 8.3.2(b)	Extra over Items PSDB 8.3.2(a) above for:				
AQ4		Hard rock excavation	m³	2	472,09	944,18
		Hand excavation and backfill where directed by the Engineer in:				
AQ5		Soft material	m³	5	386,62	1 933,10
AQ6	8.3.2(c)	Excavate and dispose of unsuitable material from trench bottom	m³	5	73,72	368,60
	PSDB 8.3.3	EXCAVATION ANCILLARIES				
	8.3.3.1	Make up deficiency in backfill material:				
AQ7		From other necessary excavations on site	m³	5	98,29	491,45
AQ8	PSDB 8.3.3.3	Compaction in road crossings	m³	10	73,72	737,20
BEDDING (PIPES)						
	SABS 1200 LB PSLB 8.1.1 8.2.1	Provision of Bedding from Trench Excavations				
AQ9		Selected granular material	m³	20	63,63	1 272,60
AQ10		Selected fill material	m³	100	63,63	6 363,00
Carried forward / ...						35 116,33

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AQ: SEWER
RETICULATION

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						35 116,33
AQ11	SABS 1200 LB 8.2.2.1	From other necessary excavations on site				
		Selected granular material	m³	5	84,84	424,20
AQ12		Selected fill material	m³	20	84,84	1 696,80
	SABS 1200 LD 8.2.1	SEWERS Supply, lay, joint, bed on class C bedding and test pipeline: uPVC Class class 34 pipes				
AQ13		110 mm dia	m	50	80,45	4 022,50
AQ14		160 mm dia	m	100	161,83	16 183,00
		PRECAST CONCRETE MANHOLES				
	8.2.3	Precast fibre cement manholes complete as per detail drawings with concrete slab and ductile iron covers and frames for depths:				
AQ15		Over 0,5 and up to 1,0 m	No.	1	11 958,20	11 958,20
AQ16		Over 1,0 m and up to 1,5 m	No.	1	11 958,20	11 958,20
AQ17		Over 1,5 m and up to 2,0 m	No.	3	11 958,20	35 874,60
AQ18	8.2.5	Rodding eye as shown on Drawings	No.	5	3 538,55	17 692,75
	8.2.6	Erf Connections				
AQ19		Connect to 110 mm sewer pipeline less than 15 m	No.	1	2 675,61	2 675,61
AQ20		Connect to 160 mm sewer pipeline less than 15 m	No.	1	4 232,58	4 232,58
TOTAL SECTION AQ CARRIED TO SUMMARY						141 834,77

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AR : MISCELLANEOUS
STRUCTURES

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION AR: MISCELLANEOUS STRUCTURES				
		Drawings No. 110585-CS-0990 MBR Effluent Junction Chamber				
		Drawings No. 110585-CS-0992 MBR B Permeate Flow Meter Chamber				
		Drawings No. 110585-CS-0995 to-0996 MBR WAS Flow Meter Chamber				
	SANS 1200 D	EARTHWORKS				
		as specified in SANS 1200 D and in the project specifications				
	8.3.4 PSD 8.3.4	Importing of materials:				
		(a) Pioneer stone layer 300mm thick consisting of clean imported particles of 200mm to 300mm diameter to be used as working platform				
AR1		(i) MBR Permeate Junction Chamber	m³	6,9	445,33	3 072,78
AR2		(ii) MBR B Permeate Flow Meter Chamber	m³	13,7	445,33	6 101,02
AR3		(iii) MBR B WAS Flow Meter Chamber	m³	7,7	445,33	3 429,04
	SANS 1200 G	CONCRETE WORK				
	8.1.1 PSG 8.1.1	Formwork				
	8.2.1	Rough formwork:				
		Plane vertical to:				
		(a) MBR Permeate Junction Chamber				
AR4		(i) External sides of perimeter walls measured from FFL 10.89 to 300mm below NGL	m²	66,6	435,81	29 024,95
AR5		(ii) Sides of MBR Effluent Junction Chamber footings 600 mm high	m	21,2	435,81	9 239,17
		(b) MBR B Permeate Flow Meter Chamber				
AR6		(i) External sides of perimeter walls measured from FFL 10.65 to 300mm below NGL	m²	108,2	435,81	47 154,64
AR7		(ii) Sides of footings 600 mm high	m	30,0	313,70	9 411,00
Carried forward / ...						107 432,60

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AR : MISCELLANEOUS
STRUCTURES

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						107 432,60
AR8	SANS 1200 G	(c) MBR B WAS Flow Meter Chamber (i) External sides of perimeter walls measured from FFL 13.00 to 300mm below NGL	m ²	42,3	435,81	18 434,76
AR9		(ii) Sides of footings 300 mm high	m ²	23,5	435,81	10 241,54
AR10		(iii) External sides of drainage sump	m	1,8	171,62	308,92
	8.2.2	Smooth formwork: Plane vertical to: (a) MBR Permeate Junction Chamber				
AR11		(i) External perimeter walls measured from 300mm below NGL to TOC 16.50	m ²	22,3	435,81	9 718,56
AR12		(ii) Internal perimeter walls measured from FFL 10.89 to TOC 16.50	m ²	96,3	435,81	41 968,50
		(b) MBR B Permeate Flow Meter Chamber				
AR13		(i) External perimeter walls measured from 300mm below NGL to TOC 15.65	m ²	11,1	435,81	4 841,85
AR14		(ii) Internal perimeter walls measured from FFL 10.65 to TOC 15.65	m ²	107,5	435,81	46 849,58
AR15		(iii) Side concrete plinths for pipe support	m ²	3,6	435,81	1 568,92
		(c) MBR B WAS Flow Meter Chamber				
AR16		(i) External perimeter walls measured from 300mm below NGL to TOC 15.50	m ²	13,3	435,81	5 796,27
AR17		(ii) Internal perimeter walls measured from FFL 13.00 to TOC 15.50	m ²	43,0	435,81	18 739,83
AR18		(iii) Side concrete plinths for pipe support	m ²	2,6	435,81	1 133,11
	SANS 1200 G PSG 8.1.1.10	Plane horizontal to: (a) MBR Effluent Junction Chamber cover slab, with an average prop height of approximately 5.40m measured from FFL at 10.89	m ²	9,9	588,65	5 827,64
AR19						
Carried forward / ...						272 862,06

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AR : MISCELLANEOUS
STRUCTURES

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						272 862,06
AR20		(a) MBR Permeate Flow Meter Chamber cover slab, with an average prop height of approximately 4.75m measured from FFL at 10.65	m²	24,6	588,65	14 480,79
AR21		(a) MBR B WAS Flow Meter cover slab, with an average prop height of approximately 2.30m measured from FFL at 13.00	m²	16,5	588,65	9 712,73
	8.2.6	Box out holes and forming grooves in walls and slabs not exceeding 500mm thick:				
AR22		(a) MBR Permeate Junction Chamber, 1200 mm by 1200 mm boxout on cover slab for GRP inspection hatch	No	1	3 304,30	3 304,30
AR23		(b) MBR B Permeate Flow Meter Chamber, box out for manhole SANS 558 Type 8B	No	1	3 304,30	3 304,30
AR24		(c) MBR B WAS Flow Meter Chamber, box out for manhole SANS 558 Type 8B	No	1	3 304,30	3 304,30
	SANS 1200 A PSA 8.18 SANS 1200 G PSG 8.6	Box out with continuous rebar in terms of PSG 5.5.20				
AR25		(a) MBR B Permeate Flow Meter Chamber, 1000 by 1000mm box out for permeate pipeline	No	2	2 514,57	5 029,14
AR26		(a) MBR B WAS Flow Meter Chamber, 400 by 400mm box out for WAS pipeline	No	2	2 514,57	5 029,14
	SANS 1200 G PSG 8.1.2	Reinforcement:				
	8.3.1	Mild steel bars:				
AR27		(a) 8 mm dia	t	8,5	12 038,08	102 323,68
AR28		(b) 10 mm dia	t	10,6	12 038,08	127 603,65
AR29		(c) 12 mm dia	t	8,0	12 038,08	96 304,64
Carried forward / ...						643 258,73

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AR : MISCELLANEOUS
STRUCTURES

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						643 258,73
	SANS 1200 G 8.3.1	High tensile steel bars:				
AR30		(a) 10 mm dia	t	3,3	12 038,08	39 725,66
AR31		(b) 12 mm dia	t	2,7	12 038,08	32 502,82
AR32		(c) 16 mm dia	t	4,0	12 038,08	48 152,32
AR33		(d) 20 mm dia	t	9,3	12 038,08	111 954,14
AR34		(e) 25 mm dia	t	8,0	12 038,08	96 304,64
AR35		(f) 32 mm	t	1,3	12 038,08	15 649,5
	8.1.3 PSG 8.1.3	Concrete:				
	PSG 8.4.3	Concrete Grade 15 MPa/20 mm (mass concrete) to:				
AR36		(a) Benching inside MBR Permeate Junction Chamber	m³	2,2	1 668,54	3 670,79
	PSG 8.4.3	Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for footings and floor slabs to:				
AR37		(a) MBR Permeate Junction Chamber footing	m³	15,2	1 881,79	28 603,21
AR38		(b) MBR B Permeate Flow Meter Chamber footing	m³	20,0	1 881,79	37 635,80
AR39		(c) MBR B WAS Flow Meter Chamber footing	m³	8,5	1 881,79	15 995,22
	PSG 8.4.3	Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for suspended slabs (platforms and walkway slabs):				
AR40		(a) MBR Permeate Junction Chamber cover slab	m³	4,2	1 881,79	7 903,52
AR41		(b) MBR B Permeate Flow Meter Chamber cover slab	m³	1,0	1 780,93	1 780,93
AR42		(c) MBR B WAS Flow Meter Chamber cover slab	m³	40,2	1 780,93	71 593,39
Carried forward / ...						1 154 730,66

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AR : MISCELLANEOUS
STRUCTURES

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 154 730,66
AR43	SANS 1200 G PSG 8.4.3	Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for walls and plinths:				
		(a) MBR Permeate Junction Chamber perimeter walls	m³	40,0	1 780,93	71 237,20
AR44		(b) MBR B Permeate Flow Meter Chamber perimeter walls	m³	48,5	1 780,93	86 375,11
AR45		(c) MBR B WAS Flow Meter Chamber perimeter walls	m³	16,7	1 780,93	29 741,53
		(d) Plinths:				
AR46		(i) at MBR B Permeate Flow Meter Chamber	m³	1,0	1 780,93	1 780,93
AR47		(ii) at MBR WAS Flow Meter Chamebr	m³	1,0	1 780,93	1 780,93
		Unformed surface finishes:				
		Horizontal wood-floated finish:				
		(a) Footings				
AR48	8.4.4 PSG 8.4.4	(i) MBR Effluent Junction Chamber footings	m²	7,8	30,65	239,07
AR49		(ii) MBR B Permeate Flow Meter Chamber footings	m²	14,9	30,65	456,69
AR50		(iii) MBR B WAS Flow Meter Chamber footings	m²	7,0	30,65	214,55
		(b) Cover slabs				
AR51		(i) MBR Effluent Junction Chamber footings	m²	15,2	30,65	465,88
AR52		(ii) MBR B Permeate Flow Meter Chamber footings	m²	31,4	30,65	962,41
AR53		(iii) MBR B WAS Flow Meter Chamber footings	m²	19,5	30,65	597,68
		Horizontal steel-floated finish:				
AR54		(a) MBR Effluent Junction Chamber floor slab	m²	6,0	38,29	229,74
Carried forward / ...						1 348 812,37

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIE T WASTEWATER TREATMENT WORKS

SECTION AR : MISCELLANEOUS
STRUCTURES

STRUCTURES

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 348 812,37
AR55	SANS 1200 G 8.5 PSG 8.1.1 PSG 8.1.1.7 PSG 8.5	(b) MBR B Permeate Flow Meter Chamber floor slab	m ²	9,6	38,29	367,58
AR56		(c) MBR B WAS Flow Meter Chamber floor slab	m ²	8,5	38,29	325,47
		Designated Joints				
		Expansion/Construction joints as detailed and indicated on drawings and/or specified in the Project Specification:				
		(a) Joint Type F:				
AR57		(i) MBR Permeate Junction Chamber	m	15,6	205,29	3 202,52
AR58		(ii) MBR B Permeate Flow Meter Chamber	m	22,4	205,29	4 598,50
AR59		(iii) MBR B WAS Flow Meter Chamber	m	18,0	205,29	3 695,22
		PIPEWORK				
		Cast in of pipes and specials (such as flanges etc. where required) through concrete (including hydrophilic rubber sealant, as specified or shown on drawings):				
AR60	SANS 1200 L PSL 8.2.1 PSL 8.2.19 8.2.2 PSG 8.6	(a) MPJ1	No	1	18 325,00	18 325,00
AR61		(b) MPJ2	No	1	47 703,91	47 703,91
AR62		(c) MPJ4	No	1	7 616,05	7 616,05
		Extra-over item PSG 8.6 above for flexible couplings and/or flanges where applicable:				
AR63		(a) MPJ 3	No	1	14 269,27	14 269,27
Carried forward / ...						1 448 915,88

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AR : MISCELLANEOUS
STRUCTURES

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 448 915,88
AR64	SANS 1200 LE PSLE 8.2.8 PSLE 8.2.22	UNDERDRAINAGE SYSTEM as specified in SANS 1200 LE and in the project specifications				
AR64	SANS 1200 G PSG 8.13	(a) MBR Junction Chamber, filter bed - 100 mm no-fines concrete layer including provision for 20 mm thick packed mortar skin	m ²	10	231,11	2 311,10
AR65	SANS 1200 G PSG 8.13	(b) MBR Permeate Flow Meter Chamber, filter bed - 120 mm no-fines concrete layer including provision for 20 mm thick packed mortar skin	m ²	14	231,11	3 235,54
AR66	SANS 1200 G PSG 8.13	(c) MBR WAS Flow Meter Chamber, filter bed - 120 mm no-fines concrete layer including provision for 20 mm thick packed mortar skin	m ²	11	231,11	2 542,21
AR67	SANS 1200 A PSA 8.18	Construct drain complete including excavation, 19 mm stone fill, geofabric blanket and 110 mm dia perforated flexible drainage pipe as shown on drawings				
AR67		(b) Transverse drains including 110mm diameter class 9 uPVC perforated drainage pipe	m	15	198,38	2 975,70
AR68		(c) Trench excavation for non perforated pipes	m ³	3	103,22	309,66
AR69		(d) Supply and lay 110 mm dia PVC-U Class 9 non-perforated connector pipes	m	20	113,90	2 278,00
AR70		(e) Extra-over Item AE203 for 110 mm dia 90° PVC-U T-pieces	No.	2	461,12	922,24
AR71	SANS 1200 LD 8.23 PSLD 8.2.3	(e) Manhole over 3,0 m and up to 5,5 m deep complete as shown on DRG-CS-0116 including cover and frame and puddle pipe	No.	2	16 848,63	33 697,26
AR72	SANS 1200 A PSA 8.18	(a) Supply and install 110 mm dia groundwater release valves (GWRV) as supplied by Gereg Sewage and Water Equipment or equal approved	No	6	1 347,57	8 085,42
Carried forward / ...						1 505 273,01

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AR : MISCELLANEOUS
STRUCTURES

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 505 273,01
AR73	SANS 1200 A PSA 8.18 SPEC AUR 1017 8.1.1	MISCELLANEOUS (a) MBR Effluent Junction Chamber, GRP Inspection hatch 1.2 m by 1.2 m	No	1,0	7 595,00	7 595,00
AR74		(b) MBR B Permeate Flow Meter Chamber, GRP grating for drainage sump	No	1,0	6 379,80	6 379,80
AR75	SANS 1200 A PSA 8.18	Testing for water tightness: (a) MBR Effluent Junction Chamber	Sum	1,0	9 861,09	9 861,09
TOTAL SECTION AR CARRIED TO SUMMARY						R 1 529 108,90

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AS : DECOMMISSIONING,
ALTERATION AND DEMOLITION WORKS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
AS1	SANS 1200 D	SECTION AS : DECOMMISSIONING, ALTERATION AND DEMOLITION WORKS				
		Drawings No. 110585-WW-1726 Alterations to Existing Valve Chamber G110				
		EARTHWORKS				
		as specified in SANS 1200 D and in the project specifications				
		(a) Clean sand (600 mm thick) compacted to 100% modified AASHTO density in 150mm thick layers to fill void in Valve Chamber G110	m³	80	200,87	16 069,60
AS2	SANS 1200 G	CONCRETE				
		Formwork				
		8.1.1 PSG 8.1.1				
		8.2.1	Rough formwork:			
		Plane vertical to:				
AS3		(a) External perimeter walls measured from FFL 14.60 to 300 mm below NGL	m²	30	575,77	17 273,10
AS4	8.2.2	(b) Side of footing 400 mm high	m	13	417,90	5 432,70
		Smooth formwork:				
		Plane vertical to:				
		(a) External perimeter walls measured from 300 mm below NGL to TOC 18.00	m²	8	482,46	3 859,68
		(b) Internal perimeter walls measured from FFL 14.60 to TOC 18.00	m²	37	482,46	17 851,02
AS5		Plane horizontal to:				
		(a) Suspended cover slab with an average prop height of approximately 3.20m measured from FFL at 14.60	m²	4	664,60	2 658,40
		Box out holes and forming grooves in walls and slabs not exceeding 500mm thick:				
		(a) Square box out 750 mm by 750 mm for manhole covers on cover slab	No.	2	3 304,30	6 608,60
		AS6	8.2.6			
Carried forward / ...						69 753,10

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AS : DECOMMISSIONING,
ALTERATION AND DEMOLITION WORKS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						69 753,10
	SANS 1200 G PSG 8.1.2 8.3.1	Reinforcement:				
		Mild steel bars:				
AS8		(a) 8 mm dia	t	0,2	12 038,08	2 407,62
AS9		(b) 10 mm dia	t	0,2	12 038,08	2 407,62
AS10		(c) 12 mm dia	t	0,2	12 038,08	2 407,62
		High tensile steel bars:				
AS11		(a) 10 mm dia	t	0,2	12 038,08	2 407,62
AS12		(b) 12 mm dia	t	0,4	12 038,08	4 815,25
AS13		(c) 16 mm dia	t	0,5	12 038,08	6 019,04
AS14		(d) 20 mm dia	t	1,2	12 038,08	14 445,70
AS15		(e) 25 mm dia	t	1,0	12 038,08	12 038,08
AS16		(f) 32 mm	t	0,2	12 038,08	2 407,62
	8.1.3 PSG 8.1.3 PSG 8.4.3	Concrete:				
		Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for footings and floor slabs to:				
AS17		(a) Floor slab 400 mm thick	m³	8,0	1 881,79	15 054,32
		Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for suspended slabs (platforms and walkway slabs):				
AS18		(a) Suspended cover slab 400 mm thick	m³	2,0	1 881,79	3 763,58
		Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for walls and columns:				
AS19		(a) Perimeter walls 400 mm thick	m³	15,0	1 881,79	28 226,85
Carried forward / ...						166 153,98

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AS : DECOMMISSIONING,
ALTERATION AND DEMOLITION WORKS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						166 153,98
AS20	8.4.4 PSG 8.4.4	Unformed surface finishes:				
		Horizontal steel-floated finish:				
		(a) Floor slab 400 mm thick	m²	20,0	38,29	765,80
		(b) Suspended cover slab 400 mm thick	m²	15,0	38,29	574,35
AS21		(b) Suspended cover slab 400 mm thick	m²	15,0	38,29	574,35
AS22		(c) Top of perimeter wall	m²	4,0	38,29	153,16
AS23	SANS 1200 G 8.5 PSG 8.1.1 PSG 8.1.1.7 PSG 8.5	Designated Joints				
		Expansion/Construction joints as detailed and indicated on drawings and/or specified in the Project Specification:				
		(a) Dowel into existing structure and seal joint as shown on drawing	No.	42,0	460,21	19 328,82
		PIPEWORK				
AS24	SANS 1200 L PSL 8.2.1 PSL 8.2.19 8.2.2 PSG 8.6	Cast in of pipes and specials (such as flanges etc. where required) through concrete (including hydrophilic rubber sealant, as specified or shown on drawings):				
		(a) EVC 1	No.	1	13 885,40	13 885,40
		METALWORK				
		(a) Manhole cover and frame (type 98)	No.	2	737,80	1 475,60
AS25		(a) Manhole cover and frame (type 98)	No.	2	737,80	1 475,60
AS26	SANS 1200 A PSA 8.18	Testing for water tightness:				
		(a) at Valve Chamber G110	Sum	1	7 148,59	7 148,59
TOTAL SECTION AS CARRIED TO SUMMARY						R 209 485,70

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AT: EARTH
RETAINING SYSTEMS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
SECTION AT: EARTH RETAINING SYSTEMS						
PATENTED EARTH RETAINING SYSTEMS						
AT1	PZ 5.1	Construct Löffelstein (L500) precast concrete blocks complete to manufacturers specification and the relevant project specifications	m ²	200	1 139,03	227 806,00
AT2	PZ 5.2	Excavation for concrete bases for earth retaining systems; In soft material	m ³	40	157,11	6 284,40
AT3		Extra over item AW2 above for excavation in hard material	m ³	4	472,09	1 888,36
AT4		Base preparation and compaction to minimum of 90% (100% for sand) of MAASHTO maximum density;	m ³	50	133,50	6 675,00
AT5	PZ 5.3	Class 20/19 Concrete bases for earth retaining systems.	m ³	40	2 187,17	87 486,80
SUBSURFACE DRAINS						
AT6	PSLE 8.2.22	Supply and install subsurface drains behind retaining structure complete as per the detail drawings, including all materials, excavations and disposal of surplus material for the following nines: 110 mm dia	m	200	423,43	84 686,00
TOTAL SECTION AT CARRIED TO SUMMARY					R	414 826,56

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION AU: GENSETS				
		Drawings No. 110585-CS-1323 to 1356 GENSETS No. 1, and 2&3				
	SANS 1200 D	EARTHWORKS				
		as specified in SANS 1200 D and in the project specifications				
	8.3.4 PSD 8.3.4	Importing of materials:				
		(a) Pioneer stone layer 300mm thick consisting of clean imported particles of 200mm to 300mm diameter to be used as working platform				
AU1		(i) GENSET No.1	m³	9,6	489,10	4 695,36
AU2		(ii) GENSET No.2&3	m³	14,3	489,10	6 994,13
		(b) Clean sand (600 mm thick) compacted to 100% modified AASHTO density in 150mm thick layers				
AU3		(i) GENSET No.1	m³	30,1	165,94	4 994,79
AU4		(ii) GENSET No.2&3	m³	61,8	165,94	10 255,09
	SANS 1200 G	CONCRETE WORK				
	8.1.1 PSG 8.1.1	Formwork				
	8.2.1	Rough formwork:				
		Plane vertical to:				
		(a) GENSET No.1				
AU5		(i) External sides of perimeter walls measured from FFL 12.85 to 300mm below NGL	m²	44,9	435,81	19 567,87
AU6		(ii) Sides of GENSET No.1 footings	m²	7,1	435,81	3 094,25
		(b) GENSET No.2&3				
AU7		(i) External sides of perimeter walls measured from FFL 12.85 to 300mm below NGL	m²	58,0	435,81	25 276,98
AU8		(ii) Sides of footings	m²	8,3	482,46	4 004,42
Carried forward / ...						78 882,89

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AU: GENSETS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						78 882,89
	SANS 1200 G 8.2.2	Smooth formwork:				
		Plane vertical to:				
		(a) GENSET No.1				
AU9		(i) External perimeter walls measured from 300mm below NGL to TOC 15.60	m ²	8,8	435,81	3 835,13
AU10		(ii) Internal perimeter walls measured from FFL 12.85	m ²	42,8	435,81	18 652,67
AU11		(iii) Internal circular suspended walls	m ²	4,0	435,81	1 743,24
		(iv) Side of cover slab	m	24,3	171,62	4 170,3
		(b) GENSET No.2&3				
AU12		(i) External perimeter walls measured from 300mm below NGL to TOC 15.60	m ²	11,3	435,81	4 924,65
AU13		(ii) Internal walls measured from FFL 12.85	m ²	85,5	435,81	37 261,76
AU14		(iii) Internal circular suspended walls	m ²	7,9	435,81	3 442,90
AU15		(iv) Side of cover slab	m	30,0	171,62	5 148,60
	PSG 8.1.1.10	Plane horizontal to:				
AU16		(a) GENSET No.1 cover slab, with an average prop height of approximately 2.50m measured from FFL at 12.85	m ²	9,0	664,60	5 981,40
AU17		(b) GENSET No.2&3 cover slab, with an average prop height of approximately 2.50m measured from FFL at 12.85	m ²	22,4	664,60	14 887,04
	8.2.6	Box out holes and forming grooves in walls and slabs not exceeding 500mm thick:				
		(a) Box out for 550mm diameter manhole				
AU18		(i) GENSET No.1	No	1	3 304,30	3 304,30
AU19		(ii) GENSET No.2&3	No	1	3 304,30	3 304,30
Carried forward / ...						185 539,24

SECTION AU: GENSETS

Contract
Part C2: Pricing Data
Reference No. 179Q/2016/17

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						445 929,90
AU33	SANS 1200 G	Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for footings and floor slabs to:				
		(a) GENSET No.1 footing	m³	9,6	1 881,79	18 065,18
AU34		(b) GENSET No.2&3 footing	m³	14,3	1 881,79	26 909,60
		Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for suspended slabs (platforms and walkway slabs):				
AU35		(a) GENSET No.1 cover slab	m³	8,5	1 881,79	15 995,22
AU36		(b) GENSET No.2&3 cover slab	m³	14,0	1 881,79	26 345
		Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for walls and plinths:				
		(a) Perimeter and dividing walls				
AU37		(i) GENSET No.1	m³	13,7	1 881,79	25 780,52
AU38		(ii) GENSET No.2&3	m³	22,5	1 881,79	42 340,28
		(c) Internal suspended circular walls				
AU39	8.4.4 PSG 8.4.4	(i) GENSET No.1	m³	0,3	1 881,79	564,54
AU40		(ii) GENSET No.2&3	m³	0,6	1 881,79	1 129,07
		Unformed surface finishes:				
		Horizontal wood-floated finish:				
		(a) Footings				
AU41		(i) GENSET No.1	m²	6,2	30,65	190,03
AU42		(ii) GENSET No.2&3	m²	7,9	30,65	242,14
		(b) Cover slabs				
AU43		(i) GENSET No.1	m²	41,6	30,65	1 275,04
AU44		(ii) GENSET No.2&3	m²	65,5	30,65	2 007,58
Carried forward / ...						606 774,14

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION AU: GENSET

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						606 774,14
AU45	SANS 1200 G 8.5 PSG 8.1.1 PSG 8.1.1.7 PSG 8.5	Horizontal steel-floated finish:				
		(a) GENSET No.1 floor slab	m2	8,6	38,29	329,29
AU46		(b) GENSET No.2&3 floor slab	m2	17,1	38,29	654,76
		Designated Joints				
		Expansion/Construction joints as detailed and indicated on drawings and/or specified in the Project Specification:				
		(a) Joint Type F:				
AU47	SANS 1200 LE PSLE 8.2.8 PSLE 8.2.22	(i) GENSET No.1	m	19,5	205,29	4 003,16
AU48		(ii) GENSET No.2&3	m	31,8	205,29	6 528,22
		UNDERDRAINAGE SYSTEM as specified in SANS 1200 LE and in the project specifications				
		Construct drain complete including excavation, 19 mm stone fill, geofabric blanket and 110 mm dia perforated flexible drainage pipe as shown on drawings				
	SANS 1200 A PSA 8.18					
AU49	SANS 1200 LD 8.23 PSLD 8.2.3	(a) Transverse drains including 100mm diameter class 9 uPVC perforated drainage pipe	m	48	198,38	9 522,24
AU50		(b) Supply and lay 100 mm dia PVC-U Class 9 non-perforated connector pipes	m	4	113,90	455,60
AU51		(d) Manhole over 3,0 m and up to 5,5 m deep complete as shown on DRG-CS-0116 including cover and frame and puddle pipe	No.	2	16 848,63	33 697,26
TOTAL SECTION AU CARRIED TO SUMMARY						661 964,67

PORTION B OF THE WORKS

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIE T WASTEWATER TREATMENT WORKS

SECTION BA: GENERAL AND
TEMPORARY WORKS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
	SANS 1200 A PSA 8.13	SECTION BA: GENERAL AND TEMPORARY WORKS				
		GENERAL WORKS:				
		General:				
BA1	PSA 8.8.2	Dealing with access, including construction of temporary site roads	Sum	-	103 031,82	103 031,82
BA2	PSA 8.8.1	Remove temporary site roads and reinstate site	Sum	-	37 167,65	37 167,65
BA3	PSA 8.12	Attendance on the Mechanical and Electrical Contractor as specified in C3.4: Scope of Work	Sum	-	0,00	0,00
BA4		Liaison and co-operation with other contractors as specified in C3.4: Scope of Work	Sum	-	0,00	0,00
BA5	PSA 8.8.11.2	Setting out of the Works	Sum	-	0,00	0,00
BA6	PSA 8.8.11.4	Survey for and preparation of as-built data	Sum	-	0,00	0,00
	SANS 1200 A PSA 8.5	Sums stated provisionally by the Engineer:				
BA7		Provision of offices furniture for Administration and Control Building	Prov Sum	-	-	175 400,00
BA8		Percentage adjustment on Item BA7 for Contractor's overheads and profit (<i>state % and extend as an amount</i>)	%	175 400	10,00%	17 540,00
BA9	PSA 8.5.2	Inspection of corrosion protection of structural steel by an Independent Inspectorate	Prov Sum	-	-	160 000,00
BA10	PSA 8.5	Percentage adjustment on Item BA9 for Contractor's overheads and profit (<i>state % and extend as an amount</i>)	%	160 000	10,00%	16 000,00
BA11		Inspection by Engineer of structural steel for roof of Administration and Control, Chemical Dosing, Chlorine Disinfection Buildings etc.	Prov Sum	-	-	155 000,00
BA12	SANS 1200 A PSA 8.5	Percentage adjustment on Item BA11 for Contractor's overheads and profit (<i>state % and extend as an amount</i>)	%	155 000	10,00%	15 500,00
Carried forward / ...						679 639,47

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BA: GENERAL AND
TEMPORARY WORKS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						679 639,47
BA13		Locating, protection, alteration and relocation of existing services carried out by authorities	Prov Sum	-	-	80 000,00
BA14		Percentage adjustment on Item BA13 for Contractor's overheads and profit (<i>state % and extend as an amount</i>)	%	80 000	10,00%	8 000,00
BA15		Independent inspectorate for testing of pipes, pipe specials and, valves at factory	Prov Sum	-	-	50 000,00
BA16		Percentage adjustment on Item BA15 for Contractor's overheads and profit (<i>state % and extend as an amount</i>)	%	50 000	10,00%	5 000,00
		TEMPORARY WORKS:				
	PSA 8.8.9(a)	Dealing with subsurface water:				
		Supply and install (and later removal) equipment to deal with subsurface water for the following:				
BA17		Administration and Control Building	Sum	-	0,00	0,00
BA18		Chlorine Dosing & Disinfection Building	Sum	-	0,00	0,00
BA19		Chemical Dosing Building	Sum	-	0,00	0,00
BA20		Bioreactor Outlet Chambers	Sum	-	0,00	0,00
BA21		New Secondary Settling Tanks	Sum	-	0,00	0,00
BA22		RAS and WAS Pumpstations	Sum	-	0,00	0,00
BA23		Scum Pumpstations	Sum	-	0,00	0,00
BA24		Sundry and other miscellaneous structures	Sum	-	0,00	0,00
	PSA 8.8.10	Protection of structures/services until construction in vicinity is completed:				
BA25		a) Existing CAS Plants and its associated SSTs, especially SST 3B & 4B, SST 3A & 4A, including all related services within their vicinity	Sum	-	0,00	0,00
BA26		b) All electrical substation and related services	Sum	-	0,00	0,00
Carried forward / ...						822 639,47

**MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS**

**SECTION BA: GENERAL AND
TEMPORARY WORKS**

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						822 639,47
	SANS 1200 A PSA 8.8.9(a)	Pipelines as shown on drawings and listed below :				
BA27		Pipeline MXL01 - 700mm diam-GRP	Sum	-	0,00	0,00
BA28		Pipeline MXL02 - 700mm diam-GRP	Sum	-	0,00	0,00
BA29		Pipeline MXL03 - 700mm diam-GRP	Sum	-	0,00	0,00
BA30		Pipeline MXL04 - 700mm diam-GRP	Sum	-	0,00	0,00
BA31		Pipeline RAS01 - 400mm diam-GRP	Sum	-	0,00	0,00
BA32		Pipeline RAS02 - 400mm diam-GRP	Sum	-	0,00	0,00
BA33		Pipeline RAS03 - 600mm diam-GRP	Sum	-	0,00	0,00
BA34		Pipeline RAS04 - 400mm diam-GRP	Sum	-	0,00	0,00
BA35		Pipeline RAS05 - 400mm diam-GRP	Sum	-	0,00	0,00
BA36		Pipeline RAS06 - 600mm diam-GRP	Sum	-	0,00	0,00
BA37		Pipeline FE07 - 1200mm diam-Concrete	Sum	-	0,00	0,00
BA38		Pipeline FE08 - 1200mm diam-Concrete	Sum	-	0,00	0,00
BA39		Pipeline FE10 - 1200mm diam-Concrete	Sum	-	0,00	0,00
BA40		Pipeline FE11 - 1200mm diam-Concrete	Sum	-	0,00	0,00
BA41		Pipeline FE12 - 1200mm diam-Concrete	Sum	-	0,00	0,00
	PSA 8.8.9(b)	Maintain and operate the above equipment to deal with subsurface water for the following:				
BA42		Administration and Control Building	Sum	-	0,00	0,00
BA43		Chlorine Dosing & Disinfection Building	Sum	-	0,00	0,00
BA44		Chemical Dosing Building	Sum	-	0,00	0,00
BA45		Bioreactor Outlet Chambers	Sum	-	0,00	0,00
BA46		New Secondary Settling Tanks	Sum	-	0,00	0,00
BA47		RAS and WAS Pumpstations	Sum	-	0,00	0,00
BA48		Scum Pumpstations	Sum	-	0,00	0,00
BA49		Sundry and other miscellaneous structures	Sum	-	0,00	0,00
Carried forward / ...						822 639,47

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BA: GENERAL AND
TEMPORARY WORKS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						822 639,47
	SANS 1200 A PSA 8.8.9(b)	Pipelines as shown on drawings and listed below :				
BA50		Pipeline MXL01 - 700mm diam-GRP	Sum	-	0,00	0,00
BA51		Pipeline MXL02 - 700mm diam-GRP	Sum	-	0,00	0,00
BA52		Pipeline MXL03 - 700mm diam-GRP	Sum	-	0,00	0,00
BA53		Pipeline MXL04 - 700mm diam-GRP	Sum	-	0,00	0,00
BA54		Pipeline RAS01 - 400mm diam-GRP	Sum	-	0,00	0,00
BA55		Pipeline RAS02 - 400mm diam-GRP	Sum	-	0,00	0,00
BA56		Pipeline RAS03 - 600mm diam-GRP	Sum	-	0,00	0,00
BA57		Pipeline RAS04 - 400mm diam-GRP	Sum	-	0,00	0,00
BA58		Pipeline RAS05 - 400mm diam-GRP	Sum	-	0,00	0,00
BA59		Pipeline RAS06 - 600mm diam-GRP	Sum	-	0,00	0,00
BA60		Pipeline FE07 - 1200mm diam-Concrete	Sum	-	0,00	0,00
BA61		Pipeline FE08 - 1200mm diam-Concrete	Sum	-	0,00	0,00
BA62		Pipeline FE10 - 1200mm diam-Concrete	Sum	-	0,00	0,00
BA63		Pipeline FE11 - 1200mm diam-Concrete	Sum	-	0,00	0,00
BA64		Pipeline FE12 - 1200mm diam-Concrete	Sum	-	0,00	0,00
TOTAL SECTION BA CARRIED TO SUMMARY						R 822 639,47

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION BB : SITE CLEARANCE				
	SABS 1200 C	SITE CLEARANCE				
	PSC 8.2.1 PSD 8.3.1	Clear and grub:				
BB1		Platforms	m ²	30 000	3,22	96 600,00
BB2		Roads	m ²	250	3,22	805,00
BB3		Fence	m ²	100	3,22	322,00
	8.2.2	Remove and grub large trees and tree stumps of girth:				
BB4		Over 1,0 m and up to and including 2,0 m	No.	1	4 540,90	4 540,90
BB5		Over 2,0 m and up to and including 3,0 m	No.	1	5 524,26	5 524,26
BB6	PSC 8.2.11	Take down/ dismantling and re-erecting of fences	m	10	29,92	299,20
BB7	PSC 8.2.12	Lift, remove, stack and maintain roll-on lawn	m ²	10 000	42,43	424 300,00
BB8	PSD 8.3.11(c)	Supply and lay roll-on lawn to designated areas (to areas where existing structures have been removed)	m ²	200	28,21	5 642,00
	PSC 8.2.14	Remove and dispose of existing off site:				
BB9		Kerbs / edging	m	300	34,73	10 419,00
BB10		Asphalt	m ²	400	17,36	6 944,00
BB11		Concrete (30 MPa) 200 mm thick	m ²	50	126,10	6 305,00
BB12		Brick paving	m ²	5	8,68	43,40
TOTAL SECTION BB CARRIED TO SUMMARY						R 561 744,76

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
SECTION BC: EARTHWORKS						
EARTHWORKS						
BC1	SANS 1200 D PSD 8.3.6 8.3.1.2 PSC 8.2.10 PSD 8.2 PSD 8.3.2 PSD 8.3.2(a)	Remove material (see PSC 5.6) for later use as topsoil, stockpile and maintain Bulk excavation: Excavate in all materials and use for embankment or backfill or dispose as ordered, from:	m ³	3 300	55,46	183 018,00
BC2		Necessary excavations	m ³	5 500	47,18	259 490,00
BC3		Designated borrow areas	m ³	1 000	47,18	47 180,00
BC4		Commercial sources	m ³	800	144,45	115 560,00
	PSD 8.3.2(b)	Excavate in all materials and dispose on site:				
BC5		Unsuitable material	m ³	200	30,50	6 100,00
	PSD 8.3.2(c)	Extra-over Items BC2, BC3 and BC5 for:				
BC6		Hard rock excavation	m ³	50	108,50	5 425,00
	PSD 8.3.3	Restricted excavation:				
	PSD 8.3.3(a)	Excavate for restricted foundations, footings in all materials and use for embankment, backfill or dispose as ordered, for:				
BC7		Chlorine Contact Tank	m ³	1 700	89,84	152 728,00
BC8		Chemical Dosing Building	m ³	600	89,84	53 904,00
BC9		Secondary Settling Tanks	m ³	19 000	89,84	1 706 960,00
BC10		Chlorine Disinfection Chamber	m ³	400	89,84	35 936,00
BC11		SST Effluent Flow Meter Chamber	m ³	100	89,84	8 984,00
BC12		CAS A and B Outlet Chambers and Channels	m ³	300	89,84	26 952,00
BC13		SST Effluent Junction Chamber	m ³	100	89,84	8 984,00
Carried forward / ...						2 611 221,00

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIE T WASTEWATER TREATMENT WORKS

SECTION BC: EARTHWORKS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						2 611 221,00
BC14		Existing CCT Inlet Chamber	m ³	120	89,84	10 780,80
BC15		Admin and Control Building	m ³	1 200	89,84	107 808,00
BC16		Miscellaneous structures	m ³	200	89,84	17 968,00
	PSD 8.3.3(b)	Extra-over subitems PSD 8.3.3(a) for:				
BC17		Hard rock excavation	m ³	300	236,05	70 815,00
BC18	PSD 8.3.3(c)	Extra-over subitem PSD 8.3.3(a) for hand excavation where ordered by the Engineer	m ³	150	262,57	39 385,50
	8.3.5 PSD 8.3.5	Extra excavation in all materials to provide working space around structure:				
BC19		Chlorine Contact Tank	m ²	400	116,02	46 408,00
BC20		Chemical Dosing Building	m ²	140	116,02	16 242,80
BC21		Secondary Settling Tanks	m ²	2 000	116,02	232 040,00
BC22		Chlorine Disinfection Chamber	m ²	140	116,02	16 242,80
BC23		SST Effluent Valve Chamber	m ²	80	116,02	9 281,60
BC24		CAS A and B Outlet Chambers and Channels	m ²	200	116,02	23 204,00
BC25		SST Effluent Junction Chamber	m ²	80	116,02	9 281,60
BC26		Existing CCT Inlet Chamber	m ²	100	116,02	11 602,00
BC27		Admin and Control Building	m ²	200	116,02	23 204,00
BC28		Miscellaneous structures	m ²	100	116,02	11 602,00
	PSD 8.3.8.1	Hand excavation for locating and exposing existing services;				
BC29		In road ways	m ³	30	386,62	11 598,60
BC30		In all other areas	m ³	10	386,62	3 866,20
		FINISHINGS (see also Section AE)				
BC31	PSD 8.3.10	Topsoiling	m ²	16 000	9,28	148 480,00
	PSD 8.3.11	Grassing:				
BC32		Hydroseeding	m ²	500	2,60	1 300,00
Carried forward / ...						3 422 331,90

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BC: EARTHWORKS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						3 422 331,90
BC33		Straw stabilisation	m ²	100	1,30	130,00
BC34		With roll-on lawn from stockpile	m ²	50	16,97	848,50
BC35		With roll-on lawn from commercial sources	m ²	100	56,42	5 642,00
Additional Items:						
BC36	PSD 8.3.14	Extra over Item PSD8.3.2 and PSD 8.3.3 for temporary stockpiling	m ³	7 500	23,51	176 325,00
	PSD 8.3.15	Compaction of in-situ material to 98% modified AASHTO density:				
BC37		Underneath structure foundation to a depth of 1000 mm	m ²	2 000	66,48	132 960,00
TOTAL SECTION BC CARRIED TO SUMMARY						R 3 738 237,40

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BD: REACTOR
OUTLET CHAMBERS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION BD: CAS PLANT OUTLET CHAMBERS				
		Drawings No. 11585-CS-1319 to 1322				
	SANS 1200 D	EARTHWORKS				
	8.3.4 PSD 8.3.4	Importing of materials:				
		<u>CAS "A" Reactor Outlet Chamber:</u>				
BD9		(i) Pioneer stone layer 300mm thick consisting of clean imported particles of 26mm to 37mm diameter to be used as working platform	m³	16	489,10	7 825,60
BD10		(ii) Clean sand (500 mm thick) compacted to 100% modified AASHTO density in 150mm thick layers	m³	26	202,83	5 273,58
		<u>CAS "B" Reactor Outlet Chamber:</u>				
BD19		(i) Pioneer stone layer 300mm thick consisting of clean imported particles of 26mm to 37mm diameter to be used as working platform	m³	40	489,10	19 564,00
BD20		(ii) Clean sand (500 mm thick) compacted to 100% modified AASHTO density in 150mm thick layers	m³	66	202,83	13 386,78
	SANS 1200 G	Concrete work				
	8.1.1 PSG 8.1.1	Formwork				
	8.2.1	Rough formwork:				
		Plane and Curved vertical to:				
		<u>CAS "A" Reactor Outlet Chamber</u>				
BD21		Walls (external and below finished ground level)	m²	87	389,15	33 856,05
		<u>CAS "B" Reactor Outlet Chamber</u>				
BD22		Walls (external and below finished ground level)	m²	240	389,15	93 396,00
Carried forward / ...						173 302,01

SECTION BD: REACTOR OUTLET CHAMBERS

Contract
Part C2: Pricing Data
Reference No. 179Q/2016/17

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BD: REACTOR
OUTLET CHAMBERS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						475 436,66
	8.1.2	Reinforcement				
	8.3.1	Mild steel bars of diameter:				
BD34		(a) 8 mm dia	t	0,80	12 038,08	9 630,46
BD35		(b) 10 mm dia	t	1,00	12 038,08	12 038,08
BD36		(c) 12 mm dia	t	0,80	12 038,08	9 630,46
	8.3.2	High tensile bars of diameter:				
BD37		(a) 10 mm dia	t	1,20	12 038,08	14 445,70
BD38		(b) 12 mm dia	t	2,30	12 038,08	27 687,58
BD39		(c) 16 mm dia	t	3,40	12 038,08	40 929,47
BD40		(d) 2 mm dia	t	7,80	12 038,08	93 897,02
BD41		(e) 25 mm dia	t	7,80	12 038,08	93 897,02
BD42	PSG 8.16	Grout-in Y12 mm dia bars x 8mm long dowels into existing concrete (excluding surface preparation)	No.	90	231,71	20 853,90
	8.1.3	Concrete				
		<u>Strength concrete Grade 15 MPa/20 mm</u>				
		<u>CAS "A" Reactor Outlet Chamber:</u>				
BD43	8.4.2	50 mm thick blinding to horizontal surfaces	m ²	54	73,34	3 960,36
BD44		Benching at outlet sump	m ³	2	1 668,54	3 337,08
		<u>CAS "B" Reactor Outlet Chamber:</u>				
BD45	8.4.2	50 mm thick blinding to horizontal surfaces	m ²	138	73,34	10 120,92
BD46		Benching in outlet sump	m ³	2	1 668,54	3 337,08
	8.4.3	<u>Strength concrete: 35 MPa/20 mm (Watertight reinforced concrete) to:</u>				
		<u>CAS "A" Reactor Outlet Chamber</u>				
BD47		Slabs	m ³	17	1 780,93	30 275,81
BD48		Walls	m ³	44	1 780,93	78 360,92
Carried forward / ...						927 838,54

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BD: REACTOR
OUTLET CHAMBERS

OUTLET CHAMBERS						
Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						927 838,54
BD49	SANS 1200 G 8.4.3	<u>CAS "B" Reactor Outlet Chamber</u>				
		Slabs	m³	42	1 780,93	74 799,06
BD50		Walls	m³	78	1 780,93	138 912,54
		Strength concrete: 20 MPa/20 mm to:				
		<u>CAS "A" Reactor Outlet Chamber</u>				
BD51		Raising of existing walls by 250mm high	m³	1	1 889,88	1 889,88
BD52		Stairs	m³	1	1 889,88	1 889,88
BD53		Precast concrete slabs, including formwork and reinforcing of @ 8kg/m³ of concrete and striking off mix	m³	4	1 889,88	7 559,52
		<u>CAS "B" Reactor Outlet Chamber</u>				
BD54		Raising of existing walls by 250mm high	m³	1	1 889,88	1 889,88
BD55	8.4.4	Stairs	m³	1	1 889,88	1 889,88
BD56		Precast concrete slabs, including formwork and reinforcing of @ 8kg/m³ of concrete and striking off mix	m³	4	1 889,88	7 559,52
		Unformed surface finishes				
		Steel floated finish to:				
		<u>CAS "A" Reactor Outlet Chamber</u>				
BD57		Floor slab	m²	35	38,29	1 340,15
		<u>CAS "B" Reactor Outlet Chamber</u>				
BD58		Floor slab	m²	106	38,29	4 058,74
		Wood floated finish to top of:				
		<u>CAS "A" Reactor Outlet Chamber</u>				
BD59	Walls	m	59	30,65	1 808,35	
	<u>CAS "B" Reactor Outlet Chamber</u>					
BD60	Walls	m	148	30,65	4 536,20	
Carried forward / ...						1 175 972,14

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BD: REACTOR
OUTLET CHAMBERS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 175 972,14
BD61	SANS 1200 G 8.5 PSG 8.1.1 PSG 8.1.1.7 PSG 8.5	Designated joints				
		Wall joint Type F at:				
BD61		CAS "A" Reactor Outlet Chamber	m	52	205,29	10 675,08
BD62		CAS "B" Reactor Outlet Chamber	m	129	205,29	26 482,41
BD65	SANS 1200 G 8.7 PSG 8.7	Grouting				
		Grout pipes up to 5mm diameter supplied by others	m³	1	13 813,10	13 813,10
BD66	SANS 1200 L PSL 8.2.1 PSL 8.2.19 8.2.2 PSG 8.6	Pipework				
		Supply and cast in (where applicable) pipe specials complete with couplings and hydrophillic rubber sealant (see DRG-CS-1778 to 1781):				
BD66		CRA1	No.	2	16 407,95	32 815,90
BD67		CRB1	No.	2	16 407,95	32 815,90
BD70	8.2.2 PSL 8.2.2 PSL 8.2.17 PSL 8.2.19 SANS 1200 G PSG 8.6	Extra-over items AE210, AE211 and AE212, for flexible couplings and/or flanges where applicable (see DRG-CS-1778 to 1781):				
BD70		CRA2	No.	2	13 363,29	26 726,58
BD71		CRB2	No.	2	13 363,29	26 726,58
Carried forward / ...						1 346 027,69

Contract

Part C2: Pricing Data

Reference No. 179Q/2016/17

268

C2.2
Bills of Quantities

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BD: REACTOR
OUTLET CHAMBERS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 346 027,69
	SANS 1200 A PSA 8.18 SPEC AUR 1017 8.1.1	Miscellaneous				
		Remove and deliver to the plant's store existing:				
BD73		Floor grating @ CAS A Reactor	m ²	13	4 995,34	64 939,42
BD74		Floor grating @ CAS B Reactor	m ²	13	4 995,34	64 939,42
BD75		Pipes	m ²	2	600,00	1 200,00
		Prepare concrete surfaces for placing of concrete by chipping to expose aggregate over 100% of area				
BD76		CAS "A" outlet chamber top of walls	m ²	2	600,00	1 200,00
BD77		CAS "B" outlet chamber top of walls	m ²	2	600,00	1 200,00
	SANS 1200 G PSG 8.21 SANS 1200 A PSA 8.18	Testing for water tightness				0,00
		Carry out the complete watertightness test for the bioreactor (including channels, division chambers, pumpstations etc) as follows:				
BD80		CAS "A" outlet chamber	Sum	-	9 861,09	9 861,09
BD81		CAS "B" outlet chamber	Sum	-	9 861,09	9 861,09
TOTAL SECTION BD CARRIED TO SUMMARY						R 1 499 228,71

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION BE: CLARIFIERS (4 No) Drawings No. 110585-CS-1740 to 1746				
	SANS 1200 D	EARTHWORKS				
	8.3.4 PSD 8.3.4	Importing of materials:				
BE1		(I) Pioneer stone layer 300mm thick consisting of clean imported particles of 26mm to 37mm diameter to be used as working platform	m³	1 065	401,57	427 672,05
BE2		(ii) Clean sand (500 mm thick) compacted to 100% modified AASHTO density in 150mm thick layers	m³	1 775	177,83	315 648,25
	SANS 1200 G	Concrete work				
	8.1.1 PSG 8.1.1	Formwork				
	8.2.1	<u>Rough formwork:</u>				
		<u>Plane vertical to:</u>				
BE3		External walls (below FGL) of telescopic valve chamber	m²	76	389,15	29 575,40
BE4		External walls (below FGL) of scum and valve chamber	m²	73	389,15	28 407,95
BE5		Pipe encasements	m²	484	389,15	188 348,60
		<u>Curved vertical to:</u>				
BE6		Hopper footings	m²	24	482,46	11 579,04
BE7		External walls of hopper	m²	124	389,15	48 254,60
BE8		Tank walls, exterior below FGL	m²	1 505	342,50	515 462,50
	8.2.2	Smooth formwork:				
		<u>Plane vertical to:</u>				
		<u>Clarifier bridge</u>				
BE9		Sides of 400 mm x 400 mm support columns for the clarifier bridge	m²	242	435,81	105 466,02
BE10		Sides of platform for the clarifier bridge	m²	36	435,81	15 689,16
Carried forward / ...						1 686 103,57

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BE: CLARIFIERS (4 No)

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 686 103,57
	SANS 1200 G	<u>Scum and valve chamber:</u>				
BE11		Inside walls of scum & valve chamber	m ²	115	435,81	50 118,15
BE12		External walls of scum & valve chamber	m ²	62	435,81	27 020,22
BE13		Sides of 250 x 250 mm support columns	m ²	36	482,46	17 368,56
		<u>Telescopic valve chamber:</u>				
BE14		Inside walls of telescopic valve chamber	m ²	53	435,81	23 097,93
BE15		External walls of telescopic valve chamber	m ²	27	435,81	11 766,87
BE16		Sides of 250 x 250 mm support columns	m ²	16	482,46	7 719,36
		<u>Curved vertical to:</u>				
BE17		Inside hopper walls	m ²	106	389,15	41 249,90
BE18		Tank inlet pipe support column	m ²	66	389,15	25 683,90
BE19		Tank walls, interior	m ²	1 954	342,50	669 245,00
BE20		Tank walls, exterior, above FGL	m ²	489	342,50	167 482,50
BE21		Launder walls including effluent sump	m ²	528	389,15	205 471,20
		<u>Plane horizontal to:</u>				
BE22		Clarifier bridge platforms, prop height of approximately 7.60 m measured from sludge hopper FFL	m ²	18	664,60	11 962,80
BE23		Launder slab and effluent sump soffit, prop height up to 4.0 m	m ²	366	874,65	320 121,90
	8.2.5	<u>Narrow sections:</u>				
BE24		Tank footing, up to 400 mm	m	462	335,84	155 158,06
BE25		Launder invert slab, including effluent sump, up to 250 mm	m	427	279,27	119 248,29
		<u>Scum and valve chamber:</u>				
BE26		Column footings up to 400 mm	m	66	279,27	18 431,82
BE27		Slabs up to 250 mm wide	m	44	279,27	12 287,88
Carried forward / ...						3 569 537,93

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BE: CLARIFIERS (4 No)

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c	
Brought forward / ...						3 569 537,93	
BE28	SANS 1200 G	Telescopic valve chamber: Column footings up to 400 mm	m	44	279,27	12 287,88	
BE29		Slabs up to 250 mm wide	m	48	279,27	13 404,96	
BE30		150 mm x 150 mm splays (bevel and chamfer) at top of launder walls to form weirs	m	418	284,48	118 912,64	
BE31		Scum and valve chamber slab Soffit, prop height up to 1.5 m	m²	18	838,07	15 085,26	
BE32		Telescopic valve chamber slab soffit, prop height up to 1.5 m	m²	9	838,07	7 542,63	
		8.2.6	Box out holes/form voids				
BE33		700 mm x 700 mm on 300 mm thick tank wall for effluent water outlet	No.	4	3 304,30	13 217,20	
BE34		150 x 100 x 170 mm deep pockets on clarifier bridge (refer to Drq No 1745)	No.	32	359,72	11 511,04	
BE35		100 x 200 x 200 mm deep pockets on centre column (refer to Drq No 1745)	No.	4	359,72	1 438,88	
		8.1.2	Reinforcement				
	8.3.1	Mild steel bars of diameter:					
BE36		(a) 8 mm dia	t	7,4	11 923,95	88 237,23	
BE37		(b) 10 mm dia	t	9,9	11 923,95	118 047,11	
BE38		(c) 12 mm dia	t	7,4	11 923,95	88 237,23	
	8.3.2	High tensile bars of diameter:					
BE39		(a) 10 mm dia	t	11,0	11 923,95	131 163,45	
BE40		(b) 12 mm dia	t	22,1	11 923,95	263 519,30	
BE41		(c) 16 mm dia	t	33,1	11 923,95	394 682,75	
BE42		(d) 20 mm dia	t	77,2	11 923,95	920 528,94	
BE43		(e) 25 mm dia	t	66,1	11 923,95	788 173,10	
BE44		(f) 32 mm dia	t	11,0	11 923,95	131 163,45	
Carried forward / ...						6 686 690,96	

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BE: CLARIFIERS (4 No)

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						6 686 690,96
BE45	8.1.3 PSG 8.1.3	Concrete				
	PSG 8.4.3	Grade 15 MPa/20 mm concrete to:				
	8.4.2 PSG 8.1.1.8	75 mm thick blinding to horizontal surfaces	m ²	107	118,64	12 694,48
BE46	SANS 1200 G	Encasement for pipes	m ³	193	1 466,83	283 098,19
		Benching to:				
BE47		Sludge hopper	m ³	23	1 466,83	33 737,09
BE48		Launder and effluent sump base slab	m ³	43	1 466,83	63 073,69
BE49		Scum and valve chamber base slab	m ³	3	1 466,83	4 400,
BE50		Telescoping valve chamber base slab	m ³	1	1 466,83	1 466,83
		Strength concrete: 35 MPa/20 mm (Watertight reinforced concrete) to:				
BE51		Sludge hopper base slab	m ³	20	1 740,59	34 811,80
BE52		Sludge hopper perimeter walls	m ³	48	1 881,79	90 325,92
BE53		Tank inlet pipe support column	m ³	11	1 740,59	19 146,49
BE54		Tank footings and floor slabs	m ³	891	1 713,70	1 526 906,70
BE55		Tank perimeter walls	m ³	574	1 713,70	983 663,80
BE56		Tank bridge columns	m ³	24	1 982,65	47 583,60
BE57		Tank bridge bridge platform	m ³	8	1 780,93	14 247,44
BE58		Launder, including effluent sump slabs	m ³	89	1 780,93	158 502,77
BE59		Launder, including effluent sump walls	m ³	65	1 780,93	115 760,46
BE60		Scum and valve chamber footing and base slab	m ³	26	1 780,93	46 304,18
BE61		Scum and valve chamber suspended slab	m ³	5	1 780,93	8 904,65
BE62		Scum and valve chamber support column	m ³	3	1 780,93	5 342,79
BE63		Scum and valve chamber walls	m ³	22	1 780,93	39 180,46
BE64		Telescopic valve chamber footings and base slab	m ³	15	1 780,93	26 713,95
Carried forward / ...						10 202 556,73

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BE: CLARIFIERS (4 No)

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						10 202 556,73
BE65	SANS 1200 G 8.4.4 PSG 8.4.4	Telescopic valve chamber suspended slab	m³	3	1 780,93	5 342,79
BE66		Telescopic valve chamber support column	m³	2	1 780,93	3 561,86
BE67		Telescopic valve chamber walls	m³	18	1 780,93	32 056,74
		Unformed surface finishes				
		Steel floated finish to:				
BE68		Weir on effluent launder	m	403	11,49	4 630,47
BE69		Scum and valve chamber slab	m²	24	38,29	918,96
BE70		Telescopic valve chamber slab	m²	13	38,29	497,77
		Wood floated finish to top of:				
BE71		Tank perimeter walls	m	428	12,26	5 247,28
BE72	Bridge platform	m²	18	30,65	551,70	
BE73	Scum and valve chamber walls	m	47	12,26	576,22	
BE74	Telescopic valve chamber walls	m	25	12,26	306,50	
BE75	Extra over steel-floated finishes for stricter tolerance to top of wall (PSG 6.2.3)	m	428	82,28	35 215,84	
	PSG 8.9	Screeding:				
BE76		50 mm granolithic screed to tank floor after installation of rotating bridge by Mechanical and Electrical Contractor	m²	3 088	123,75	382 140,00
	8.5 PSG 8.1.1 PSG 8.1.1.7 PSG 8.5	Designated joints				
BE77		Type B on tank footing	m	340	453,21	154 091,40
BE78		Type D on sludge hopper wall	m	86	369,80	31 802,80
BE79		Type D on tank slab	m	287	369,80	106 132,60
BE80		Type D on tank wall	m	399	369,80	147 550,20
BE81		Type D on launder and effluent sump	m	787	369,80	291 032,60
Carried forward / ...						11 404 212,46

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BE: CLARIFIERS (4 No)

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						11 404 212,46
BE82		Type D on scum and valve chamber	m	107	369,80	39 568,60
BE83		Type D on telescopic valve chamber	m	56	369,80	20 708,80
BE84		Bondbreaker 250 micron DPC on top of mortar skim	m ²	3 332	19,18	63 907,76
	SANS 1200 LE PSLE 8.2.8 PSLE 8.2.22	Underdrainage system				
		Trench excavation for non perforated pipes to connect underdrain to manhole, for depths:				
BE85		over 5.0 m and up to 7.0 m	m	136	1 535,98	208 893,2
	1200 L 8.2.1 PSL 8.2.1	Supply, lay, and bed underdrain connector pipes complete with couplings for:				
BE86		110 mm dia PVC-U Class 9, non-peforated pipes	m	144	128,66	18 527,04
	1200 L 8.2.2 PSL 8.2.2	Extra-over for supplying, laying and bedding of specials complete with couplings:				
BE87		110 mm dia T-pieces	No.	40	461,12	18 444,80
	SANS 1200 LD 8.23 PSLD 8.2.3	Construct precast concrete manholes complete including cover and frame as detailed on DRG-CS-0116 for pipes up to 300 mm dia. for depths:				
BE88		over 5.0 m and up to 6.0 m	No.	4	32 497,95	129 991,80
BE89		over 6.0 m and up to 7.0 m	No.	4	38 063,45	152 253,80
BE90	SANS 1200 A PSA 8.18	Construct drain complete including excavation, 19 mm stone fill, geofabric blanket and 110 mm dia perforated flexible drainage pipe as shown on drawings	m	516	198,38	102 364,0
BE91	SANS 1200 G PSG 8.13	No-fines concrete (120 mm thick) to sloping surfaces and including 20 mm thick mortar skim	m ²	3 332	231,11	770 058,52
BE92	SANS 1200 A PSA 8.18	Supply and install 110 mm dia groundwater release valves (GWRV) as supplied by Gereg sewage and water equipment or equal approved	No.	96	1 347,57	129 366,72
Carried forward / ...						13 058 297,66

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BE: CLARIFIERS (4 No)

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						13 058 297,66
	SANS 1200 L PSL 8.2.1 PSL 8.2.19	Pipework				
	PSG 8.6	Supply and cast in (where applicable) pipe specials complete with couplings and hydrophillic rubber sealant (see DRG-CS-1778 to 1781):				
BE93		Item CL4	No.	4	12 706,87	50 827,48
BE94		Item CL5	No.	4	7 271,02	29 084,08
BE95		Item CL6	No.	4	212 838,15	851 352,60
BE96		Item CL9	No.	8	6 572,50	52 580,00
BE97		Item CL10	No.	4	1 334,55	5 338,20
BE98		Item CL11	No.	4	5 500,95	22 003,80
BE99		Item CL12	No.	4	8 137,50	32 550,00
BE100		Item CL13	No.	4	4 703,93	18 815,72
BE101		Item CL14	No.	4	7 911,17	31 644,68
BE102		Item CL15	No.	6	9 701,42	58 208,52
BE103		Item CL16	No.	2	5 947,32	11 894,64
BE104		Item CL17	No.	10	2 703,26	27 032,60
	8.2.2 PSL 8.2.2 PSL 8.2.17 PSL 8.2.19 SANS 1200 G PSG 8.6	Extra-over for PSG 8.6 above flexible couplings and/or flanges where applicable (see DRG-CS-1778 to 1781):				
BE105		Item CL 1	No.	12	13 368,72	160 424,64
BE106		Item CL 2	No.	4	23 212,67	92 850,68
BE107		Item CL 3	No.	4	46 200,82	184 803,28
BE108		Item CL 7	No.	4	6 550,92	26 203,68
BE109		Item CL 8	No.	8	8 137,50	65 100,00
BE110		Item CL 18	No.	10	184,45	1 844,50
Carried forward / ...						14 780 856,76

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BE: CLARIFIERS (4 No)

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						14 780 856,76
BE111	SANS 1200 A PSA 8.18	Supply and install 75 mm dia Class 6 HDPE duct complete with draw wire	m	100	68,33	6 833,00
		<u>Miscellaneous</u>				0,00
	SANS 1200 A PSA 8.18	Supply all material and install frames and supports for banded grid flooring 45 x 45 x 5 mm angle sections with 30 x 5 x 150 mm long fishtail lugs welded at 500 mm centres cast into concrete etc.				
BE112		Scum and valve chamber	m	36	744,85	26 814,60
BE113		Telescopic valve chamber	m	20	744,85	14 897,00
	SANS 1200 A PSA 8.18	Flooring: Supply and install Glass Reinforced Plastic (GRP) banded grating with a nominal size of 40 x 40mm as shown on drawings, for the following:				
BE114		Scum and valve chamber	m²	10	1 139,25	11 392,50
BE115		Telescopic valve chamber	m²	6	1 139,25	6 835,50
	SANS 1200 G PSG 8.21 SANS 1200 A PSA 8.18	<u>Watertightness testing</u>				
		Carry out watertightness tests for:				
BE116		Clarifiers including launders	No.	4	26 136,09	104 544,36
BE117	SANS 1200 G PSG 8.21 SANS 1200 A PSA 8.18	Scum and valve chambers	No.	8	9 861,09	78 888,72
BE118		Telescopic valve chambers	No.	4	9 861,09	39 444,36
		<u>Accelerated shrinkage tests:</u>				
BE119		Perform accelerated shrinkage tests at the University of Cape Town for all grades of structural concrete	Sum		868,00	868,00
TOTAL SECTION BE CARRIED TO SUMMARY						R 15 071 374,80

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BF: CHLORINE
DISINFECTION CHAMBER

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION BF: CHLORINE DISINFECTION CHAMBER				
		Drawings No. 110585-CS-1312 to 1314				
	SANS 1200 D	EARTHWORKS				
		as specified in SANS 1200 D and in the project specifications				
	8.3.4 PSD 8.3.4	Importing of materials:				
BF1		(a) Pioneer stone layer 500mm thick consisting of clean imported particles of 200mm to 300mm diameter to be used as working platform	m³	74	459,46	34 000,04
BF2		(b) Clean sand (600 mm thick) compacted to 100% modified AASHTO density in 150mm thick layers	m³	29	202,50	5 872,50
	SANS 1200 G	CONCRETE WORK				
	8.1.1 PSG 8.1.1	Formwork				
	8.2.1	Rough formwork:				
		Plane vertical to:				
BF3		(a) Sides of external perimeter walls measured from FFL 10.0 to 300mm below	m²	126	435,81	54 912,06
BF4		(b) Sides of footings 400 mm high	m	141	435,81	61 449,21
	8.2.2	Smooth formwork:				
		Plane vertical to:				
		(a) External walls				
BF5		(i) External perimeter walls measured from 300mm below NGL to TOC 15.44	m²	273	389,15	106 237,95
		(b) Internal walls and columns				
BF6		(i) Perimeter walls measured from FFL 11.15 to TOC 15.44	m²	273	389,15	106 237,95
BF7		(ii) Internal 300 mm thick division walls	m²	52	389,15	20 235,80
BF8		(iii) Internal 300 mm thick weir walls	m²	154	389,15	59 929,10
BF9		(iv) Sides of 400 mm by 400 mm columns	m²	126	389,15	49 032,90
Carried forward / ...						497 907,51

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BF: CHLORINE
DISINFECTION CHAMBER

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						497 907,51
BF10	8.2.5	(c) Narrow sections (i) Over 150 mm up to 300 mm wide	m	16	171,62	2 745,92
BF11	SANS 1200 G PSG 8.1.1.10	Plane horizontal to: (a) Suspended cover slab, with an average prop height of approximately 3.94m measured from FFL at 10.00	m ²	59	781,34	46 099,06
BF12		(b) 400mm wide cantilever slab above outlet pipes	m ²	6	781,34	4 688,04
BF13		(c) Staircase landing, with an average prop height of approximately 1.31m measured from NGL at 14.130	m ²	2	781,34	1 562,68
BF14		(d) Narrow sections: (i) Side of suspended cover slab 350 mm	m	18	185,62	3 341,16
BF15		(ii) To sides of stairs 300 mm high extreme	m	2	213,61	427,22
BF16		(iii) To stair risers up to 200 mm high	m	10	213,61	2 136,10
BF17	SANS 1200 G PSG 8.1.1.9 PSG 8.1.1.10	Plane sloping to: (a) Underside/soffit of concrete stairs	m ²	2	944,67	1 889,34
BF18	8.2.5	Grooves, chases and splays in the following ranges: (a) 125 x 125 mm splays (bevel and chamfer) at top of weir walls	m	15	784,93	11 773,95
BF19	8.2.6	Box out holes and forming grooves in walls and slabs not exceeding 500mm (a) Small circular of diameter and up to including 355 mm	No.	3	1 904,65	5 713,95
BF20		(b) Circular box out for 1200mm diameter inlet GRP pipe	No.	1	2 377,09	2 377,09
Carried forward / ...						580 662,02

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BF: CHLORINE
DISINFECTION CHAMBER

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						580 662,02
BF21		(c) Circular box out for 1050mm diameter concrete outlet pipe	No.	2	3 776,74	7 553,48
BF22		(d) Circular box out for 1500mm diameter concrete outlet pipe	No.	1	4 249,19	4 249,19
BF23	SANS 1200 G 8.2.6	(e) 755 mm by 755 mm box out for mahhole cover on suspended cover slab	No.	2	2 377,09	4 754,18
BF24		(f) Form grooves/recesses for sluice gates over 100 mm x 100 mm in walls as shown on Drawings	m	17	784,93	13 343,81
	PSG 8.1.2	Reinforcement:				
	8.3.1	Mild steel bars:				
BF25		(a) 8 mm dia	t	1,0	12 038,08	12 038,08
BF26		(b) 10 mm dia	t	1,4	12 038,08	16 853,31
BF27		(c) 12 mm dia	t	1,0	12 038,08	12 038,08
	8.3.1	High tensile steel bars:				
BF28		(a) 10 mm dia	t	1,5	12 038,08	18 057,12
BF29		(b) 12 mm dia	t	3,0	12 038,08	36 114,24
BF30		(c) 16 mm dia	t	4,5	12 038,08	54 171,36
BF31		(d) 20 mm dia	t	10,5	12 038,08	126 399,84
BF32		(e) 25 mm dia	t	9,0	12 038,08	108 342,72
BF33		(f) 32 mm	t	1,5	12 038,08	18 057,12
	8,4	Concrete:				
	PSG 8.13	Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for footings and floor slabs to:				
BF34		(a) Floor slab 400 mm thick	m³	57	1 780,93	101 513,01
BF35		(b) Floor slab 250 mm thick	m³	7	1 780,93	12 466,51
Carried forward / ...						1 126 614,07

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BF: CHLORINE
DISINFECTION CHAMBER

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 126 614,07
BF36	SANS 1200 G	Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for suspended slabs (platforms and walkway slabs): (a) Suspended cover slab 350 mm thick	m³	46	1 780,93	81 922,78
BF37		(b) Staircase landing	m³	1	1 780,93	1 780,93
BF38		(c) Stairs, including forming reeding while concrete is still wet	m³	1	1 780,93	1 780,93
BF39	PSG 8.4.4	Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for walls and columns: (a) Perimeter walls 400 mm thick	m³	86	1 740,59	149 690,78
		(b) Internal 300 mm thick division walls	m³	7	1 740,59	12 184,13
		(c) Internal 300 mm thick weir walls	m³	17	1 740,59	29 590,03
		(d) 400 mm by 400 mm columns	m³	2	1 881,79	3 763,58
		Unformed surface finishes: Horizontal steel-floated finish: (a) Floor slab 400 mm thick	m²	141	38,29	5 398,89
BF40		(b) Floor slab 250 mm thick	m²	25	38,29	957,25
BF41		(c) Suspended cover slab 350 mm thick	m²	23	38,29	880,67
BF42		(d) Top of staircases treads and readings with granolithic screed	m²	11	38,29	421,19
BF43		Designated Joints Expansion/Construction joints as detailed and indicated on drawings and/or specified in the Project Specification:				
BF44		(a) Joint Type F:	m	69	205,29	14 165,01
		Grouting: (a) Grouting of pockets in concrete after pipe installation	m³	1	13 813,10	13 813,10
Carried forward / ...						1 442 963,30

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BF: CHLORINE
DISINFECTION CHAMBER

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 442 963,30
	SANS 1200 L PSL 8.2.1 PSL 8.2.19	PIPEWORK				
	8.2.2 PSG 8.6	Cast in of pipes and specials (such as flanges etc. where required) through concrete (including hydrophilic rubber sealant, as specified or shown on drawings):				
BF46		(a) CDC 3	No.	1	10 599,80	10 599,80
BF47		(b) CDC 4	No.	2	31 377,55	62 755,10
BF48		(c) CDC 5	No.	2	7 719,12	15 438,24
BF49		(d) CDC 6	No.	1	11 969,07	11 969,07
	8.2.2 PSL 8.2.2 PSL 8.2.17 PSL 8.2.19 SANS 1200 G PSG 8.6	Extra-over for flexible couplings and/or flanges where applicable (see DRG-CS-1778 to 1781):				
BF50		(a) CDC 1	No.	2	195,30	390,60
BF51		(b) CDC 2	No.	5	195,30	976,50
	SANS 1200 LE	UNDERDRAINAGE SYSTEM				
		as specified in SANS 1200 LE and in the project specifications				
BF52		(a) Filter bed - no-fines concrete including provision for 20 mm thick packed mortar skin	m ²	141	231,11	32 586,51
	SANS 1200 A PSA 8.18	Construct drain complete including excavation, 19 mm stone fill, geofabric blanket and 110 mm dia perforated flexible drainage pipe as shown on drawings				
BF53		(b) Transverse drains	m	41	198,38	8 133,58
BF54		(c) Trench excavation for non perforated pipes	m ³	4	103,22	412,88
BF55		(d) Supply and lay 110 mm dia PVC-U Class 9 connector pipes (non-perforated)	m	41	113,90	4 669,90
BF56		(e) Extra-over Item BF55 for 110 mm dia 90° PVC-U T-pieces	No.	2	195,30	390,60
Carried forward / ...						1 591 286,08

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BF: CHLORINE
DISINFECTION CHAMBER

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 591 286,08
BF57	SANS 1200 LD 8.23 PSLD 8.2.3	(f) Manhole over 3,0 m and up to 5,5 m deep complete including cover and frame and puddle pipe	No.	1	16 848,63	16 848,63
BF58	SANS 1200 HA 8.3.2 8.1.1-A	(g) Supply and install 110 mm dia groundwater release valves (GWRV) as supplied by Gereg Sewage and Water Equipment or equal approved	No.	6	1 347,57	8 085,42
		METALWORK Supply and install:				
		(a) Grade 316 handrails, complete (as shown on drawings):				
BF59		(i) Horizontal, top/base mounted	m	53	940,70	49 857,10
BF60		(b) Manhole cover and frame (type 98) for cover slab	No.	2	737,80	1 475,60
		MISCELLANEOUS Flooring				
BF61	SANS 1200 A PSA 8.18	(a) Flooring: Supply and install Hot Dip Galvanised (HDG) Open Banded Grating with a nominal size of 40 x 40mm as shown on drawings	m²	30	1 716,47	51 494,10
BF62		(b) 45 x 45 x 5 mm Hot Dip Galvanised (HDG) angle cast in concrete to support HDG grating specified above	m	49	376,50	18 448,50
	SANS 1200 G PSG 8.21 SANS 1200 A PSA 8.18	Testing for water tightness:				
BF63		(a) Chlorine Dosing Splitter Chamber	Sum	1	9 861,09	9 861,09
TOTAL SECTION BF CARRIED TO SUMMARY						R 1 747 356,52

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION BG: CHLORINE CONTACT TANK				
		Drawings No. 110585-CC-0032				
	SANS 1200 D	EARTHWORKS				
		as specified in SANS 1200 D and in the project specifications				
	8.3.4	Importing of materials:				
		(a) Pioneer stone layer 500mm thick consisting of clean imported particles of 200mm to 300mm diameter to be used as working platform				
BG11		(i) Inlet Sump	m³	12	459,46	5 513,52
BG12		(ii) Chlorine Contact Tank	m³	433	459,46	198 946,18
BG13		(iii) Outlet Sump	m³	18	459,46	8 270,28
	SANS 1200 G	Concrete work				
	8.1.1 PSG 8.1.1	Formwork				
	8.2.1	Rough formwork:				
		Plane vertical to:				
		(a) Sides of external perimeter walls				
BG14		(i) Inlet Sump, measured from 300 mm below FGL to FFL 10.700	m²	28	389,15	10 896,20
BG15		(ii) Chlorine Contact Tank, measured from 300 mm below FGL to FFL 12.500	m²	232	389,15	90 282,80
BG16		(iii) Outlet Sump, measured from 300 mm below FGL to FFL 10.800	m²	30	435,81	13 074,30
	8.2.5	(b) Sides of footings				
BG17		(i) Inlet Sump, footing 300 mm thick	m	21	171,62	3 604,02
BG18		(ii) Chlorine Contact Tank, footing 300 mm thick	m	128	171,62	21 967,36
BG19		(iii) Outlet Sump, footing 300 mm thick	m	22	171,62	3 775,64
Carried forward / ...						356 330,30

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						356 330,30
	SANS 1200 G 8.2.2	Smooth formwork:				
		Plane vertical to:				
		(a) Inlet Sump:				
BG20		(i) Sides of external perimeter walls measured from 300 mm below FGL to TOC	m ²	4	435,81	1 743,24
BG21		(ii) Sides of internal perimeter walls measured from FFL 10.700 to TOC 14.500	m ²	47	435,81	20 483,07
		(b) Chlorine Contact Tank				
BG22		(i) Sides of external perimeter walls measured from 300 mm below FGL to TOC	m ²	348	389,15	135 424,2
BG23		(ii) Sides of internal perimeter walls measured from FFL 12.500 to TOC 14.500	m ²	238	389,15	92 617,70
BG24		(iii) Sides of internal dividing/baffle walls measured from FFL 12.500 to TOC 14.500	m ²	1 152	342,50	394 560,00
		(c) Outlet Chamber:				
BG25		(i) Sides of external perimeter walls measured from 300 mm below FGL to TOC	m ²	17	389,15	6 615,55
BG26		(ii) Sides of internal perimeter walls measured from FFL 10.800 to TOC 14.500	m ²	42	389,15	16 344,30
BG27		(iii) Sides of outlet weir measured from FFL to TOC 13.950	m ²	11	389,15	4 280,65
		(d) Narrow sections:				
BG28		(i) Side of suspended cover slab 250 mm	m	11	171,62	1 887,82
BG29		(ii) To sides of stairs 300 mm high extreme	m	2	171,62	343,24
BG30		(iii) To stair risers up to 200 mm high	m	1	808,29	808,29
	PSG 8.1.1.10	Plane horizontal to:				
BG31		(a) Inlet chamber suspended slab 250 mm thick with average prop height of 3.55m measured from FFL 10.700	m ²	11	822,07	9 042,77
Carried forward / ...						1 040 481,13

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 040 481,13
BG32	SANS 1200 G PSG 8.1.1.11	Grooves, chases and splays in the following ranges: (a) 150 x 150 mm splays (bevel and chamfer) at top of internal/dividing walls to form weirs	m	7	784,93	5 494,51
BG33	SANS 1200 A PSA 8.18 SANS 1200 G PSG 8.6	Box out holes and forming grooves in walls and slabs not exceeding 500mm thick: (a) Inlet pipe 1500 mm diameter	No.	1	3 304,30	3 304,30
BG34		(b) Outlet pipe 1500 mm diameter	No.	1	3 304,30	3 304,30
BG35	SANS 1200 G PSG 8.1.2 8.3.1	Reinforcement: Mild steel bars: (a) 8 mm dia	t	2,1	11 923,95	25 040,30
BG36		(b) 10 mm dia	t	2,7	11 923,95	32 194,67
BG37		(c) 12 mm dia	t	2,1	11 923,95	25 040,30
BG38		High tensile steel bars: (a) 10 mm dia	t	3,1	11 923,95	36 964,25
BG39		(b) 12 mm dia	t	6,1	11 923,95	72 736,10
BG40		(c) 16 mm dia	t	9,1	11 923,95	108 507,95
BG41		(d) 20 mm dia	t	21,2	11 923,95	252 787,74
BG42		(e) 25 mm dia	t	18,2	11 923,95	217 015,89
BG43		(f) 32 mm	t	3,1	11 923,95	36 964,25
Carried forward / ...						1 859 835,66

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 859 835,66
	8.1.3 PSG 8.1.3	Concrete:				
	PSG 8.4.3	Concrete Grade 15 MPa/20 mm (mass concrete) to:				
	8.4.2 PSG 8.1.1.8	(a) Blinding 75 mm minimum thickness				
BG44		(i) Inlet Sump	m ²	24	118,64	2 847,36
BG45		(ii) Chlorine Contact Tank	m ²	837	118,64	99 301,68
BG46		(iii) Outlet Sump	m ²	24	118,64	2 847,36
	8.4.3	Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) to:				
		(a) Inlet Sump				
BG47		(i) Floor slab, 300 mm thick	m ³	8	1 780,93	14 247,44
BG48		(ii) Perimeter walls, 300 mm thick	m ³	17	1 780,93	30 275,81
BG49		(iii) Suspended cover slab, 250 mm thick	m ³	4	1 780,93	7 123,72
		(b) Chlorine Contact Tank				
BG50		(i) Footing, 300 mm thick	m ³	122	1 780,93	217 273,46
BG51		(ii) Floor slab, 200 mm thick	m ³	126	1 780,93	224 397,18
BG52		(iii) Perimeter walls, 300 mm thick	m ³	58	1 740,59	100 954,22
BG53		(iv) Internal walls, 200 mm thick	m ³	116	1 740,59	201 908,44
		(c) Outlet chamber				
BG54		(i) Floor slab, 300 mm thick	m ³	9	1 780,93	16 028,37
BG55		(ii) Perimeter walls, 300 mm thick	m ³	14	1 780,93	24 933,02
BG56		(iii) Weir wall, 300 mm thick	m ³	6	1 982,65	11 895,90
Carried forward / ...						2 813 869,62

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						2 813 869,62
	8.4.4 PSG 8.4.4	Unformed surfaces:				
		Horizontal wood floated finish to:				
		(a) Inlet Sump				
BG57		(i) Top of blinding layer	m ²	24	30,65	735,60
BG58		(ii) Top of staircases treads and readings with granolithic screed	m ²	1	30,65	30,65
BG59		(iii) Top of suspended cover slab	m ²	12	30,65	367,80
		(b) Chlorine Contact Tank				
BG60		(i) Top of blinding layer	m ²	825	30,65	25 286,25
		(c) Outlet chamber				
BG61		(i) Top of blinding layer	m ²	23	30,65	704,95
		Horizontal steel-floated finish:				
		(a) Inlet Sump				
BG62		(i) Top of floor slab	m ²	16	38,29	612,64
BG63		(ii) Top of perimeter walls	m ²	3	38,29	114,87
		(b) Chlorine Contact Tank				
BG64		(i) Top of floor slab	m ²	694	38,29	26 573,26
BG65		(ii) Top of perimeter walls	m ²	37	38,29	1 416,73
BG66		(iii) Top of internal dividing/baffle walls	m ²	58	38,29	2 220,82
		(c) Outlet chamber				
BG67		(i) Top of floor slab	m ²	15	38,29	574,35
BG68		(ii) Top of perimeter walls	m ²	3	38,29	114,87
BG69		(iii) Top of weir wall	m ²	2	38,29	76,58
Carried forward / ...						2 872 698,99

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						2 872 698,99
	SANS 1200 G 8.5 PSG 8.1.1 PSG 8.1.1.7 PSG 8.5	Designated Joints Expansion/Construction joints as detailed and indicated on drawings and/or specified in the Project Specification:				
BG70		(a) Joint Type D:	m	97	369,80	35 870,60
BG71		(b) Joint Type F:	m	38	205,29	7 801,02
BG72		(c) Joint Type J:	m	31	313,01	9 703,31
	PSG 8.9	PIPEWORK				
	PSG 8.14	Cast in of pipes and specials (such as flanges etc. where required) through concrete (including hydrophilic rubber sealant, as specified or shown on drawings):				
BF73		(a) CT 1	No.	1	7 719,12	7 719,12
BF74		(b) CT 2	No.	1	7 719,12	7 719,12
BF75		(c) CT 3	No.	2	7 719,12	15 438,24
	SANS 1200 LE PSLE 8.2.8 PSLE 8.2.22	Underdrainage system				
	SANS 1200 G PSG 8.13	(a) Filter bed - 120mm no-fines concrete layer including provision for 20 mm thick packed mortar skin				
BG73		(i) Inlet Sump	m ²	24	231,11	5 546,6
BG74		(ii) Chlorine Contact Tank	m ²	829	231,11	191 590,19
BG75		(iii) Outlet Sump	m ²	24	231,11	5 546,64
	SANS 1200 A PSA 8.18	Construct drain complete including excavation, 19 mm stone fill, geofabric blanket and 110 mm dia perforated flexible drainage pipe as shown on drawings				
BG76		(b) Transverse drains	m	77	198,38	15 275,26
Carried forward / ...						3 174 909,13

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BG: CHLORINE CONTACT TANK

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						3 174 909,13
BG77		(c) Trench excavation for non perforated pipes	m³	12	103,22	1 238,64
BG78		(d) Supply and lay 110 mm dia PVC-U Class 9 connector pipes (non-perforated)	m	19	113,90	2 164,10
BG79		(e) Extra-over Item BG79 for 110 mm dia 90° PVC-U T-pieces	No.	6	195,30	1 171,80
BG80	SANS 1200 LD 8.23 PSLD 8.2.3	(f) Manhole over 2,0 m and up to 3.0 m deep complete as shown on DRG-CS-0116 including cover and frame and puddle pipe	No.	4	16 848,63	67 394,52
	SANS 1200 HA	Metalwork as specified in SANS 1200 HA and in the project specifications				
	8.3.2	Supply and install:				
		(a) Grade 316 handrails, complete:				
BG81		(i) Horizontal, top/base mounted	m	20	940,70	18 814,00
		Miscellaneous				
BG82		(a) Flooring: Supply and install Hot Dip Galvanised (HDG) Open Banded Grating with a nominal size of 40 x 40mm as shown on drawings for the Inlet Chamber	m²	5	1 716,47	8 582,35
BG83		(b) 45 x 45 x 5 mm Hot Dip Galvanised (HDG) angle cast in concrete to support HDG grating specified above	m	9	376,50	3 388,50
	SANS 1200 G PSG 8.21 SANS 1200 A PSA 8.18	Testing for water tightness Carry out the complete watertightness test for the Chlorine Contact Tank (including division chambers) as follows:				
BG84		(a) Inlet chamber	Sum	1	9 861,09	9 861,09
BG85		(b) Chlorine contact tank	Sum	1	26 136,09	26 136,09
BG86		(c) Outlet Chamber	Sum	1	9 861,09	9 861,09
TOTAL SECTION BG CARRIED TO SUMMARY						R 3 323 521,31

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION BH: ADMINISTRATION AND CONTROL BUILDING				
	SANS 1200 G	CONCRETE (STRUCTURAL)				
	PSG 8.1.1	FORMWORK				
	8.2.1	Rough:				
		Plane Vertical to:				
BH1		Edges of bases and sumps	m ²	450	389,15	175 117,50
BH2		Edges of strip footings	m ²	55	435,81	23 969,55
	8.2.3	Special smooth:				
		Plane Vertical to:				
BH3		Columns in foundations	m ²	65	435,81	28 327,65
BH4		Circular columns in foundations	m ²	5	435,81	2 179,05
BH5		Columns	m ²	352	389,15	136 980,80
BH6		Circular columns	m ²	27	389,15	10 507,05
BH7		Sides of beams	m ²	455	389,15	177 063,25
BH8		Stepped outer edge of stairs not exceeding 390 mm extreme	m ²	6	389,15	2 334,90
		Plane horizontal to:				
BH9		Soffits of slabs	m ²	733	846,44	620 440,52
BH10		Soffits of beams	m ²	85	944,67	80 296,95
BH11		Soffits of landings	m ²	8	944,67	7 557,36
		Plane sloping to:				
BH12		Soffits of stairs	m ²	21	944,67	19 838,07
	8.2.5	Narrow widths (smooth):				
BH13		Over 20 mm and up to 100 mm	m	7	171,62	1 201,34
Carried forward / ...						1 285 813,99

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BH: ADMINISTRATION AND
CONTROL BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 285 813,99
	PSG 8.1.2	REINFORCEMENT				
	8.3.1	Mild steel bars:				
BH14		8mm dia	t	1,2	12 038,08	14 445,70
BH15		10mm dia	t	1,2	12 038,08	14 445,70
	8.3.1	High-tensile steel bars:				
BH16		10mm dia	t	4,4	12 038,08	52 967,55
BH17		12mm dia	t	15,4	12 038,08	185 386,43
BH18		16mm dia	t	13,2	12 038,08	158 902,66
BH19		20mm dia	t	4,4	12 038,08	52 967,55
BH20		25mm dia	t	2,2	12 038,08	26 483,78
BH21		32mm dia	t	2,2	12 038,08	26 483,78
	8.3.2	High-tensile welded mesh:				
BH22		Ref. 395	m²	239	108,63	25 962,57
	PSG 8.1.3	CONCRETE				
	8.4.2	Blinding layer:				
		Class 15 MPa/19 mm concrete to:				
BH23		75 mm thick blinding layer	m²	229	118,64	27 168,56
	PSG 8.4.3	Strength concrete:				
		Class 25 MPa/19 mm concrete to:				
BH24		Strip footings	m³	20	1 779,11	35 582,20
		Class 30 MPa/19 mm concrete to:				
BH25		Columns	m³	37	1 740,59	64 401,83
BH26		Beams	m³	72	1 740,59	125 322,48
BH27		Slabs	m³	171	1 740,59	297 640,89
BH28		Stairs and landings	m³	5	1 780,93	8 904,65
Carried forward / ...						2 402 880,31

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						2 624 258,45
BH40	SANS 1200 H	STRUCTURAL STEELWORK				
	PSH 8.3.14	Supply, fabrication, delivery and installation of steelwork:				
		Structural steel with hot-dip galvanized corrosion protection system in roof structure complete with all necessary items including purlins, erection bolts and preparation of shop drawings	t	4,00	44 485,00	177 940,00
BH41	8.3.6	Holding-down (HD) bolts:				
		M16 HILTI HIT bolts	No.	88	244,12	21 482,56
BH42	SANS 1200 HA	SUNDRY STRUCTURAL STEEL				
	PSHA 8.3.2	Supply all material and install (refer to PSHA 5.2.6) handrails assembly 1050 mm high complete (ref to Drg No 110585-WWTW-DRG-CS-1715) on:				
		Horizontal surface, top and side mounted (Type A)	m	20	940,70	18 814,00
BH43		Extra over to handrails for:				
		90° bends	No.	2	251,72	503,44
BH44	PSHA 8.3.2	Supply all material and install (refer to PSHA 5.2.6) handrails assembly 1225 mm high complete (ref to Drg No 110585-WWTW-DRG-CS-1715) on:				
		Horizontal surface, top and side mounted (Type A)	m	13	1 070,90	13 921,70
BH45		Sloping surface, top and side mounted	m	39	1 070,90	41 765,10
BH46		Extra over to handrails for:				
		90° bends	No.	2	251,72	503,44
BH47		End closures	No.	5	418,81	2 094,05
BH48	SPEC PD	BUILDING WORK				
	PD 10.03	Pre-stressed lintels				
		280 mm x 75 mm lintels	m	16	199,63	3 194,08
Carried forward / ...						2 904 476,82

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						2 904 476,82
	PD 10.04	Construction of brickwork:				
	PD 10.04.1	Brickwork:				
		Brick walls in non-facing engineering bricks including butterfly ties, splayed concrete fillet along bottom and weep holes as specified and shown on drawings for:				
BH49		350 mm cavity walls in foundations with 130 mm cavity filled with 15 MPa concrete	m ²	49	727,55	35 649,95
BH50		350 mm walls in superstructure	m ²	124	755,26	93 652,24
BH51	PD 10.04.1 (cont.)	280 mm cavity walls in foundations with 60 mm cavity filled with 15 MPa concrete	m ²	5	612,68	3 063,40
BH52		280 mm walls in superstructure	m ²	96	514,47	49 389,12
BH53		230 mm walls in superstructure	m ²	266	514,47	136 849,02
BH54		230 mm walls in foundations	m ²	58	514,47	29 839,26
BH55		110 mm walls in superstructure	m ²	125	241,39	30 173,75
BH56		110 mm lining to concrete columns/beams	m ²	20	283,71	5 674,20
BH57		Extra over cavity walls for closing 130 mm cavity vertically	m	28	144,61	4 049,08
BH58		Extra over cavity walls for closing 60 mm cavity vertically	m	18	66,74	1 201,32
BH59		Extra over cavity walls for closing 60 mm cavity horizontally	m	3	66,74	200,22
	PD10.04.3	Damp proofing:				
		250 micron medium density polyethylene damp-proof sheeting:				
BH60		Under floor slab	m ²	281	11,32	3 180,92
		375 micron embossed polyethylene type B damp-proof sheeting:				
BH61		In walls	m ²	29	26,03	754,87
Carried forward / ...						3 298 154,17

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						3 298 154,17
	PD10.04.6	Masonry reinforcing and anchors:				
BH62		75 mm brick reinforcing for 110 mm walls	m	415	1,82	755,30
BH63		115 mm brick reinforcing for 220 mm walls	m	872	1,82	1 587,04
BH64		225 mm brick reinforcing for 280 mm and 350 mm cavity walls	m	640	2,56	1 638,40
BH65		1,2 mm x 30 mm wide x 750 mm Long galvanised hoop iron straps fixed with 2 x "HILTI HPS - 1 6/5" anchors to concrete and built into brickwork	No.	644	17,44	11 231,36
	PD 10.05	Plasterwork:				
BH66		One coat cement plaster 15 mm thick and one coat smooth skim plaster primer to internal walls and columns	m ²	364	148,89	54 195,00
BH67		One coat cement plaster 15 mm thick and one coat smooth skim plaster primer to external walls	m ²	193	159,57	30 797,01
BH68		One coat cement plaster 15 mm thick to soffits of slabs	m ²	320	104,44	33 420,80
BH69		Two coats cement plaster each 15 mm thick and one coat smooth skim plaster primer to internal walls and columns	m ²	665	195,56	130 047,40
	PD 10.06	Floor screeds and finish:				
BH70		30 mm thick normal screed to floors	m ²	368	75,56	27 806,08
BH71		Average 60 mm thick normal screed to falls on roofs	m ²	312	102,22	31 892,64
BH72		Flowcrete Peran STB floor coating (colour Grey 7100) as per manufacturer's specifications. Installed with a 10 year guarantee	m ²	160	479,57	76 731,20
Carried forward / ...						3 698 257,36

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						3 698 257,36
	PD 10.08	Doors and Windows:				
		Supply and install ISO 100 ALUPAN or similar approved powder coated aluminium door frames with fanlights pre-glazed with 6 mm thick laminated safety glass (colour matt light grey) complete including ironmongery (see 110585-WWTW-DRG-CS-1709 to 1712 and 1716)				
BH73		Aluminium door frame suitable for single door size 900 x 2 670 mm high with fanlight size 900 x 570 mm high above door (D01-FF, D03-FF & D04-FF)	No.	4	1 874,07	7 496,28
BH74		Aluminium door frame suitable for single door size 900 x 2 755 mm high with fanlight size 900 x 655 mm high above door (D01-GF, D02-GF & D04-GF)	No.	4	1 983,71	7 934,84
		Supply and install ISO 100 ALUPAN or similar approved powder coated (colour: matt light grey) aluminium shopfronts pre-glazed with clear double glazing SolarVue + 12 mm air gap + Clear Cue Low E (4242) complete including ironmongery (see 110585-WWTW-DRG-CS-1709 to 1712 and 1716)				
BH75		Shopfront U-shaped on plan overall size 15 710 x 2 415 mm high with two sides 3 800 x 2 415 mm high and one side 8 110 x 2 415 mm high (SF01-GF)	No.	1	179 346,87	179 346,87
BH76		Shopfront overall size 1 865 x 2 775 mm high (SF02-GF)	No.	1	23 284,32	23 284,32
BH77		Shopfront overall size 3 705 x 2 775 mm high (SF03-GF)	No.	1	41 596,62	41 596,62
BH78		Shopfront overall size 1 560 x 2 775 mm high (SF04-GF)	No.	1	19 485,19	19 485,19
BH79		Shopfront overall size 1 230 x 2 775 mm high (SF05-GF, SF08-GF & SF09-GF)	No.	3	16 211,31	48 633,93
BH80		Shopfront L-shaped on plan overall size 7 400 x 2 755 mm high with one side 3 480 x 2 755 mm high and other side 3 920 x 2 755 mm high (SF06-GF)	No.	1	98 736,52	98 736,52
Carried forward / ...						4 124 771,93

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						4 124 771,93
BH81	PD 10.08	Shopfront overall size 1 345 x 2 775 mm high (SF07-GF)	No.	1	16 456,09	16 456,09
BH82		Shopfront L-shaped on plan overall size 2 225 x 2 755 mm high with one side 810 x 2 755 mm high and other side 1 445 x 2 755 mm high (SF10-GF)	No.	1	29 684,19	29 684,19
BH83		Shopfront overall size 560 x 2 775 mm high (SF11-GF)	No.	1	8 860,38	8 860,38
BH84		Shopfront L-shaped on plan overall size 11 720 x 2 670 mm high with one side 3 800 x 2 670 mm high and other side 7 920 x 2 670 mm high (SF01-FF)	No.	1	193 222,22	193 222,22
BH85		Shopfront overall size 1 845 x 2 670 mm high (SF02-FF)	No.	1	29 790,10	29 790,10
BH86		Shopfront overall size 3 130 x 2 670 mm high (SF03-FF & SF04-FF)	No.	2	47 423,11	94 846,22
BH87		Shopfront overall size 2 745 x 2 670 mm high (SF05-FF & SF06-FF)	No.	2	41 346,10	82 692,20
BH88		Shopfront overall size 1 190 x 2 670 mm high (SF07-FF)	No.	1	17 923,12	17 923,12
BH89		Shopfront overall size 1 790 x 2 670 mm high (SF08-FF)	No.	1	26 961,16	26 961,16
BH90		Shopfront overall size 2 740 x 2 670 mm high (SF09-FF)	No.	1	41 346,10	41 346,10
BH91		Shopfront overall size 1 630 x 2 670 mm high with sliding doors (SF10-FF)	No.	1	31 795,92	31 795,92
BH92		Shopfront overall size 1 630 x 2 670 mm high (SF11-FF)	No.	1	24 552,46	24 552,46
BH93		Shopfront U-shaped on plan overall size 44 609 x 2 670 mm high with one side 13 110 x 2 670 mm high, 25 110 Xx 2 680 mm high and other side 4 604 x 2 670 mm high (SF12-FF)	No.	1	725 193,38	725 193,38
BH94		Shopfront divider overall size 345 x 2 670 mm high	No.	10	7 780,54	77 805,40
Carried forward / ...						5 525 900,86

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Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						5 525 900,86
BH95	PD 10.09	Supply and install "ISO 100 ALUPAN" or similar approved powder coated (colour: matt light grey) aluminium louvre complete including ironmongery (see 110585-WWTW-DRG-CS-1709 to 1712 and 1716): Louvre overall size 840 x 2 755 mm high (L01-GF)	No.	1	5 164,62	5 164,62
BH96		Joinery Work: Items measured by number: Supply and install semi-solid interior door complete including ironmongery, painting, etc (see 110585-WWTW-DRG-CS-1709 to 1712 and 1716): 900 x 2 670 mm high (D01-FF, D02-FF, D03-FF & D04-FF)	No.	4	6 367,76	25 471,04
BH97		900 x 2 755 mm high (D01-GF, D02-GF, D03-GF & D04-GF)	No.	4	6 493,54	25 974,16
BH98	PD 10.10	Ceilings: 9 mm thick gypsum plaster-board ceilings with smooth skim joints: Suspended ceilings complete	m ²	259	349,37	90 486,83
BH99		Vertical bulkheads up to 700 mm high	m	18	1 497,30	26 951,40
BH100		Donn aluminium shadowline cornice	m	169	249,55	42 173,95
BH101	SANS 1200 HB PSHB 8.1.1	Roof Sheeting and Cladding				
	PD 10.11	Structural roof and sheeting				
	PD 10.11.1	Roof sheeting:				
BH101	PSHB 8.1.1 HB 8.2.2	Supply and install 0,5 mm thick Brownbult Klip-Lok 700 or similar approved galvanized metal sheeting with Colourbond or Chromadek coating finish, to steel purlins including Sisalation FR430 insulation under sheeting	m ²	121	252,11	30 505,31
Carried forward / ...						5 772 628,17

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Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						5 772 628,17
BH102	PSHB 8.2.3	Supply and install 0,8 mm thick sheet metal ancillaries with Colourbond finish: Fascia flashing	m	45	184,84	8 317,80
	PD 10.13	Plumber:				
	PD 10.13.2	Rainwater goods				
		Supply and install aluminium:				
BH103		80 mm x 80 mm rainwater downpipe	m	1	298,38	298,38
BH104		Extra over rainwater down pipe for shoes	No.	4	5,42	21,68
		Supply and install uPVC:				
BH105		80 mm Diameter downpipes cast into concrete columns	m	97	54,25	5 262,25
BH106		Extra over rainwater down pipe for bends	No.	15	162,75	2 441,25
BH107		110 mm Diameter SV downpipes cast into concrete columns	m	13	81,38	1 057,94
BH108		Extra over rainwater down pipe for bends	No.	2	8,68	17,36
	PD 10.13.3	Sanitation				
BH109		Supply and installation of Duravit D-code back to wall toilet including closed coupled toilet pan, cistern and flush mechanism, (Code: 21180900002 and 0927100004) Cistern braided man connector: BSS-10-15-350. Toilet seat Duravit D (Code: 0067310000) complete with pipework, fittings, etc	No.	8	10 968,26	87 746,08
BH110		Supply and installation of Vaal Sanitaryware-Pearl paraplegic semi-close toilet including washdown pan, cistern, purpose-made C.P side flush lever complete with pipework, fittings, etc	No.	1	8 977,29	8 977,29
BH111		Supply and installation of Vaal flatback (Code: 705326) white wall hung urinal with top inlet supplied with 38mm chrome plated domical grating (Code: 8787Z0) chrome plated top inlet spreader (Code: 8543Z0) and two hanger brackets (Code: 8127Z0) complete complete with pipework, fittings, etc	No.	3	8 697,36	26 092,08
Carried forward / ...						5 912 860,28

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Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						6 911 839,05
BH144	PD 10.15	Fire hose reel with 30 m hose including all pipework to hose reel from main connection point outside the building including required signage	No.	2	7 539,66	15 079,32
BH145		Items measured by lengths: 200 x 100 mm High Modular Trims cover skirting tile with projecting and re-entrant corner trims from Casala Grande Granitogres smooth porcelain floor tiles (colour Nebraska)	m	157	601,09	94 371,13
BH146		Peran Skirting by Flowcrete	m	148	249,55	36 933,40
BH147		100 x 100 x 4 mm thick mild steel stiffener posts	m	3	623,88	1 871,64
BH148		256 x 100 x 4 mm thick mild steel stiffener posts	m	11	949,38	10 443,18
BH149		Items measured by area: Derbigum SP4 laid to falls including turn-ups and sides to concrete roofs as per architectural specifications	m²	337	254,98	85 928,26
BH150		Derbigum SP3 counter flashing to concrete roofs as per architectural specifications	m²	93	211,58	19 676,94
BH151		Derbigum Interdek separation sheets	m²	233	124,78	29 073,74
BH152		One layer Derbigum Sylbond TS 200 to balconies	m²	26	298,38	7 757,88
BH153		75 mm thick clean crushed 19-25 mm stone ballast to concrete roofs	m²	233	67,27	15 673,91
BH154		300 x 300 x 7 mm thick Casala Grande Granitogres smooth porcelain floor tiles fixed with adhesive to screeds (screeds measured elsewhere) and flush pointed with waterproof grouting compound on floors (colour Nebraska)	m²	368	509,95	187 661,60
BH155		100 x 300 mm Gloss white glazed ceramic wall tiles fixed with adhesive to plaster (plaster measured elsewhere) and flush pointed with waterproof jointing compound on plastered walls	m²	154	613,02	94 405,08
Carried forward / ...						7 510 715,13

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Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						7 510 715,13
BH156	PD 10.15	100 x 300 mm Gloss white glazed ceramic wall tiles fixed with adhesive to plaster (plaster measured elsewhere) and flush pointed with waterproof jointing compound on splashbacks	m²	1	656,42	656,42
BH157		85 mm thick exposed aggregate (13 mm aggregate) as per architect's approval (Villiersdrop white in white backing or similar approved)	m²	26	1 627,50	42 315,00
BH158		Supply and install heavy duty Pentafloor SolidFeel SF45 raised access flooring 350mm high or similar approved	m²	9	2 712,50	24 412,50
	PD 10.15	FURNITURE BY CECIL NURSE OR SIMILAR APPROVED/EQUIVALENT <u>Ground floor Café</u>				
BH159		TWS01SI Twistable supreme alu/silver dining base for 600-800 tops	No.	2	1 441,30	2 882,60
BH160		WZ700RWH Werzalit 700mm white round table top	No.	1	981,18	981,18
BH161		KC106GRN Kicca one monobloc green chair	No.	8	1 649,95	13 199,60
		<u>Ground floor Office AG2</u>				
BH162		AVSW001WH Adventure white steel desk size 1800 x 750 x 722mm high	No.	1	4 499,97	4 499,97
BH163		AV810WH Adventure white R/door Credenza size 1000 x 600mm	No.	1	4 223,49	4 223,49
BH164		AV010WH Adventure white exec R/D ped shelf size 716mm wide x 430mm deep x 16mm thick	No.	1	405,25	405,25
BH165		AV706WH Adventure white 1STD/1DF Mob ped size 420 x 516 x 540mm high	No.	1	2 611,03	2 611,03
BH166		XP120WH Xpress white round meeting table size 1200 x 725mm high	No.	1	3 535,32	3 535,32
BH167		GIR01BLK Giro black Task CHR K/T H/ADJ arms	No.	1	3 030,45	3 030,45
BH168		UN05VBLK Key Vulcan black 1 VIS Chair with silver frame	No.	4	1 938,42	7 753,68
Carried forward / ...						7 621 221,62

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Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						7 621 221,62
BH169	PD 10.15	<u>First floor Communal area</u>				
		TWS01SI Twistable alu/silver supreme dining base for 600-800 tops	No.	3	1 441,30	4 323,90
BH170		WZ700RWH Werzalit 700mm white round table top	No.	3	981,18	2 943,54
BH171		KC106GRN Kicca one monobloc green chair	No.	8	1 649,95	13 199,60
		<u>First floor Reception</u>				
BH172		GIR01BLK Giro black Task CHR K/T H/ADJ arms	No.	2	3 030,45	6 060,90
		<u>First floor Meeting room</u>				
BH173		EVBW4200WHPXW Brainstorm white +WHT B/Room TBL PX inlay size 4200 x 1200 x 730mm high	No.	1	20 503,30	20 503,30
BH174		GS828WH Global white double utility H/D unit size 1600mm wide x 450mm deep x 800mm high	No.	1	6 643,19	6 643,19
BH175		GIR01GRN Giro Grey/Green mesh Task CHR K/T H/ADJ arms H/ADJ arms	No.	14	3 710,19	51 942,66
		<u>First floor Offices AF2/AF8/AF7</u>				
BH176		AVSW001WH Adventure white steel desk size 1800 x 750 x 722mm high	No.	3	4 499,97	13 499,91
BH177		AV810WH Adventure white R/door Credenza size 1000 x 600mm	No.	3	4 632,16	13 896,48
BH178		AV010WH Adventure white exec R/D ped shelf size 716mm wide x 430mm deep x 16mm thick	No.	3	432,09	1 296,27
BH179		AV705WH Adventure white 3 DRW Mob pedestal size 420 x 516 x 540mm high	No.	3	2 749,67	8 249,01
BH180		GIR01BLK Giro black Task CHR K/T H/ADJ arms	No.	3	3 319,81	9 959,43
BH181		UN05VBLK Key Vulcan black 1 VIS Chair with silver frame	No.	6	2 118,57	12 711,42
Carried forward / ...						7 786 451,23

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						7 786 451,23
BH182	PD 10.15	<u>First floor Control room</u> GIR01BLK Giro black Task CHR K/T H/ADJ arms	No.	4	3 319,81	13 279,24
BH183		<u>First floor Operational manager</u> AVSW001WH Adventure white steel desk size 1800 x 750 x 722mm high	No.	1	4 499,97	4 499,97
BH184		AV810WH Adventure white R/door Credenza size 1000 x 600mm	No.	1	4 632,16	4 632,16
BH185		AV010WH Adventure white exec R/D ped shelf size 716mm wide x 430mm deep x 16mm thick	No.	1	432,09	432,09
BH186		AV705WH Adventure white 3 DRW Mob pedestal size 420 x 516 x 540mm high	No.	1	2 749,67	2 749,67
BH187		GIR01BLK Giro black Task CHR K/T H/ADJ arms	No.	7	3 319,81	23 238,67
BH188		EVBW4200WHPXW Brainstorm white +WHT B/Room TBL PX inlay size 2400 x 1200 x 730mm high 1800 x 750 x 722mm high	No.	1	14 634,19	14 634,19
		<u>First floor Office AF4</u>				
BH189		AVSW001WH Adventure white steel desk size 1800x750x722mm high	No.	1	4 499,97	4 499,97
BH190		AV810WH Adventure white R/door Credenza size 1000 x 600mm	No.	1	4 223,49	4 223,49
BH191		AV010WH Adventure white exec R/D ped shelf size 716mm wide x 430mm deep x 16mm thick	No.	1	405,25	405,25
BH192		AV705WH Adventure white 3 DRW Mob pedestal size 420 x 516 x 540mm high	No.	1	2 512,14	2 512,14
BH193		GIR01BLK Giro black Task CHR K/T H/ADJ arms	No.	1	3 030,45	3 030,45
BH194		UN05VBLK Key Vulcan black 1 VIS Chair with silver frame	No.	2	1 938,42	3 876,84
BH195		XP120WH Xpress white round meeting table size 1200 x 725mm high	No.	1	3 535,32	3 535,32
Carried forward / ...						7 872 000,68

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Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount Rc
Brought forward / ...						7 872 000,68
		<u>Provisional sums and budgetary allowances:</u>				
BH196		Laboratory joinery and loose furniture	Prov Sum			175 000,00
BH197		Contractor's overheads, charges and profit on item BH196 above (State % and extend as an amount)	%	R 175 000	10,00%	17500
BH198		Control room joinery and loose furniture	Prov Sum			175 000,00
BH199		Contractor's overheads, charges and profit on item BH199 above (State % and extend as an amount)	%	R 175 000	10,00%	17 500,00
BH200		Reception desk joinery and loose furniture	Prov Sum			175 000,00
BH201		Contractor's overheads, charges and profit on item BH200 above (State % and extend as an amount)	%	R 175 000	10,00%	17500
TOTAL SECTION BH CARRIED TO SUMMARY						R 8 449 500,68

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
	SPEC BE-01	SECTION BI : ADMIN AND CONTROL BUILDING - SMALL POWER AND LIGHTING				
		POWER SUPPLY				
BI1	1.3.13	Liason with M&E Contractor for Permanent Electrical Supplies.	Sum	1	542,50	542,50
	1.3.1	LIGHTING				
		Luminaire A: 1 x 26W CFL bulkhead light				
BI2		(i) Supply	No.	2	781,20	1 562,40
BI3		(ii) Install	No.	2	103,08	206,16
		Luminaire H: 2 x 28W T5 surface mounted fluorescent light fitting with double parabolic reflector				
BI4		(i) Supply	No.	16	757,33	12 117,28
BI5		(ii) Install	No.	16	103,08	1 649,28
		Luminaire L1 – 10W LED wall mounted downlight, IP65				
BI6		(i) Supply	No.	14	1 151,18	16 116,52
BI7		(ii) Install	No.	14	103,08	1 443,12
		Luminaire L2 – 10W LED recessed downlight, with specular reflector				
BI8		(i) Supply	No.	18	669,44	12 049,92
BI9		(ii) Install	No.	18	103,08	1 855,44
		Luminaire L3 – 20W LED recessed downlight				
BI10		(i) Supply	No.	22	1 024,24	22 533,28
BI11		(ii) Install	No.	22	103,08	2 267,76
		Luminaire EM: 2 x 10W Emergency light fitting, 1.5 hr backup				
BI12		(i) Supply	No.	10	1 291,15	12 911,50
BI13		(ii) Install	No.	10	103,08	1 030,80
Carried forward / ...						86 285,96

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SECTION BI : ADMIN AND CONTROL BUILDING -
SMALL POWER AND LIGHTING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						86 285,96
BI14	SPEC BE-01 1.3.2	Wall mounted Photocell Day/night switch (i) Supply	No.	1	428,58	428,58
BI15		(ii) Install	No.	1	103,08	103,08
DISTRIBUTION BOARDS						
	1.3.3	Admin Building Distribution Board (DB-ADM) Supply	No.	1	61 725,65	61 725,65
BI16		Install	No.	1	5 425,00	5 425,00
BI17						
POWER						
	1.3.4	16 Amp 3-pin 250V Power Skirting Modular Outlets single switched socket Supply	No.	32	112,84	3 610,88
BI18		Installation	No.	32	27,12	867,84
BI19						
		16 Amp 3-pin 250V single dedicated switched socket outlet Supply	No.	3	128,03	384,09
BI20		Installation	No.	3	27,12	81,36
BI21						
		16 Amp 3-pin 250V Power Skirting Modular single dedicated switched socket outlet Supply	No.	20	168,18	3 363,60
BI22		Installation	No.	20	27,12	542,40
BI23						
		32 Amp 5-pin 400V industrial switched socket outlet Supply	No.	1	933,10	933,10
BI24		Installation	No.	1	97,65	97,65
BI25						
	1.3.5	16 Amp 2-pole 250V Isolator Supply	No.	9	159,50	1 435,50
BI26		Installation	No.	9	27,12	244,08
BI27						
Carried forward / ...						165 528,77

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c	
Brought forward / ...						165 528,77	
	SPEC BE-01 1.3.4	Sliding GRP socket outlet housing					
BI28		Supply	No.	2	75,95	151,90	
BI29		Installation	No.	2	16,28	32,56	
		Single normal switched socket outlet, recessed mounted @ 300mm AFFL unless noted otherwise or mounted on powerskirting					
BI30		Supply	No.	15	87,88	1 318,20	
BI31		Installation	No.	15	27,12	406,80	
		Double normal switched socket outlet, recessed mounted @ 300mm AFFL unless noted otherwise or mounted on powerskirting					
BI32		Supply	No.	2	135,62	271,24	
BI33		Installation	No.	2	27,12	54,24	
			16 Amp 3-pin 250V single socket outlet IP 65				0,00
BI34	1.3.18	Supply	No.	1	265,82	265,82	
BI35		Installation	No.	1	27,12	27,12	
		Network outlet					
BI36		Supply	No.	20	59,68	1 193,60	
BI37		Installation	No.	20	16,28	325,6	
		IP telephone outlet					
BI38		Supply	No.	17	43,40	737,80	
BI39		Installation	No.	17	16,28	276,76	
		1.3.20	Floorbox For Projector				
BI40			Supply	No.	5	1 052,45	5 262,25
BI41	Installation		No.	5	48,82	244,10	
Carried forward / ...						176 096,76	

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SECTION BI : ADMIN AND CONTROL BUILDING -
SMALL POWER AND LIGHTING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						176 096,76
	SPEC BE-01 1.3.6	Industrial Flush Mounted 16A Light Switches complete with boxes, cover plates switches etc; Similar or equivalent to Crabtree Classic Range 1-Lever, 1-Way				
BI42		Supply	No.	20	34,72	694,40
BI43		Installation	No.	20	16,28	325,60
		1-Lever, 2-Way				
BI44		Supply	No.	6	48,82	292,92
BI45		Installation	No.	6	16,28	97,68
	1.3.7	Power Skirting				
BI46		Double compartment power skirting	m	80	329,84	26 387,20
BI47		Double compartment power skirting: End Cap	No.	24	59,68	1 432,32
BI48		Double compartment power skirting: Internal Bend	No.	8	131,28	1 050,24
	1.3.8	COPPER CONDUCTOR Single core PVC insulated, general purpose, high conductivity, stranded conductor (red, black)				
BI49		2.5mm ²	m	1000	9,76	9 760,00
BI50		4mm ²	m	1500	13,02	19 530,00
BI51		6mm ²	m	500	17,36	8 680,00
	1.3.8	Single core PVC insulated, general purpose, high conductivity, stranded earth conductor (green/yellow)				
BI52		2.5mm ²	m	500	6,51	3 255,00
BI53		4mm ²	m	750	8,68	6 510,00
BI54		6mm ²	m	250	10,85	2 712,50
Carried forward / ...						256 824,62

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						256 824,62
	SPEC BE-01 1.3.9	CONDUIT Supply and Install Conduit surface mounted to brickwork, concrete, steel or ceiling voids or cast into concrete or built/chased into brickwork or concrete. Complete with bends, couplings, etc.				
BI55		20mm Diameter, PVC	m	1000	6,51	6 510,00
BI56		25mm Diameter, PVC	m	1500	9,76	14 640,00
BI57		32mm Diameter, PVC	m	500	15,19	7 595,00
BI58		20mm Diameter, Hot-dipped Galvanised Steel	m	20	17,36	347,20
BI59		25mm Diameter, Hot-dipped Galvanised Steel	m	20	20,62	412,40
BI60		32mm Diameter, Hot-dipped Galvanised Steel	m	20	23,87	477,40
	1.3.10	Supply and Install Round conduit boxes placed in position for casting into concrete or chased into brickwork or concrete				
BI61		20mm Diameter conduit, PVC	No.	20	8,68	173,60
BI62		25mm Diameter conduit, PVC	No.	20	9,76	195,20
BI63		62mm Round box lid, PVC	No.	20	4,34	86,80
BI64		20mm Diameter conduit, Hot-dipped Galvanised Steel	No.	20	36,89	737,80
BI65		25mm Diameter conduit, Hot-dipped Galvanised Steel	No.	20	39,06	781,20
BI66		62mm Round box lid, Hot-dipped Galvanised Steel	No.	20	5,42	108,40
	1.3.11	EARTHING Bare Copper, Stranded Earth conductor				
BI67		70mm ²	m	50	77,04	3 852,00
BI68		1.5m, 16mm diameter Cu earth rods	No.	4	179,02	716,08
Carried forward / ...						293 457,70

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BI : ADMIN AND CONTROL BUILDING -
SMALL POWER AND LIGHTING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c	
Brought forward / ...						293 457,70	
BI69	SPEC BE-01	Copper Earth Bar, 50(H)x10(W)x1200mm(L), mounted in MCC trench or building	No.	1	4 068,75	4 068,75	
		GENERAL (SMALL POWER AND LIGHTING)					
BI70		1.3.20	Delivery to site of equipment	Sum	1	1 085,00	1 085,00
BI71		1.3.21	Labelling of all equipment and conductors	Sum	1	1 898,75	1 898,75
BI72		1.3.22	Testing and Commissioning of Small Power and Lighting System	Sum	1	1 567,82	1 567,82
BI73	1.3.23	Certificates of compliance	Sum	1	1 139,25	1 139,25	
BI74	1.3.28	As-Built Drawings	Sum	1	2 647,40	2 647,40	
BI75		Additional lighting as directed by the Engineer		PC Sum		80 000,00	
TOTAL SECTION BI CARRIED TO SUMMARY						R 385 864,67	

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION BJ: CHEMICAL DOSING BUILDING				
	SANS 1200 G	CONCRETE (STRUCTURAL)				
	PSG 8.1.1	FORMWORK				
	8.2.1	Rough:				
		Plane Vertical to:				
BJ1		Edges of bases and sumps	m ²	52	435,81	22 662,12
BJ2		Edges of strip footings	m ²	13	435,81	5 665,53
BJ3		Ramp toe (inside)	m ²	6	435,81	2 614,86
BJ4		Shower pit sides	m ²	2	435,81	871,62
BJ5		Sides of walls	m ²	11	435,81	4 793,91
BJ6		Sides of slab/paving with toes	m ²	51	435,81	22 226,31
	8.2.3	Special smooth:				
		Plane Vertical to:				
BJ7		Columns in foundations	m ²	20	389,15	7 783,00
BJ8		Columns	m ²	185	389,15	71 992,75
BJ9		Sides of walls	m ²	291	389,15	113 242,65
BJ10		Sides of beams	m ²	134	389,15	52 146,10
BJ11		Shower pit sides	m ²	2	575,77	1 151,54
BJ12		Sides of sumps	m ²	3	575,77	1 727,31
BJ13		Plinth sides	m ²	116	389,15	45 141,40
BJ14		Ramp edges	m ²	6	435,81	2 614,86
BJ15		Stepped outer edge of stairs not exceeding 390 mm extreme	m ²	6	435,81	2 614,86
BJ16		Sides of stair bases	m ²	2	435,81	871,62
		Plane horizontal to:				
BJ17		Soffits of slabs	m ²	81	775,92	62 849,52
BJ18		Soffits of beams	m ²	41	775,92	31 812,72
BJ19		Soffits of landings	m ²	2	869,23	1 738,46
Carried forward / ...						454 521,14

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BJ: CHEMICAL DOSING
BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						454 521,14
BJ20	8.2.5	Plane sloping to: Soffits of stairs	m²	7	775,92	5 431,44
BJ21		Narrow widths (smooth): Over 20 mm and up to 100 mm	m	48	171,62	8 237,76
BJ22		Over 100 mm and up to 200 mm	m	194	171,62	33 294,28
BJ23		Over 200 mm and up to 300 mm	m	53	171,62	9 095,86
BJ24	8.2.6	Box out holes/form voids: Recess 170 mm wide x 85 mm high along top of concrete wall	m	42	784,93	32 967,06
BJ25		Recess or channel 150 mm wide x average 200 mm deep in top of floors	m	29	784,93	22 762,97
	PSG 8.1.2	REINFORCEMENT				
	8.3.1	Mild steel bars:				
BJ26		8 mm dia	t	0,6	12 038,08	7 222,85
BJ27		10 mm dia	t	1,0	12 038,08	12 038,08
BJ28		12 mm dia	t	2,0	12 038,08	24 076,16
	8.3.1	High-tensile steel bars:				
BJ29		10 mm dia	t	11,0	12 038,08	132 418,88
BJ30		12 mm dia	t	19,0	12 038,08	228 723,52
BJ31		16 mm dia	t	19,0	12 038,08	228 723,52
BJ32		20 mm dia	t	9,0	12 038,08	108 342,72
BJ33		25 mm dia	t	2,0	12 038,08	24 076,16
BJ34		32 mm dia	t	1,0	12 038,08	12 038,08
	8.3.2	High-tensile welded mesh:				
BJ35		Ref. 395	m²	154	93,24	14 358,96
Carried forward / ...						1 358 329,44

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 358 329,44
	PSG 8.1.3	CONCRETE				
	8.4.2	Blinding layer:				
		Class 15 MPa/19 mm concrete to:				
BJ36		50 mm thick blinding layer	m ²	294	79,09	23 252,46
BJ37		75 mm thick blinding layer	m ²	48	118,64	5 694,72
	PSG 8.4.3	Strength concrete:				
		Class 30 MPa/19 mm concrete to:				
BJ38		Columns	m ³	18	1 780,93	32 056,74
BJ39		Beams	m ³	4	1 780,93	7 123,72
BJ40		Ring beams	m ³	15	1 780,93	26 713,95
BJ41		Slabs	m ³	22	1 780,93	39 180,46
BJ42		Walls	m ³	2	1 780,93	3 561,86
BJ43		Stairs and landings	m ³	2	1 780,93	3 561,86
BJ44		Roof slabs	m ³	3	1 780,93	5 342,79
		Class 35 Mpa/26 mm (watertight) concrete to:				
BJ45		Bases and sumps	m ³	147	1 740,59	255 866,73
BJ46		Strip footings	m ³	7	1 780,93	12 466,51
BJ47		Columns in foundations	m ³	1	1 780,93	1 780,93
BJ48		Attached columns in foundations	m ³	1	1 780,93	1 780,93
BJ49		Walls in foundations	m ³	40	1 740,59	69 623,60
BJ50		Floor slabs/surface beds	m ³	24	1 740,59	41 774,16
BJ51		Plinths	m ³	103	1 740,59	179 280,77
BJ52		Chemical spill area	m ³	13	1 740,59	22 627,67
BJ53		Pump station floors and sumps	m ³	4	1 740,59	6 962,36
BJ54		Ramps	m ³	7	1 740,59	12 184,13
BJ55		Aprons	m ³	12	1 740,59	20 887,08
BJ56		Vehicle slabs/paving with toes	m ³	59	1 740,59	102 694,81
BJ57		Shower pits	m ³	1	1 821,28	1 821,28
Carried forward / ...						2 234 568,96

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BJ: CHEMICAL DOSING
BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						2 234 568,96
	PSG 8.4.4	Unformed surface finishes:				
		Wood-floated finishes to:				
BJ58		Horizontal surfaces	m ²	652	30,65	19 983,80
BJ59		150 mm wide reedings on stairs	m	19	30,65	582,35
		Steel-floated finishes to:				
BJ60		Horizontal surfaces	m ²	278	38,29	10 644,62
	PSG 8.5	JOINTS:				
		Isolation Joints:				
BJ61		10 mm Jointex between concrete surfaces	m ²	4	75,95	303,80
BJ62		10 mm Jointex between concrete and brickwork, 100 mm high	m	65	11,39	740,35
BJ63		10 mm Jointex between concrete and brickwork, 150 mm high	m	69	11,39	785,91
BJ64		10 mm Jointex between concrete surface and brickwork, 280 mm wide	m	176	21,27	3 743,52
		Expansion joints:				
BJ65		10 mm Jointex between concrete surfaces, 250 mm high	m	30	21,27	638,10
		Saw joints:				
BJ66		3 mm x 25 mm deep in aprons	m	129	14,48	1 867,92
BJ67		6 mm x 40 mm deep in slabs or paving	m	81	48,26	3 909,06
		Sealing of joints with sealant:				
BJ68		10 mm x 10 mm polyurethane sealant in vertical isolation joints in walls	m	351	150,61	52 864,11
BJ69		10 mm x 10 mm polyurethane sealant in horizontal isolation joints in floors	m	173	150,61	26 055,53
BJ70		6 mm x 20 mm polyurethane sealant in saw joints	m	81	155,01	12 555,81
Carried forward / ...						2 369 243,84

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						2 369 243,84
BJ71	SANS 1200 H	STRUCTURAL STEELWORK				
	PSH 8.3.14	Supply, fabrication, delivery and installation of steelwork:				
		Structural steel with hot-dip galvanized corrosion protection system in roof structure complete with all necessary items including purlins, erection bolts and preparation of shop drawings	t	7,96	44 485,00	354 100,60
BJ72	8.3.6	Holding-down (HD) bolts:				
		M20 HILTI HIT bolts	No.	80	244,12	19 529,60
BJ73	SANS 1200 HA	SUNDRY STRUCTURAL STEEL				
	PSHA 8.3.2	Supply all material and install (refer to PSHA 5.2.6) stainless steel 316 handrails assembly 1 m high complete (ref to Drg No WWTW-DRG-CS-902 and 904) on:				
		Horizontal surface, top and side mounted	m	5	940,70	4 703,50
		Sloping surface, top and side mounted	m	7	940,70	6 584,90
		Extra over to handrails for:				
		90° bends	No.	3	251,72	755,16
		End closures	No.	4	418,81	1 675,24
BJ77	PSHA 8.3.4	Open grid flooring. (Refer to PSHA 5.2.8):				
		Supply and install 80 mm thick HD SS316 (10t) banded grating with nominal opening sizes of 60 mm x 60 mm as shown on drawings	m²	3	1 519,00	4 557,00
BJ78		Supply and install 50 mm thick fibre reinforced plastic (FRP) banded grating with a nominal opening size of 50 x 50 mm as shown on drawings	m²	81	1 139,25	92 279,25
BJ79		50 x 50 x 5 mm SS316 angle with 50 mm x 150 mm x 5 mm thick fishtail lugs at 350 mm centres, cast in concrete to support FRP grating above	m	129	582,64	75 160,56
Carried forward / ...						2 928 589,65

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AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BJ: CHEMICAL DOSING
BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						2 928 589,65
BJ80		80 x 80 x 6 mm SS316 angle with 50 mm x 150 mm x 5 mm thick fishtail lugs at 350 mm centres, cast in concrete to support stainless steel aratina	m	8	808,32	6 466,56
BJ81		50 x 50 x 5 mm SS316 angle-section bolted to concrete with and including M10 stainless steel rawl bolts at 300 mm centres	m	52	672,16	34 952,32
BJ82		100 mm x 50 mm SS316 channel sections in grating support framework and posts including workshop drawings	kg	1 958	150,96	295 579,68
BJ83		10 mm thick SS316 flat section connection and base plates welded to channel section framework	kg	300	204,24	61 272,00
BJ84		Stainless steel SS316 erection bolts	kg	30	406,88	12 206,40
BJ85		M16 stainless steel rawl bolts	No.	156	108,50	16 926,00
	SPEC PD	BUILDING WORK				
	PD 10.03	Pre-stressed lintels				
BJ86		280 mm x 75 mm lintels	m	14	199,63	2 794,82
	PD 10.04	Construction of brickwork:				
	PD 10.04.1	Brickwork: Brick walls in non-facing engineering bricks including butterfly ties, splayed concrete fillet along bottom and weep holes as specified and shown on drawings for:				
BJ87		280 mm cavity walls with 60 mm cavity in superstructures	m ²	81	514,47	41 672,07
BJ88		250 mm cavity walls with 30 mm cavity in fire walls above walls	m ²	34	514,47	17 491,98
		Brick walls in non-facing engineering plaster bricks inside face and facebrick to match existing outside face including butterfly ties, splayed concrete fillet along bottom and weep holes as specified and shown on drawings for:				
BJ89		280 mm cavity walls with 60 mm cavity in superstructures	m ²	311	792,00	246 312,00
BJ90		280 mm cavity walls in foundations with 60 mm cavity filled with 15 MPa concrete	m ²	34	792,00	26 928,00
Carried forward / ...						3 691 191,48

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						3 691 191,48
BJ91	PD10.04.3	Cement mortar splayed fill 170 mm high in 60 mm cavity above lintels	m	14	9,33	130,62
BJ92		Extra over cavity walls for closing 60 mm cavity vertically at doors	m	42	66,74	2 803,08
BJ93		Damp proofing: 250 micron medium density polyethylene damp-proof sheeting:				
		Under floor slab	m²	161	11,32	1 822,52
BJ94	PD10.04.6	375 micron embossed polyethylene type B damp-proof sheeting:				
		In walls	m²	32	26,03	832,96
BJ95	PD 10.05	Masonry reinforcing and anchors: 225 mm brick reinforcing for 280 mm and 250 mm cavity walls	m	1 615	2,56	4 134,40
BJ96		1,2 mm x 30 mm wide x 750 mm Long galvanised hoop iron straps fixed with 2 x "HILTI HPS - 1 6/5" anchors to concrete and built into brickwork	No.	1 404	17,44	24 485,76
BJ97		Plasterwork: Plaster brick walls in panels up to 20 mm thick	m²	513	94,45	48 452,85
BJ98		Floor finish: Flowcrete Peran STB 3-4 mm thick to top of floors (blue 7750)	m²	208	479,57	99 750,56
	PD 10.08	Doors and Windows: Supply and install 3CR12 with powder coated epoxy (grey) purpose-made doors and frames complete including ironmongery (see 110585-CS-0108 and 0097 and 0099)				
BJ99		Double door - Type C as shown on Drg 110585-CS-0097	No.	2	61 464,18	122 928,36
BJ100		Single door - Type A as shown on Drg 110585-CS-0095	No.	1	47 338,83	47 338,83
BJ101		Single door - Type D5 as shown on Drg 110585-CS-0108	No.	2	4 576,35	9 152,70
Carried forward / ...						4 053 024,12

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SECTION BJ: CHEMICAL DOSING
BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						4 053 024,12
BJ102		Supply and install powder coated heavy duty roller shutter door, electrically operated, complete with locking system, canopy, etc. to suit opening size 4 000 mm wide x 5 000 mm high	No.	1	45 060,18	45 060,18
BJ103		Winblok precast concrete window surrounds build into brickwork: WB 66 Winblok windows in panels	No.	300	1 470,23	441 069,00
BJ104		Powder coated aluminium framed windows with 6 mm clear safety glass: WV(A)66F fixed window including standard burglar bars, fixed into Winblok WB 66 surround	No.	300	0,00	0,00
	SANS 1200 HB PSHB 8.1.1	Roof Sheeting and Cladding				
	PD 10.11	Structural roof and sheeting				
	PD 10.11.1	Roof sheeting:				
BJ105	PSHB 8.1.1 HB 8.2.2	Supply and install 0,6 mm thick SS (Grade 316) IBR profile roof sheeting to steel purlins	m ²	358	751,54	269 051,32
BJ106	HB 8.2.2	Supply and install 0,6 mm thick SS (Grade 316) IBR profile side cladding to steel girts	m ²	99	751,54	74 402,46
	PSHB 8.2.3	Supply and install 0,8 mm thick SS (Grade 316) ancillaries:				
BJ107		Ridge capping to suit	m	21	610,63	12 823,23
BJ108		Barge board flashing to suit	m	35	610,63	21 372,05
BJ109		L-shaped fascia flashing	m	41	470,59	19 294,19
BJ110		External corner flashing to suit	m	4	610,63	2 442,52
BJ111		Drip flashing to suit	m	73	251,99	18 395,27
BJ112		Broad or narrow flute closers	m	82	251,99	20 663,18
BJ113		Poly closures to suit broad or narrow flutes for dust control	m	82	38,52	3 158,64
Carried forward / ...						4 980 756,16

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						4 980 756,16
BJ114	PD 10.10	Supply and install Sisalation FR430 insulation under roof sheeting and to side cladding including all straining wires, lapping, etc. (PSHB 3.2.4)	m ²	457	46,59	21 291,63
BJ115		Ceilings: Approved vinyl cladded board suspended ceiling system complete with T-hangers, cross hangers, suspended wires, etc. exceeding 1,5 m and up to 3.0 m below steel nurlins	m ²	70	349,37	24 455,90
BJ116		Approved angle or recessed suspended ceiling cornice	m	50	199,64	9 982,00
	PD 10.13	Plumber:				
	PD 10.13.1	Plumbing and drainage: Supply, fix and connect exterior drain pipes to showers and sumps; PVC-U waste water piping all in accordance with SANS 967-2003;				
BJ117		110 mm diameter pipes in and including trenches not exceeding 1,5 m deep installed on and including flexible pipe bedding	m	18	241,96	4 355,28
BJ118		200 mm diameter pipes in and including trenches not exceeding 1,5 m deep installed on and including flexible pipe bedding	m	30	411,22	12 336,60
BJ119		110 mm diameter x 45° bend	No.	4	141,05	564,20
BJ120		200 mm diameter x 45° bend	No.	2	274,50	549,00
BJ121		110 mm diameter stainless steel floor drain complete (for shower), ROFO or similar approved, including jointing to drain pipes	No.	1	2 453,18	2 453,18
BJ122		Cast 110 mm diameter drain pipe through up to 200 mm thick concrete wall	No.	6	130,20	781,20
BJ123		Cast 200 mm diameter drain pipe through 200 mm thick concrete wall	No.	1	166,00	166,00
BJ124		Connect 200 mm diameter drain pipe to existing manhole and seal watertight	No.	1	1 227,14	1 227,14
Carried forward / ...						5 058 918,29

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SECTION BJ: CHEMICAL DOSING
BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						5 058 918,29
	PD 10.13.2	Rainwater goods				
		Supply and install aluminium:				
BJ125		150 mm x 150 mm rectangular profile gutter	m	41	217,00	8 897,00
BJ126		Extra over gutter for stop ends	No.	4	16,28	65,12
BJ127		Extra over gutter for 100 mm x 100 mm outlet	No.	10	43,40	434,00
BJ128		100 mm x 100 mm dropdown pipe	m	92	173,60	15 971,20
BJ129		Extra over dropdown pipe for offset bends	No.	20	8,68	173,60
BJ130		Extra over dropdown pipe for shoes	No.	10	8,68	86,80
	PD 10.14	Paintwork:				
BJ131		Internal plastered walls with approved undercoat and two (water based enamel) top coats	m²	513	63,58	32 616,54
BJ132		Smooth off shutter concrete surfaces in columns, beams, etc. with approved undercoat and two (water based enamel) top coats	m²	122	63,58	7 756,76
BJ133		3-5 mm thick smooth plaster skim coat to off shutter concrete slab soffits and paint with approved undercoat and two (water based enamel) top coats	m²	78	198,50	15 483,00
	PD 10.15	Miscellaneous items and operations:				
		Items measured by number:				
BJ134		SS316 sleeve pipes, 110 mm diameter x 400 mm long cast through 300 mm thick wall	No.	5	542,50	2 712,50
BJ135		9 kg fire extinguishers complete with brackets and all required signage	No.	2	840,88	1 681,76
BJ136		10 kg Co2 fire extinguishers complete with brackets and all required signage	No.	2	1 421,35	2 842,70
BJ137		Fire hose reel with 30m rubber hose, chromium plated stopcock, shut-off nozzle and wall bracket, including all pipework to hose reel from main connection point outside the building and all required signage	No.	1	7 539,66	7 539,66
Carried forward / ...						5 155 178,93

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SECTION BJ: CHEMICAL DOSING
BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						5 155 178,93
BJ138	PD 10.15	Items measured by lengths: Set of two x 110 mm diameter uPVC sleeves under surface beds in and including trenches not exceeding 1,5 m deep installed on and including flexible pipe bedding	m	17	296,20	5 035,40
BJ139		Cast end of set of two x 110 mm diameter sleeves through 300 mm thick concrete wall and seal watertight	No.	6	2 355,54	14 133,24
BJ140		1 mm thick x 150 mm wide x average 200 mm deep stainless steel (316) U-shaped channel embedded in recess in top of floors	m	29	542,50	15 732,50
BJ141		Items measured by area: 4 mm thick torch-on waterproofing system including turn-ups and turn-down and painted with two coats aluminium based paint (waterproofing with 5 year guarantee)	m²	11	233,28	2 566,15
TOTAL SECTION BJ CARRIED TO SUMMARY						R 5 192 646,15

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
	SPEC BE-01	SECTION BK: CHEMICAL DOSING BUILDING - SMALL POWER AND LIGHTING				
		POWER SUPPLY				
BK1	1.3.13	Liason with M&E Contractor for Permanent Electrical Supplies.	Sum	1	542,50	542,50
	1.3.1	LIGHTING				
		Luminaire A: 1 x 26W CFL bulkhead light fitting.				
BK2		(i) Supply	No.	1	781,20	781,20
BK3		(ii) Install	No.	1	103,08	103,08
		Luminaire B: 2 x 54W T5 industrial vapour proof fluorescent light fitting - ceiling mounted.				
BK4		(i) Supply	No.	6	805,07	4 830,42
BK5		(ii) Install	No.	6	103,08	618,48
		Luminaire C: 1 x 54W T5 industrial vapour proof fluorescent light fitting.				
BK6		(i) Supply	No.	6	602,18	3 613,08
BK7		(ii) Install	No.	6	103,08	618,48
BK8		45° 54W Fluorescent Bracket	No.	8	48,82	390,56
BK9		(i) Supply	No.	32	2 942,52	94 160,64
BK10		(ii) Install	No.	32	103,08	3 298,56
		Luminaire EM: 2 x 10W Emergency light fitting, 1.5 hr backup				
BK11		(i) Supply	No.	6	1 291,15	7 746,90
BK12		(ii) Install	No.	6	103,08	618,48
	1.3.2	Wall mounted Photocell Day/night switch				
BK13		(i) Supply	No.	1	428,58	428,58
BK14		(ii) Install	No.	1	103,08	103,08
Carried forward / ...						117 854,04

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						117 854,04
	SPEC BE-01	DISTRIBUTION BOARDS				
	1.3.3	Chemical Dosing Distribution Board (DB-CD)				
BK15		Supply	No.	1	7 865,15	7 865,15
BK16		Install	No.	1	379,75	379,75
		32 Amp 5-pin 400V industrial switched socket outlet				
BK17		Supply	No.	1	933,10	933,10
BK18		Installation	No.	1	97,65	97,65
	1.3.4	Sliding GRP socket outlet housing				
BK19		Supply	No.	2	75,95	151,90
BK20		Installation	No.	2	16,28	32,56
		Double normal switched socket outlet, recessed mounted @ 300mm AFFL unless noted otherwise or mounted on powerskirting				
BK21		Supply	No.	2	135,62	271,24
BK22		Installation	No.	2	27,12	54,24
		16 Amp 3-pin 250V single socket outlet IP 65				
BK23		Supply	No.	1	265,82	265,82
BK24		Installation	No.	1	27,12	27,12
	1.3.6	Industrial Flush Mounted 16A Light Switches complete with boxes, cover plates switches etc; Similar or equivalent to Crabtree Classic Range				
		1-Lever, 1-Way				
BK25		Supply	No.	6	34,72	208,32
BK26		Installation	No.	6	16,28	97,68
Carried forward / ...						128 238,57

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BK: CHEMICAL DOSING BUILDING -
SMALL POWER AND LIGHTING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						128 238,57
BK27	SPEC BE-01	1-Lever, 2-Way Supply	No.	2	48,82	97,64
BK28		Installation	No.	2	16,28	32,56
	1.3.8	COPPER CONDUCTOR Single core PVC insulated, general purpose, high conductivity, stranded conductor (red, black)				
BK29		2.5mm ²	m	420	9,76	4 099,20
BK30		4mm ²	m	50	13,02	651,00
BK31		6mm ²	m	50	17,36	868,00
	1.3.8	Single core PVC insulated, general purpose, high conductivity, stranded earth conductor (green/yellow)				
BK32		2.5mm ²	m	210	6,51	1 367,10
BK33		4mm ²	m	25	8,68	217,00
BK34		6mm ²	m	25	10,85	271,25
	1.3.9	CONDUIT Supply and Install Conduit surface mounted to brickwork, concrete, steel or ceiling voids or cast into concrete or built/chased into brickwork or concrete. Complete with bends, couplings, glue etc.				
BK35		20mm Diameter, PVC	m	50	6,51	325,50
BK36		25mm Diameter, PVC	m	50	9,76	488,00
BK37		32mm Diameter, PVC	m	10	15,19	151,90
BK38		20mm Diameter, Hot-dipped Galvanised Steel	m	20	17,36	347,20
BK39		25mm Diameter, Hot-dipped Galvanised Steel	m	20	20,62	412,40
BK40		32mm Diameter, Hot-dipped Galvanised Steel	m	20	23,87	477,40
Carried forward / ...						138 044,72



MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BK: CHEMICAL DOSING BUILDING -
SMALL POWER AND LIGHTING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						138 044,72
BK41	SPEC BE-01 1.3.10	Supply and Install Round conduit boxes placed in position for casting into concrete or chased into brickwork or concrete				
		20mm Diameter conduit, PVC	No.	2	8,68	17,36
BK42		25mm Diameter conduit, PVC	No.	2	9,76	19,52
BK43		62mm Round box lid, PVC	No.	2	4,34	8,68
BK44		20mm Diameter conduit, Hot-dipped Galvanised Steel	No.	2	36,89	73,78
BK45		25mm Diameter conduit, Hot-dipped Galvanised Steel	No.	2	39,06	78,12
BK46	1.3.11	62mm Round box lid, Hot-dipped Galvanised Steel	No.	2	5,42	10,84
		EARTHING				
		Bare Copper, Stranded Earth conductor				
BK47		70mm ²	m	200	77,04	15 408,00
BK48		1.5m, 16mm diameter Cu earth rods	No.	8	179,02	1 432,16
BK49		Copper Earth Bar, 50(H)x10(W)x1200mm(L), mounted in MCC trench or building	No.	1	4 068,75	4 068,75
		GENERAL (SMALL POWER AND LIGHTING)				
BK50	1.3.20	Delivery to site of equipment	Sum	1	1 085,00	1 085,00
BK51	1.3.21	Labelling of all equipment and conductors	Sum	1	1 898,75	1 898,75
BK52	1.3.22	Testing and Commissioning of Small Power and Lighting System	Sum	1	1 567,82	1 567,82
BK53	1.3.23	Certificates of compliance	Sum	1	1 139,25	1 139,25
BK54	1.3.28	As-Built Drawings	Sum	1	2 647,40	2 647,40
BK55		Additional lighting as directed by the Engineer	PC Sum	1		50 000,00
TOTAL SECTION BK CARRIED TO SUMMARY						R 217 500,15

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BL: CHLORINE
DISINFECTION BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION BL: CHLORINE DISINFECTION BUILDING				
	SANS 1200 G	CONCRETE (STRUCTURAL)				
	PSG 8.1.1	FORMWORK				
	8.2.1	Rough:				
		Plane Vertical to:				
BL1		Edges of bases	m ²	81	389,15	31 521,15
BL2		Edges of strip footings	m ²	43	389,15	16 733,45
BL3		Ramp toe (inside)	m ²	7	435,81	3 050,67
BL4		Shower pit sides	m ²	3	435,81	1 307,43
	8.2.3	Special smooth:				
		Plane Vertical to:				
BL5		Columns in foundations	m ²	46	435,81	20 047,26
BL6		Columns	m ²	237	435,81	103 286,97
BL7		Channel walls	m ²	108	389,15	42 028,20
BL8		Sides of beams and corbels	m ²	152	389,15	59 150,80
BL9		Scrubber bund and sump walls	m ²	26	389,15	10 117,90
BL10		Scrubber plinth edges	m ²	9	435,81	3 922,29
BL11		Shower pit sides	m ²	2	435,81	871,62
BL12		Ramp edges	m ²	9	435,81	3 922,29
		Plane horizontal to:				
BL13		Soffits of beams	m ²	51	617,94	31 514,94
		Plane sloping to:				
BL14		Soffits of beam corbel	m ²	3	617,94	1 853,82
Carried forward / ...						329 328,79

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BL: CHLORINE
DISINFECTION BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						898 726,06
BL31		Class 35 Mpa/26 mm (watertight) concrete to: Bases	m³	53	1 740,59	92 251,27
BL32		Strip footings	m³	16	1 780,93	28 494,88
BL33		Columns in foundations	m³	6	1 780,93	10 685,58
BL34		Floor channels	m³	18	1 740,59	31 330,62
BL35		Floor slabs/surface beds	m³	58	1 740,59	100 954,22
BL36		Plinths	m³	13	1 740,59	22 627,67
BL37		Scrubber banded plinth and sump	m³	22	1 740,59	38 292,98
BL38		Ramps	m³	8	1 780,93	14 247,44
BL39		Aprons and steps	m³	17	1 740,59	29 590,03
BL40		Shower pits	m³	2	1 982,65	3 965,30
	PSG 8.4.4	Unformed surface finishes:				
		Wood-floated finishes to:				
BL41		Horizontal surfaces	m²	138	30,65	4 229,70
		Steel-floated finishes to:				
BL42		Horizontal surfaces	m²	467	38,29	17 881,43
	PSG 8.5	JOINTS:				
		Isolation Joints:				
BL43		10 mm Jointex between concrete surfaces	m²	3	75,95	227,85
BL44		10 mm Jointex between concrete surfaces, 150 mm high	m	63	11,39	717,57
BL45		10 mm Jointex between concrete surfaces, 300 mm high	m	1	22,78	22,78
BL46		10 mm Jointex between concrete and brickwork, up to 150 mm high	m	183	11,39	2 084,37
BL47		10 mm Jointex between concrete and brickwork, 300 mm high	m	8	22,78	182,24
Carried forward / ...						1 296 511,99

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BL: CHLORINE
DISINFECTION BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 296 511,99
BL48		10 mm Jointex between concrete surface and brickwork, 280 mm wide	m	278	21,27	5 913,06
		Saw joints:				
BL49		3 mm x 25 mm deep in aprons	m	27	14,48	390,96
BL50		6 mm x 40 mm deep in floors	m	28	19,30	540,40
		Sealing of joints with sealant:				
BL51		10 mm x 15 mm polyurethane sealant in vertical isolation joints in walls	m	510	154,11	78 596,10
BL52		10 mm x 15 mm polyurethane sealant in horizontal isolation joints in floors and aprons	m	258	154,11	39 760,38
BL53		6 mm x 20 mm polyurethane sealant in saw joints	m	28	154,11	4 315,08
	SANS 1200 H	STRUCTURAL STEELWORK				
	PSH 8.3.14	Supply, fabrication, delivery and installation of steelwork:				
BL54		Structural steel with hot-dip galvanized corrosion protection system in roof structure complete with all necessary items including purlins, erection bolts and preparation of shop drawings	t	8,91	44 485,00	396 361,35
	8.3.6	Holding-down (HD) bolts:				
BL55		M20 HILTI HIT bolts	No.	120	244,12	29 294,40
	SANS 1200 HA	SUNDRY STRUCTURAL STEEL				
	PSHA 8.3.4	Open grid flooring (Refer to PSHA 5.2.8):				
BL56		Supply and install 50 mm thick fibre reinforced plastic (FRP) banded grating with a nominal opening size of 50 x 50 mm as shown on drawings	m²	37	1 139,25	42 152,25
BL57		50 x 50 x 5 mm SS316 angle with 50 mm x 150 mm x 5 mm thick fishtail lugs at 350 mm centres, cast in concrete to support FRP grating above	m	108	582,64	62 925,12
Carried forward / ...						1 956 761,09

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BL: CHLORINE
DISINFECTION BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 956 761,09
	SPEC PD	BUILDING WORK				
	PD 10.03	Pre-stressed lintels				
BL58		280 mm x 75 mm lintels	m	17	199,63	3 393,71
	PD 10.04	Construction of brickwork:				
	PD 10.04.1	Brickwork:				
		Brick walls in non-facing engineering bricks including butterfly ties, splayed concrete fillet along bottom and weep holes as specified and shown on drawings for:				
BL59		280 mm cavity walls with 60 mm cavity in superstructures	m ²	53	514,47	27 266,91
BL60		280 mm cavity walls in foundations with 60 mm cavity filled with 15 MPa concrete	m ²	16	612,68	9 802,88
		Brick walls in non-facing engineering plaster bricks inside face and facebrick to match existing outside face including butterfly ties, splayed concrete fillet along bottom and weep holes as specified and shown on drawings for:				
BL61		280 mm cavity walls with 60 mm cavity in superstructures	m ²	408	792,00	323 136,00
BL62		280 mm cavity walls in foundations with 60 mm cavity filled with 15 MPa concrete	m ²	95	890,46	84 593,70
BL63		Cement mortar splayed fill 170 mm high in 60 mm cavity above lintels	m	17	9,33	158,61
BL64		Extra over cavity walls for closing 60 mm cavity vertically at doors or windows	m	34	66,74	2 269,16
BL65		Extra over cavity walls for closing 60 mm cavity horizontally under windows	m	3	66,74	200,22
BL66		Leave 300 mm x 300 mm opening through 280 mm cavity wall for extractor fan installation	No.	6	125,43	752,58
	PD10.04.3	Damp proofing:				
		250 micron medium density polyethylene damp-proof sheeting:				
BL67		Under floor slab	m ²	312	11,32	3 531,84
Carried forward / ...						2 411 866,70

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BL: CHLORINE
DISINFECTION BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						2 411 866,70
BL68	PD10.04.6	Sides and bottom of pipe trenches	m²	98	15,08	1 477,84
		375 micron embossed polyethylene type B damp-proof sheeting:				
BL69		In walls	m²	40	26,03	1 041,20
		Masonry reinforcing and anchors:				
BL70	PD 10.05	225 mm brick reinforcing for 280 mm cavity walls	m	2 990	2,56	7 654,40
BL71		1,2 mm x 30 mm wide x 750 mm Long galvanised hoop iron straps fixed with 2 x "HILTI HPS - 1 6/5" anchors to concrete and built into brickwork	No.	2 156	17,44	37 600,64
		Plasterwork:				
BL72	PD 10.06	Plaster brick walls in panels up to 20 mm thick	m²	526	94,45	49 680,70
		Floor finish:				
BL73	PD 10.08	Flowcrete Peran STB 3-4 mm thick to top of floors (light grey)	m²	276	479,57	132 361,32
BL74		Flowcrete Peram STB 3-4 mm thick to top and sides of plinths	m²	65	479,57	31 172,05
		Doors and Windows:				
		Supply and install 3CR12 with powder coated epoxy (yellow) purpose-made doors and frames complete including ironmongery (see 110585-CS-1325 and 1326)				
BL75		Double door - Type CA as shown on Drg 110585-CS-1325	No.	1	71 554,68	71 554,68
BL76		Single door - Type AA as shown on Drg 110585-CS-1326	No.	3	48 315,33	144 945,99
BL77		Supply and install purpose-made spring loaded double door and frame (3CR12 with powder coated epoxy) complete with locking system to suit opening size 5 000 mm wide x 4 500 mm high	No.	1	133 815,22	133 815,22
		Winblok precast concrete window surrounds build into brickwork:				
BL78		WB 66 Winblok windows in panels	No.	188	1 470,22	276 401,36
Carried forward / ...						3 299 572,10

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BL: CHLORINE
DISINFECTION BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						3 299 572,10
BL79		Powder coated aluminium framed windows with 6 mm clear safety glass: WV(A)66F fixed window including standard burglar bars, fixed into Winblok WB 66 surround	No.	188	0,00	0,00
BL80		Window size 1 500 mm wide x 1 000 mm high with airtight sealed fixed glazing	No.	2	4 283,58	8 567,16
	SANS 1200 HB PSHB 8.1.1	Roof Sheeting and Cladding				
	PD 10.11	Structural roof and sheeting				
	PD 10.11.1	Roof sheeting:				
BL81	PSHB 8.1.1 HB 8.2.2	Supply and install 0,6 mm thick SS (Grade 316) IBR profile roof sheeting to steel purlins	m²	390	657,55	256 444,50
BL82	HB 8.2.2	Supply and install 0,6 mm thick SS (Grade 316) IBR profile side cladding to steel girts	m²	84	661,58	55 572,72
BL83		Extra over roof sheeting and side cladding for bullnose edge	m	74	60,61	4 485,14
	PSHB 8.2.3	Supply and install 0,8 mm thick SS (Grade 316) ancillaries:				
BL84		Ridge capping to suit	m	32	306,06	9 793,92
BL85		Barge board flashing to suit	m	32	287,86	9 211,52
BL86		Head wall flashing cover to suit	m	11	222,37	2 446,07
BL87		Cover flashing to suit	m	11	172,72	1 899,92
BL88		External corner flashing to suit	m	4	287,86	1 151,44
BL89		Drip flashing to suit	m	105	172,72	18 135,60
BL90		Broad or narrow flute closers	m	63	47,27	2 978,01
BL91		Poly closures to suit broad or narrow flutes for dust control	m	63	21,21	1 336,23
BL92		Extra over barge board and external corner flashings for curved bullnose profile section	No.	6	783,81	4 702,86
Carried forward / ...						3 676 297,19

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BL: CHLORINE
DISINFECTION BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						3 676 297,19
BL93	PD 10.13 PD 10.13.1	Supply and install Sisalation FR430 insulation under roof sheeting and to side cladding including all straining wires, lapping, etc. (PSHB 3.2.4)	m ²	474	46,59	22 083,66
		Plumber:				
		Plumbing and drainage:				
		Supply, fix and connect exterior drain pipes to showers and scrubber area:				
		PVC-U waste water piping all in accordance with SANS 967-2003:				
BL94		110 mm diameter pipes in and including trenches not exceeding 1,5 m deep installed on and including flexible pipe bedding	m	50	241,96	12 098,00
BL95		110 mm diameter x 45° bend	No.	9	141,05	1 269,45
BL96		110 mm diameter x 45° junction	No.	1	141,05	141,05
BL97		110 mm diameter stainless steel floor drain complete (for shower), ROFO or similar approved. Including jointing to drain pipes	No.	2	2 453,18	4 906,36
BL98		Cast 110 mm diameter drain pipe through up to 200 mm thick concrete wall	No.	3	130,20	390,60
BL99	PD 10.13.2	Connect 110 mm diameter drain pipe to existing manhole and seal watertight	No.	3	1 227,14	3 681,42
		Rainwater goods				
		Supply and install aluminium:				
BL100		150 mm x 150 mm rectangular profile gutter	m	74	217,00	16 058,00
BL101		Extra over gutter for stop ends	No.	6	16,28	97,68
BL102		Extra over gutter for 100 mm x 100 mm outlet	No.	17	43,40	737,80
BL103		100 mm x 100 mm dropdown pipe	m	107	173,60	18 575,20
BL104		Extra over dropdown pipe for shoes	No.	17	8,68	147,56
Carried forward / ...						3 756 483,97

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BL: CHLORINE
DISINFECTION BUILDING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						3 756 483,97
BL105	PD 10.14	Paintwork: Internal plastered walls with approved undercoat and two (water based enamel) top coats	m ²	526	63,58	33 443,08
BL106		Smooth off shutter concrete surfaces in columns, beams, etc. with approved undercoat and two (water based enamel) top coats	m ²	174	63,58	11 062,92
	PD 10.15	Miscellaneous items and operations: Items measured by number:				
BL107		9 kg fire extinguishers complete with brackets and all required signage	No.	2	840,88	1 681,76
BL108		Fire hose reel with 30m rubber hose, chromium plated stopcock, shut-off nozzle and wall bracket, including all pipework to hose reel from main connection point outside the building and all required signage	No.	1	7 539,66	7 539,66
TOTAL SECTION BL CARRIED TO SUMMARY						R 3 810 211,39

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
	SPEC BE-01	SECTION BM : CHLORINE DISINFECTION BUILDING - SMALL POWER AND LIGHTING				
		POWER SUPPLY				
BM1	1.3.13	Liason with M&E Contractor for Permanent Electrical Supplies.	Sum	1	542,50	542,50
	1.3.1	LIGHTING				
		Luminaire B: 2 x 54W T5 industrial vapour proof fluorescent light fitting - ceiling mounted.				
BM2		(i) Supply	No.	15	805,07	12 076,05
BM3		(ii) Install	No.	15	103,08	1 546,2
		Luminaire C: 1 x 54W T5 industrial vapour proof fluorescent light fitting.				
BM4		(i) Supply	No.	2	602,18	1 204,36
BM5		(ii) Install	No.	2	103,08	206,16
		Luminaire F: 70W HPS industrial bulkhead light fitting				
BM6		(i) Supply	No.	9	1 784,82	16 063,38
BM7		(ii) Install	No.	9	103,08	927,72
		Luminaire G: Single 54 T5 Industrial zone 1 fluorescent light. These lights must be suitable for highly corrosive environments.				
BM8		(i) Supply	No.	6	5 321,92	31 931,5
BM9		(ii) Install	No.	6	103,08	618,48
		Luminaire EM: 2 x 10W Emergency light fitting, 1.5 hr backup				
BM10		(i) Supply	No.	10	1 291,15	12 911,50
BM11		(ii) Install	No.	10	103,08	1 030,80
	1.3.2	Wall mounted Photocell Day/night switch				
BM12		(i) Supply	No.	1	428,58	428,58
BM13		(ii) Install	No.	1	103,08	103,08
Carried forward / ...						79 590,33

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						79 590,33
	SPEC BE-01	DISTRIBUTION BOARDS				
	1.3.3	Chlorination Building Distribution Board (DB-CHL)				
BM14		Supply	No.	1	6 146,52	6 146,52
BM15		Install	No.	1	379,75	379,75
		POWER				
		32 Amp 5-pin 400V industrial switched socket outlet				
BM16		Supply	No.	2	933,10	1 866,20
BM17		Installation	No.	2	97,65	195,30
	1.3.4	Sliding GRP socket outlet housing				
BM18		Supply	No.	1	75,95	75,95
BM19		Installation	No.	1	16,28	16,28
		Double normal switched socket outlet, recessed mounted @ 300mm AFFL unless noted otherwise or mounted on powerskirting				
BM20		Supply	No.	5	135,62	678,10
BM21		Installation	No.	5	27,12	135,60
		16 Amp 3-pin 250V single socket outlet IP 65				
BM22		Supply	No.	2	265,82	531,64
BM23		Installation	No.	2	27,12	54,24
	1.3.6	Industrial Flush Mounted 16A Light Switches complete with boxes, cover plates switches etc; Similar or equivalent to Crabtree Classic Range				
		1-Lever, 1-Way				
BM24		Supply	No.	3	34,72	104,16
BM25		Installation	No.	3	16,28	48,84
Carried forward / ...						89 822,91

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						89 822,91
BM26	SPEC BE-01	1-Lever, 2-Way Supply	No.	2	48,82	97,64
BM27		Installation	No.	2	16,28	32,56
	1.3.8	COPPER CONDUCTOR Single core PVC Insulated, general purpose, high conductivity, stranded conductor (red, black)				
BM28		1.5mm ²	m	100	5,42	542,00
BM29		2.5mm ²	m	500	9,76	4 880,00
BM30		4mm ²	m	100	13,02	1 302,00
BM31		6mm ²	m	80	17,36	1 388,80
	1.3.8	Single core PVC insulated, general purpose, high conductivity, stranded earth conductor (green/yellow)				
BM32		1.5mm ²	m	50	3,26	163,00
BM33		2.5mm ²	m	250	6,51	1 627,50
BM34		4mm ²	m	50	8,68	434,00
BM35		6mm ²	m	40	10,85	434,00
	1.3.9	CONDUIT Supply and Install Conduit surface mounted to brickwork, concrete, steel or ceiling voids or cast into concrete or built/chased into brickwork or concrete. Complete with bends, couplings, glue etc.				
BM36		20mm Diameter, PVC	m	500	6,51	3 255,00
BM37		25mm Diameter, PVC	m	500	9,76	4 880,00
BM38		32mm Diameter, PVC	m	100	15,19	1 519,00
BM39		20mm Diameter, Hot-dipped Galvanised Steel	m	100	17,36	1 736,00
BM40		25mm Diameter, Hot-dipped Galvanised Steel	m	100	20,62	2 062,00
BM41		32mm Diameter, Hot-dipped Galvanised Steel	m	100	23,87	2 387,00
Carried forward / ...						116 563,41

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BM : CHLORINE DISINFECTION BUILDING
- SMALL POWER AND LIGHTING

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						116 563,41
	SPEC BE-01 1.3.10	Supply and Install Round conduit boxes placed in position for casting into concrete or chased into brickwork or concrete				
BM42		20mm Diameter conduit, PVC	No.	20	8,68	173,60
BM43		25mm Diameter conduit, PVC	No.	20	9,76	195,20
BM44		62mm Round box lid, PVC	No.	20	4,34	86,80
BM45		20mm Diameter conduit, Hot-dipped Galvanised Steel	No.	20	36,89	737,80
BM46		25mm Diameter conduit, Hot-dipped Galvanised Steel	No.	20	39,06	781,20
BM47		62mm Round box lid, Hot-dipped Galvanised Steel	No.	20	5,42	108,40
	1.3.11	EARTHING				
		Bare Copper, Stranded Earth conductor				
BM48		70mm ²	m	50	77,04	3 852,00
BM49		1.5m, 16mm diameter Cu earth rods	No.	4	179,02	716,08
BM50		Copper Earth Bar, 50(H)x10(W)x1200mm(L), mounted in MCC trench or building	No.	1	4 068,75	4 068,75
	1.3.12	MCC TRENCH COVERS				
BM51		100mm wide wooden slabs over MCC room trenches	m ²	5	971,08	4 855,40
		GENERAL (SMALL POWER AND LIGHTING)				
BM52	1.3.20	Delivery to site of equipment	Sum	1	1 085,00	1 085,00
BM53	1.3.21	Labelling of all equipment and conductors	Sum	1	1 898,75	1 898,75
BM54	1.3.22	Testing and Commissioning of Small Power and Lighting System	Sum	1	1 567,82	1 567,82
BM55	1.3.23	Certificates of compliance	Sum	1	1 139,25	1 139,25
BM56	1.3.28	As-Built Drawings	Sum	1	2 647,40	2 647,40
BM57		Additional lighting as directed by the Engineer		PC Sum		80 000,00
TOTAL SECTION BM CARRIED TO SUMMARY						R 220 476,86

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
	SPEC BE-02	SECTION BN : BUILDING - INFORMATION MANAGEMENT				
		POWER SUPPLY				
BN1		Liason with LV Electrical Subcontractor to arrange power supplies	Sum	1	542,50	542,50
		INTRUDER DETECTION				
BN2		Intruder Alarm Control Panel	No.	2	4 692,62	9 385,24
BN3		Long Range PIR Detector, 90° Wide	No.	20	292,95	5 859,00
BN4		Magnetic Door Monitor	No.	11	70,52	775,72
BN5		Intruder Detection Keypad	No.	2	1 866,20	3 732,4
BN6		Siren	No.	3	168,18	504,54
BN7		Intruder Detection Loop Conductor	m	1 000	16,28	16 280,00
	FD-01	FIRE DETECTION				
BN8		Fire Detection Control Panel	No.	2	18 607,75	37 215,50
BN9		Fire Detection Loop Conductor	m	1 000	21,70	21 700,00
BN10		Optical Smoke Detector	No.	26	656,42	17 066,92
BN11		Break Glass Unit	No.	8	1,08	8,64
BN12		Siren/Strobe Light/Optical Smoke Detector Combination	No.	3	1 741,42	5 224,26
BN13		I/O unit	No.	31	704,16	21 828,96
BN14		Power Supply 24V dc 5A	No.	2	2 305,62	4 611,2
BN15		Aspirated fire detection system panel	No.	4	64 232,00	256 928,00
BN16		Aspirated fire detection system pipes	m	600	16,28	9 768,00
BN17		Aspirated fire detection Sampling point	No.	7	6 324,46	44 271,22
		CCTV				
BN18		Fixed Camera (including waterproof housing and mounting bracket)	No.	8	5 842,72	46 741,76
BN19		Dome Camera (including wall bracket)	No.	8	4 636,20	37 089,60
BN20		Camera Data Cable (CAT5)	m	800	10,85	8 680,00
Carried forward / ...						548 213,50

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BN : BUILDING -
INFORMATION MANAGEMENT

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						548 213,50
BN21	SPEC BE-02	Video Server (including data storage, rack)	No.	2,0	81 103,75	162 207,50
BN22		Video Monitor (including 19" monitor, software)	No.	2	5 419,58	10 839,16
BN23		Power-over-ethernet switch	No.	2	9 455,78	18 911,56
BN24		POE Power Supply Module	No.	2	1 936,72	3 873,44
CONDUIT						
BN25		PVC, 20 mm	m	2 700	20,62	55 674,00
BN26		PVC, 25 mm	m	2 700	23,87	64 449,00
GENERAL (BUILDING INFORMATION MANAGEMENT)						
BN27		Access Control System as directed by the Engineer	PC Sum	1	150 000,00	150 000,00
BN28		Telephone and data network as directed by the Engineer	PC Sum	1	150 000,00	150 000,00
BN29		Delivery to site of equipment	Sum	1	2 712,50	2 712,50
BN30		Labelling of all equipment and conductor	Sum	1	1 898,75	1 898,75
BN31		Training	Hrs	1	1 953,00	1 953,00
BN32		Testing and Commissioning of Building Information Management Systems	Sum	1	19 313,00	19 313,00
BN33		Certificates of compliance	Sum	1	2 278,50	2 278,50
BN34	O&M Manuals	Sum	1	17 360,00	17 360,00	
BN35	As-Built Drawings	Sum	1	9 222,50	9 222,50	
TOTAL SECTION BN CARRIED TO SUMMARY						R 1 218 906,41

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BO : HEATING, VENTILATION
AND AIR CONDITIONING (HVAC) UNITS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount -R- -c
	SPEC-BE-02	SECTION BO : HEATING, VENTILATION AND AIR CONDITIONING (HVAC) UNITS				
		POWER-SUPPLY				
BO1		Liason with LV-Electrical Subcontractor to arrange power supplies	Sum	1		
		INTRUDER-DETECTION				
BO2		Intruder Alarm Control Panel	No.	8		
BO3		Long-Range PIR Detector, 90° Wide	No.	20		
BO4		Magnetic Door Monitor	No.	25		
BO5		Intruder Detection Keypad	No.	10		
BO6		Siren	No.	10		
BO7		Intruder Detection Loop Conductor	m	4-500		
	FD-01	FIRE-DETECTION				
BO8		Fire Detection Control Panel	No.	3		
BO9		Fire Detection Loop Conductor	m	2-000		
BO10		Optical Smoke Detector	No.	23		
BO11		Break Glass Unit	No.	16		
BO12		Siren/Strobe Light/Optical Smoke Detector Combination	No.	15		
BO13		I/O-unit	No.	12		
BO14		Power Supply 24V dc 5A	No.	3		
		CCTV				
BO15		Fixed Camera (including waterproof housing and mounting bracket)	No.	15		
BO16		Dome Camera (including wall bracket)	No.	20		
BO17		Camera Data Cable (CAT5)	m	2-000,0		
BO18		Video Server (including data storage, rack)	No.	3,0		
BO19		Video Monitor (including 19" monitor,	No.	4		
-Carried forward / ...-						

**MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIE TREATMENT WORKS**

**SECTION BO : HEATING, VENTILATION
AND AIR CONDITIONING (HVAC) UNITS**

Item-No	Payment- Clause	Short-Description	Unit	Quantity	Rate	-Amount R-----c
-Brought-forward / ...						
BO20	SPEC-BE-02	Power-over-ethernet-switch	No.	3		
BO21		POE-Power-Supply-Module	No.	3		
		CONDUIT				
BO22		PVC, 20 mm	m	2-000		
BO23		PVC, 25 mm	m	2-000		
		GENERAL-(BUILDING-INFORMATION-MANAGEMENT)				
BO24		Access-Control-System-as-directed-by-the-Engineer	PC-Sum	1		R-----200-000,00
BO25		Telephone-and-data-network-as-directed-by-the-Engineer	PC-Sum	1		R-----100-000,00
BO26		Delivery-to-site-of-equipment	Sum	1		
BO27		Labelling-of-all-equipment-and-conductor	Sum	1		
BO28		Training	Hrs	1		
BO29		Testing-and-Commissioning-of-Building-Information-Management-Systems	Sum	1		
BO30		Certificates-of-compliance	Sum	1		
BO31		O&M-Manuals-	Sum	1		
BO32		As-Built-Drawings	Sum	1		
TOTAL-SECTION-BO-CARRIED-TO-SUMMARY						R

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION BP: CHEMICAL DOSING PIPEWORK AND TRENCHES Drawing No. 110585-WW-1525 to 1526				
	SABS 1200 C	SITE CLEARANCE as specified in SANS 1200 D and in the project specifications				
BP1	PSC 8.2.1 PSD 8.3.1	(a) Remove topsoil to a nominal depth of 100 mm	m³	150	49,56	7 434,00
	SANS 1200 D PSD 8.3.6	EARTHWORKS				
BP2	PSD 8.3.3	Restricted excavation:				
	PSD 8.3.3(a)	Excavate for restricted foundations, footings in all materials and use for embankment, backfill or dispose as ordered, for:	m³	1400	37,17	52 038,00
BP3	8.3.5	(c) Extra-over Item BP1 for fill embankment material against structures from stock- pile and compact to 90% of MAMDD	m²	800	21,96	17 568,00
	PSD 8.3.15	Compaction:				
BP4		(a) Approved natural gravel backfilling compacted to 93% Modified AASHTO as shown on drawings	m³	2300	89,84	206 632,00
BP5		(b) Insitu bed preparation (three pass roller compaction using 5t vibratory roller)	m²	1000	48,72	48 720,00
		Gravel surround				
BP6		(a) Approved natural gravel backfilling compacted to 93% Modified AASHTO as shown on drawings	m³	800	89,84	71 872,00
	SANS 1200 G	CONCRETE WORK				
	8.1.1 PSG 8.1.1	Formwork				
	8.2.1	Rough formwork:				
		Plane vertical to:				
BP7		(a) Sides of footings 250 mm thick for Chemical Pipework Trench	m	1500,0	171,62	257 430,00
Carried forward / ...						661 694,00

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						661 694,00
BP8	SANS 1200 G	(b) Sides of footing 300 mm thick for Chemical Dosing Pipe Network Manholes	m	80,0	171,62	13 729,60
BP9		(c) External walls for Chemical Dosing Pipework Manholes	m ²	50,0	435,81	21 790,50
	8.2.2	Smooth formwork:				
		Plane vertical to:				
BP10		(a) Internal walls for Chemical Dosing Pipework Manholes	m ²	30,0	435,81	13 074,30
	PD 10.04	Construction of brickwork:				
	PD 10.04.1	Brickwork:				
BP11		(a) 300 mm width brick walls as shown on drawings	m ²	1 400	544,97	762 958,00
	8.1.3 PSG 8.1.3	Reinforcement:				
	8.3.1	Mild steel bars:				
BP12		(a) 8 mm dia	t	31,0	11 923,95	369 642,45
		High tensile steel bars:				
BP13		(b) 12 mm dia	t	31,0	11 923,95	369 642,45
	8.4	Concrete:				
	PSG 8.13	Strength concrete Grade 20 MPa/13 mm				
BP14		(a) Infill of 300 mm brick wall	m ³	160,0	1 964,21	314 273,60
	PSG 8.13	Strength concrete Grade 20 MPa/20 mm				
BP15		(a) Pipework Trench floor slab	m ³	320,0	1 684,98	539 193,60
BP16		(b) Manhole floor slabs	m ³	60,0	1 684,98	101 098,80
BP17		(c) Manhole side walls	m ³	10,0	1 684,98	16 849,80
Carried forward / ...						3 183 947,10

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						3 183 947,10
BP18	PSG 8.4.4	Unformed surface finishes: Horizontal wood floated finish to: (a) Footings of Pipework Trenches	m ²	300,0	30,65	9 195,00
BP19		Horizontal steel-floated finish: (a) Floor slab of Pipework Trenches	m ²	580,0	38,29	22 208,20
BP20		Screeding (a) Floor slab screed slope to fall and install drain sump and drain every 20m	m ²	960,0	44,40	42 624,00
BP21	8.5 PSG 8.1.1 PSG 8.1.1.7 PSG 8.5	Designated joints Bitumen impregnated fibre board and polyurethane sealant as shown on drawings	m	1600,0	209,17	334 672,00
BP22	SANS 1200 L PSL 8.2.1 PSL 8.2.19	PIPEWORK (a) Class 10 uPVC 25 mm diameter pipe	m	370	16,00	5 920,00
BP23		(b) Class 10 uPVC 32 mm diameter pipe	m	220	22,42	4 932,40
BP24		(c) Class 10 uPVC 50 mm diameter pipe	m	135	49,36	6 663,60
BP25	SANS 1200 LE	UNDERDRAINAGE SYSTEM as specified in SANS 1200 LE and in the project specifications (a) Filter bed - 100mm no-fines concrete layer including provision for 20 mm thick packed mortar skin	m ²	1300	231,11	300 443,00
BP26	SANS 1200 A PSA 8.18	MISCELLANEOUS Precast/prefabricated items (a) Precast concrete cover slabs 1400mm x 1000mm x 200mm for covering entire length of trench	No.	800	1 748,53	1 398 824,00
BP27		(b) Manhole cover and frame as shown on drawings	No.	5,0	1 475,60	7 378,00
TOTAL SECTION BP CARRIED TO SUMMARY					R	5 316 807,30

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION BQ : INTERCONNECTING PIPEWORK				
	SANS 1200 DB 8.3.2 PSL 8.1.6	Excavation (Pipe Trenches)				
	PSDB 8.3.2(a) PSLB 8.1.5	Excavate in all materials for pipe trenches, backfill, compact and dispose of surplus material for:				
		Pipes up to 160 mm dia for depths:				
		<u>Pipeline SCM01-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1558</u>				
		Over and Up to				
BQ1		0,5 m 1,5 m	m	40	130,84	5 233,60
		<u>Pipeline SCM02-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1557</u>				
		Over and Up to				
BQ2		0,5 m 1,5 m	m	15	130,84	1 962,60
		<u>Pipeline SCM03-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1558</u>				
		Over and Up to				
BQ3		0,5 m 1,5 m	m	25	130,84	3 271,00
		<u>Pipeline SCM04-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1557</u>				
		Over and Up to				
BQ4		0,5 m 1,5 m	m	20	130,84	2 616,80
		<u>Pipeline SCM05-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1558</u>				
		Over and Up to				
BQ5		0,5 m 1,5 m	m	35	130,84	4 579,40
Carried forward / ...						17 663,40

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BQ : INTERCONNECTING
PIPEWORK

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						17 663,40
BQ6		<u>Pipeline SCM06-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1557</u> Over and Up to 0,5 m 1,5 m	m	15	130,84	1 962,60
BQ7		<u>Pipeline SCM07-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1558</u> Over and Up to 0,5 m 1,5 m	m	15	130,84	1 962,60
BQ8		<u>Pipeline SCM08-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1559</u> Over and Up to 0,5 m 1,5 m	m	10	130,84	1 308,40
BQ9		<u>Pipeline SCM09-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1559</u> Over and Up to 0,5 m 1,5 m	m	35	130,84	4 579,40
BQ10		<u>Pipeline SCM10-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1560</u> Over and Up to 0,5 m 1,5 m Pipes up to 160 mm dia for depths:	m	15	130,84	1 962,60
BQ11		<u>Pipeline SCM11-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1560</u> Over and Up to 0,5 m 1,5 m	m	25	130,84	3 271,00
Carried forward / ...						32 710,00

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BQ : INTERCONNECTING
PIPEWORK

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						32 710,00
BQ12		<u>Pipeline SCM12-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1559</u> Over and Up to 0,5 m 1,5 m	m	20	130,84	2 616,80
BQ13		<u>Pipeline SCM13-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1560</u> Over and Up to 0,5 m 1,5 m	m	35	130,84	4 579,40
BQ14		<u>Pipeline SCM14-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1559</u> Over and Up to 0,5 m 1,5 m	m	15	130,84	1 962,60
BQ15		<u>Pipeline SCM15-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1560</u> Over and Up to 0,5 m 1,5 m	m	15	130,84	1 962,60
BQ16		<u>Pipeline SCM16-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1561</u> Over and Up to 0,5 m 1,5 m	m	20	130,84	2 616,80
BQ17		<u>Pipeline SCM17-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1561</u> Over and Up to 0,5 m 1,5 m	m	35	130,84	4 579,40
BQ18		<u>Pipeline SCM18-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1561</u> Over and Up to 0,5 m 1,5 m	m	20	130,84	2 616,80
Carried forward / ...						53 644,40

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BQ : INTERCONNECTING
PIPEWORK

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						53 644,40
BQ19		<u>Pipeline SCM19-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1562</u> Over and Up to 0,5 m 1,5 m	m	30	130,84	3 925,20
BQ20		<u>Pipeline SCM20-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1562</u> Over and Up to 0,5 m 1,5 m	m	10	130,84	1 308,40
BQ21		<u>Pipeline SCM21-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1562</u> Over and Up to 0,5 m 1,5 m	m	40	130,84	5 233,60
BQ22		<u>Pipeline SCM22-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1563</u> Over and Up to 0,5 m 1,5 m	m	30	130,84	3 925,20
BQ23		<u>Pipeline SCM23-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1563</u> Over and Up to 0,5 m 1,5 m	m	55	130,84	7 196,20
BQ24		<u>Pipeline SCM24-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1564</u> Over and Up to 0,5 m 1,5 m	m	60	130,84	7 850,40
Carried forward / ...						83 083,40

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BQ : INTERCONNECTING
PIPEWORK

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						83 083,40
BQ25		<u>Pipeline SCM25-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1564</u> Over and Up to 0,5 m 1,5 m	m	10	130,84	1 308,40
BQ26		<u>Pipeline SCM26-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1565</u> Over and Up to 0,5 m 1,5 m	m	65	130,84	8 504,60
BQ27		<u>Pipeline SCM27-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1566</u> Over and Up to 0,5 m 1,5 m	m	60	130,84	7 850,40
BQ28		<u>Pipeline SCM28-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1567</u> Over and Up to 0,5 m 1,5 m	m	10	130,84	1 308,40
BQ29		1,5 m 2,5 m	m	95	235,52	22 374,40
BQ30		2,5 m 3,5 m	m	10	438,82	4 388,20
BQ31		<u>Pipeline SCM29-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1568</u> Over and Up to 0,5 m 1,5 m	m	10	130,84	1 308,40
BQ32		1,5 m 2,5 m	m	170	235,52	40 038,40
BQ33		2,5 m 3,5 m	m	10	438,82	4 388,20
Carried forward / ...						174 552,80

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						174 552,80
		<u>Pipeline SCM30-160Ø-uPVC as shown on Drawing No. 110585-WWTW-DRG-CC-1569</u>				
		Over and Up to				
BQ34		0,5 m 1,5 m	m	10	130,84	1 308,40
BQ35		1,5 m 2,5 m	m	160	235,52	37 683,20
BQ36		2,5 m 3,5 m	m	10	438,82	4 388,20
		Pipes over 315 mm dia and up to 600 mm dia for depths:				
		<u>Pipeline RAS01-400Ø-GRP as shown on Drawing No. 110585-WWTW-DRG-CC-1552</u>				
		Over and Up to				
BQ37		0,5 m 1,5 m	m	90	174,46	15 701,40
BQ38		1,5 m 2,5 m	m	10	314,02	3 140,20
BQ39		2,5 m 3,5 m	m	10	517,32	5 173,20
		<u>Pipeline RAS02-400Ø-GRP as shown on Drawing No. 110585-WWTW-DRG-CC-1553</u>				
		Over and Up to				
BQ40		0,5 m 1,5 m	m	30	145,38	4 361,40
BQ41		1,5 m 2,5 m	m	10	261,68	2 616,80
BQ42		2,5 m 3,5 m	m	5	464,99	2 324,95
		<u>Pipeline RAS03-600Ø-GRP as shown on Drawing No. 110585-WWTW-DRG-CC-1554</u>				
		Over and Up to				
BQ43		1,5 m 2,5 m	m	15	314,02	4 710,30
BQ44		2,5 m 3,5 m	m	90	517,32	46 558,80
Carried forward / ...						302 519,65

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BQ : INTERCONNECTING
PIPEWORK

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						302 519,65
		<u>Pipeline RAS04-400Ø-GRP as shown on Drawing No. 110585-WWTW-DRG-CC-1555</u>				
		Over and Up to				
BQ45		0,5 m 1,5 m	m	50	145,38	7 269,00
BQ46		1,5 m 2,5 m	m	5	261,68	1 308,40
BQ47		2,5 m 3,5 m	m	5	464,99	2 324,95
		<u>Pipeline RAS05-400Ø-GRP as shown on Drawing No. 110585-WWTW-DRG-CC-1555</u>				
		Over and Up to				
BQ48		0,5 m 1,5 m	m	20	145,38	2 907,60
BQ49		1,5 m 2,5 m	m	10	261,68	2 616,80
		<u>Pipeline RAS06-600Ø-GRP as shown on Drawing No. 110585-WWTW-DRG-CC-1556</u>				
		Over and Up to				
BQ50		0,5 m 1,5 m	m	65	174,46	11 339,90
BQ51		1,5 m 2,5 m	m	5	314,02	1 570,10
BQ52		2,5 m 3,5 m	m	5	517,32	2 586,60
		<u>Pipeline FEF01-525Ø-CONCRETE as shown on Drawing No. 110585-WWTW-DRG-CC-1542</u>				
		Over and Up to				
BQ53		0,5 m 1,5 m	m	15	174,46	2 616,90
		<u>Pipeline FEF02-525Ø-CONCRETE as shown on Drawing No. 110585-WWTW-DRG-CC-1542</u>				
		Over and Up to				
BQ54		0,5 m 1,5 m	m	5	174,46	872,30
Carried forward / ...						337 932,20

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SECTION BQ : INTERCONNECTING
PIPEWORK

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						337 932,20
		<u>Pipeline FEF03-500Ø-GRP as shown on Drawing No. 110585-WWTW-DRG-CC-1542</u>				
BQ55		Over and Up to 0,5 m 1,5 m	m	70	174,46	12 212,20
BQ56		1,5 m 2,5 m	m	5	314,02	1 570,10
		<u>Pipeline FEF04-500Ø-GRP as shown on Drawing No. 110585-WWTW-DRG-CC-1543</u>				
BQ57		Over and Up to 0,5 m 1,5 m	m	40	174,46	6 978,40
BQ58		1,5 m 2,5 m	m	5	340,19	1 700,95
		<u>Pipeline FEF05-525Ø-CONCRETE as shown on Drawing No. 110585-WWTW-DRG-CC-1543</u>				
BQ59		Over and Up to 0,5 m 1,5 m	m	5	188,99	944,95
BQ60		1,5 m 2,5 m	m	35	366,36	12 822,60
		<u>Pipes over 600 mm dia and up to 1000 mm dia for depths:</u>				
		<u>Pipeline MXL01-700Ø-GRP as shown on Drawing No. 110585-WWTW-DRG-CC-1538</u>				
BQ61		Over and Up to 0,5 m 1,5 m	m	5	218,07	1 090,35
BQ62		1,5 m 2,5 m	m	90	418,70	37 683,00
BQ63		2,5 m 3,5 m	m	40	698,99	27 959,60
BQ64		3,5 m 4,5 m	m	5	1 156,42	5 782,10
Carried forward / ...						446 676,45

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AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BQ : INTERCONNECTING
PIPEWORK

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						446 676,45
		<u>Pipeline MXL02-700Ø-GRP as shown on Drawing No. 110585-WWTW-DRG-CC-1539</u>				
		Over and Up to				
BQ65		0,5 m 1,5 m	m	5	218,07	1 090,35
BQ66		1,5 m 2,5 m	m	25	418,70	10 467,50
BQ67		2,5 m 3,5 m	m	40	698,99	27 959,60
BQ68		3,5 m 4,5 m	m	5	1 156,42	5 782,10
		<u>Pipeline MXL03-700Ø-GRP as shown on Drawing No. 110585-WWTW-DRG-CC-1540</u>				
		Over and Up to				
BQ69		0,5 m 1,5 m	m	5	218,07	1 090,35
BQ70		1,5 m 2,5 m	m	25	418,70	10 467,50
BQ71		2,5 m 3,5 m	m	35	698,99	24 464,65
BQ72		3,5 m 4,5 m	m	15	1 156,42	17 346,30
		<u>Pipeline MXL04-700Ø-GRP as shown on Drawing No. 110585-WWTW-DRG-CC-1541</u>				
		Over and Up to				
BQ73		0,5 m 1,5 m	m	5	218,07	1 090,35
BQ74		1,5 m 2,5 m	m	15	418,70	6 280,50
BQ75		2,5 m 3,5 m	m	25	698,99	17 474,75
BQ76		3,5 m 4,5 m	m	45	1 156,42	52 038,90
		<u>Pipes over 1000 mm dia and up to 2000 mm dia for depths:</u>				
		<u>Pipeline FEF06-1200Ø-CONCRETE as shown on Drawing No. 110585-WWTW-DRG- CC-1543</u>				
		Over and Up to				
BQ77		1,5 m 2,5 m	m	10	575,71	5 757,10
Carried forward / ...						627 986,40

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						627 986,40
BQ78		<u>Pipeline FEF07-1200Ø-CONCRETE as shown on Drawing No. 110585-WWTW-DRG-CC-1544</u> Over and Up to 1,5 m 2,5 m	m	10	575,71	5 757,10
BQ79		2,5 m 3,5 m	m	65	829,83	53 938,95
BQ80		3,5 m 4,5 m	m	5	1 287,26	6 436,30
BQ81		<u>Pipeline FEF08-1200Ø-CONCRETE as shown on Drawing No. 110585-WWTW-DRG-CC-1545</u> Over and Up to 2,5 m 3,5 m	m	85	829,83	70 535,55
BQ82		3,5 m 4,5 m	m	60	1 287,26	77 235,60
BQ83		<u>Pipeline FEF09-1200Ø-CONCRETE as shown on Drawing No. 110585-WWTW-DRG-CC-1546</u> Over and Up to 0,5 m 1,5 m	m	90	319,84	28 785,60
BQ84		<u>Pipeline FEF10-1200Ø-CONCRETE as shown on Drawing No. 110585-WWTW-DRG-CC-1547</u> Over and Up to 1,5 m 2,5 m	m	10	575,71	5 757,10
BQ85		2,5 m 3,5 m	m	85	829,83	70 535,55
BQ86		<u>Pipeline FEF11-1200Ø-GRP as shown on Drawing No. 110585-WWTW-DRG-CC-1548</u> Over and Up to 2,5 m 3,5 m	m	30	829,83	24 894,90
Carried forward / ...						971 863,05

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SECTION BQ : INTERCONNECTING
PIPEWORK

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						971 863,05
BQ87		<u>Pipeline FEF12-1200Ø-GRP as shown on Drawing No. 110585-WWTW-DRG-CC-1548</u> Over and Up to 2,5 m 3,5 m	m	30	829,83	24 894,90
BQ88		<u>Pipeline CLW01-1050Ø-CONCRETE as shown on Drawing No. 110585-WWTW-DRG-CC-1549</u> Over and Up to 0,5 m 1,5 m	m	25	305,30	7 632,50
BQ89		1,5 m 2,5 m	m	20	575,71	11 514,20
BQ90		<u>Pipeline CLW02-1050Ø-CONCRETE as shown on Drawing No. 110585-WWTW-DRG-CC-1550</u> Over and Up to 0,5 m 1,5 m	m	40	305,30	12 212,00
BQ91		1,5 m 2,5 m	m	30	575,71	17 271,30
BQ92		<u>Pipeline CLW03-1500Ø-CONCRETE as shown on Drawing No. 110585-WWTW-DRG-CC-1551</u> Over and Up to 0,5 m 1,5 m	m	95	363,46	34 527,75
BQ93	PSDB 8.3.2(b)	Extra-over for Hard rock excavation	m³	7	472,09	3 339,79
BQ94		<u>Hand excavation and backfill where directed by the Engineer in:</u> (a) Soft material	m³	372	386,62	143 822,64
BQ95		(b) Hard material	m³	372	386,62	143 822,64
BQ96	PSDB 8.3.2(b)(4)	Backfill stabilized with 5% where directed by the Engineer	m³	700	112,82	78 974,00
BQ97		Soilcrete backfill where directed by the Engineer	m³	150	73,72	11 058,00
Carried forward / ...						1 460 932,77

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 460 932,77
BQ98		Backfill with clean sand (in-situ material) and compact (in depths not exceeding 150 mm thick) to 100% Modified AASHTO density	m³	400	73,72	29 488,00
BQ99	8.3.2(c)	Excavate and dispose of unsuitable material from trench bottom	m³	180	90,61	16 309,80
	PSDB 8.3.3	Excavation ancillaries				
BQ100	PSDB 8.3.3.3	Compaction in road reserves (i.e. for areas subject to traffic loads)	m³	600	73,72	44 232,00
	PSDB 8.3.4	<u>Particular Items:</u>				
	PSDB 8.3.4(a)	<u>Shore trench opposite structure or service or in unsuitable excavated materials on both sides of trench for depths:</u>				
BQ101		(i) Over 1,5 m up to 2,5 m	m	75	0,00	0,00
BQ102		(ii) Over 2,5 m up to 3,5 m	m	40	0,00	0,00
BQ103		(iii) Over 3,5 m up to 4,5 m	m	100	0,00	0,00
		Existing services that intersect or adjoin a pipe trench:				
BQ104	8.3.5	<u>Services that intersect a trench:</u>				
BQ105		(a) Telkom and Neotel fibre-optic cable	No.	2	386,62	773,24
BQ106		(b) Overhead electric cable (medium voltage up to 11 kV)	No.	2	386,62	773,24
BQ107		(c) Overhead electric cable (high voltage up to 275 kV)	No.	2	386,62	773,24
BQ108		(d) Underground electrical cables (medium voltage up to 11 kV)	No.	15	386,62	5 799,30
BQ109		(e) Watermains of pipe diameters up to DN 500 mm	No	10	386,62	3 866,20
BQ110		(f) Sewer gravity mains of pipe diameters up to DN 2000 mm	No.	10	386,62	3 866,20
BQ111		(g) Fences	No.	5	386,62	1 933,10
Carried forward / ...						1 568 747,09

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 568 747,09
BQ112	8.3.5	<u>Services that adjoin a trench:</u> (a) Sewer gravity mains of pipe diameters up to DN 2000 mm	m	50	154,65	7 732,50
BQ113		(b) Watermains of pipe diameters up to DN 500 mm	m	25	154,65	3 866,25
BQ114		(c) Medium voltage electric cable (up to 11 kV)	m	40	154,65	6 186,00
BQ115		(d) Telkom and Neotel fibre-optic cable	m	10	154,65	1 546,50
	PSDB 8.3.6	Finishing <u>Reinstate road surfaces complete with all courses:</u>				
BQ116		(a) Asphalt of thickness 40 mm in roadway	m ²	150	196,18	29 427,00
BQ117		(b) Paving complete with bedding sand	m ²	125	202,69	25 336,25
BQ118		(c) Gravel wearing course (150 mm thick)	m ²	100	57,15	5 715,00
	SANS 1200 LB PSLB 8.1.1	BEDDING				
	8.2.1	<u>Provision of bedding from trench excavation:</u>				
BQ119		(a) Selected granular material	m ³	3921	63,63	249 493,23
BQ120		(b) Selected fill material	m ³	2405	63,63	153 030,15
	8.2.2.1	<u>From other necessary excavations on site:</u>				
BQ121		(a) Selected granular material	m ³	461	87,84	40 494,24
BQ122		(b) Selected fill material	m ³	283	87,84	24 858,72
	8.2.2.3	<u>From commercial sources:</u>				
BQ123		(a) Selected granular material	m ³	231	155,85	36 001,35
BQ124		(b) Selected fill material	m ³	141	155,85	21 974,85
BQ125	8.2.3	(c) Concrete bedding cradle	m ³	71	1 889,88	134 181,48
Carried forward / ...						2 308 590,61

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						2 308 590,61
BQ126	8.2.4	Encasing of pipes in reinforced concrete (Grade 20 MPa/19 mm @ 95 kg of steel per m ³ of concrete) under areas subject to traffic loads (i.e. road crossings and pavements etc) as well as areas where directed by the Engineer	m ³	15	2 856,21	42 843,15
	PSLB 8.2.7	<u>Provision of stone/geofabric to deal with</u>				
BQ127		(a) 19mm crushed stone bedding layer of 200 mm thick	m ³	301	420,11	126 453,11
BQ128		(b) Geofabric (Bidim A2 or equivalent approved)	m ²	603	11,24	6 777,72
BQ129		(c) Temporary stockpiling of wet material from trench excavations	m ³	301	34,42	10 360,42
	SANS 1200 L	MEDIUM-PRESSURE PIPELINES				
		PVC-U (Class 9):				
BQ130		Pipeline SCM01 - 160 mm dia	m	40	110,83	4 433,20
BQ131		Pipeline SCM02 - 160 mm dia	m	15	110,83	1 662,45
BQ132		Pipeline SCM03 - 160 mm dia	m	25	110,83	2 770,75
BQ133		Pipeline SCM04 - 160 mm dia	m	20	110,83	2 216,60
BQ134		Pipeline SCM05 - 160 mm dia	m	35	110,83	3 879,05
BQ135		Pipeline SCM06 - 160 mm dia	m	15	110,83	1 662,45
BQ136		Pipeline SCM07 - 160 mm dia	m	15	110,83	1 662,45
BQ137		Pipeline SCM08 - 160 mm dia	m	10	110,83	1 108,30
BQ138		Pipeline SCM09 - 160 mm dia	m	35	110,83	3 879,05
BQ139		Pipeline SCM10 - 160 mm dia	m	15	110,83	1 662,45
BQ140		Pipeline SCM11 - 160 mm dia	m	25	110,83	2 770,75
BQ141		Pipeline SCM12 - 160 mm dia	m	20	110,83	2 216,60
BQ142		Pipeline SCM13 - 160 mm dia	m	35	110,83	3 879,05
Carried forward / ...						2 528 828,16

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PIPEWORK

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						2 528 828,16
BQ143	SANS 1200 L	Pipeline SCM14 - 160 mm dia	m	15	110,83	1 662,45
BQ144		Pipeline SCM15 - 160 mm dia	m	15	110,83	1 662,45
BQ145		Pipeline SCM16 - 160 mm dia	m	20	110,83	2 216,60
BQ146		Pipeline SCM17 - 160 mm dia	m	35	110,83	3 879,05
BQ147		Pipeline SCM18 - 160 mm dia	m	20	110,83	2 216,60
BQ148		Pipeline SCM19 - 160 mm dia	m	30	110,83	3 324,90
BQ149		Pipeline SCM20 - 160 mm dia	m	10	110,83	1 108,30
BQ150		Pipeline SCM21 - 160 mm dia	m	40	110,83	4 433,20
BQ151		Pipeline SCM22 - 160 mm dia	m	30	110,83	3 324,90
BQ152		Pipeline SCM23 - 160 mm dia	m	55	110,83	6 095,65
BQ153		Pipeline SCM24 - 160 mm dia	m	60	110,83	6 649,80
BQ154		Pipeline SCM25 - 160 mm dia	m	10	110,83	1 108,30
BQ155		Pipeline SCM26 - 160 mm dia	m	65	110,83	7 203,95
BQ156		Pipeline SCM27 - 160 mm dia	m	60	110,83	6 649,80
BQ157		Pipeline SCM28 - 160 mm dia	m	115	110,83	12 745,45
BQ158		Pipeline SCM29 - 160 mm dia	m	190	110,83	21 057,70
BQ159		Pipeline SCM30 - 160 mm dia	m	180	110,83	19 949,40
		SPEC GRP 8.1.1	GRP pipes Class PN10 SN10000 manufactured to SANS 1748, complete with REKA couplings			
BQ160	Pipeline RAS01- 400 mm dia		m	110	1 902,28	209 250,80
BQ161	Pipeline RAS02 - 400 mm dia		m	45	1 902,28	85 602,60
BQ162	Pipeline RAS03 - 600 mm dia		m	105	3 421,28	359 234,40
BQ163	Pipeline RAS04 - 400 mm dia		m	60	1 902,28	114 136,80
BQ164	Pipeline RAS05 - 400 mm dia		m	30	1 902,28	57 068,40
Carried forward / ...						3 459 409,66

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c	
Brought forward / ...						3 459 409,66	
BQ165	SANS 1200 L PSL 8.21	Pipeline RAS06 - 600 mm dia	m	75	3 421,28	256 596,00	
BQ166		Pipeline FEF03 - 500 mm dia	m	75	2 390,53	179 289,75	
BQ167		Pipeline FEF04 - 500 mm dia	m	45	2 390,53	107 573,85	
BQ168		Pipeline FEF05 - 500 mm dia	m	40	2 390,53	95 621,20	
BQ169		Pipeline FEF11 - 1200 mm dia	m	30	9 909,46	297 283,80	
BQ170		Pipeline FEF12 - 1200 mm dia	m	30	9 909,46	297 283,80	
BQ171		Pipeline MXL01 - 700 mm dia	m	110	4 418,22	486 004,20	
BQ172		Pipeline MXL02 - 700 mm dia	m	75	4 418,22	331 366,50	
BQ173		Pipeline MXL03 - 700 mm dia	m	80	4 418,22	353 457,60	
BQ174		Pipeline MXL04 - 700 mm dia	m	90	4 418,22	397 639,80	
		Concrete Class 75D (spigot and socket) complete with 3 mm HDPE anchor-knob liner: (Complete with HDPE strip welded insitue across pipe joints after lavina)					
BQ175		Pipeline FEF01 - 525 mm dia	m	15	1 045,19	15 677,85	
BQ176		Pipeline FEF02 - 525 mm dia	m	5	1 045,19	5 225,95	
BQ177		Pipeline FEF06 - 1200 mm dia	m	10	4 963,63	49 636,30	
BQ178		Pipeline FEF07 - 1200 mm dia	m	80	4 963,63	397 090,40	
BQ179		Pipeline FEF08 - 1200 mm dia	m	145	4 963,63	719 726,35	
BQ180		Pipeline FEF09 - 1200 mm dia	m	90	4 963,63	446 726,70	
BQ181		Pipeline FEF10 - 1200 mm dia	m	95	4 963,63	471 544,85	
BQ182		Pipeline CLW01 - 1050 mm dia	m	45	3 623,66	163 064,70	
BQ183		Pipeline CLW02 - 1050 mm dia	m	70	3 623,66	253 656,20	
BQ184		Pipeline CLW03 - 1500 mm dia	m	95	5 676,75	539 291,25	
Carried forward / ...						9 323 166,71	

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						9 323 166,71
	PSL 8.2.2	Extra-over for supply, lay, joint, bed, specials and fittings for PVC-U pipes:				
		PVC-U (Class 9) specials:				
		<u>Pipeline SCM01 - 160 mm dia:</u>				
BQ185		Double lying socket	No.	2	184,45	368,90
BQ186		Flange adaptor	No.	1	540,33	540,33
		<u>Pipeline SCM02 - 160 mm dia:</u>				
BQ187		Double lying socket	No.	2	184,45	368,90
BQ188		Flange adaptor	No.	1	540,33	540,33
		<u>Pipeline SCM03 - 160 mm dia:</u>				
BQ189		Double lying socket	No.	2	184,45	368,90
		<u>Pipeline SCM04 - 160 mm dia:</u>				
BQ190		Double lying socket	No.	2	184,45	368,90
BQ191		Flange adaptor	No.	1	540,33	540,33
		<u>Pipeline SCM05 - 160 mm dia:</u>				
BQ192		Double lying socket	No.	2	184,45	368,90
		<u>Pipeline SCM06 - 160 mm dia:</u>				
BQ193		Double lying socket	No.	2	184,45	368,90
BQ194		Flange adaptor	No.	1	540,33	540,33
		<u>Pipeline SCM07 - 160 mm dia:</u>				
BQ195		Double lying socket	No.	2	184,45	368,90
BQ196		Flange adaptor	No.	1	540,33	540,33
		<u>Pipeline SCM08 - 160 mm dia:</u>				
BQ197		Double lying socket	No.	2	184,45	368,90
BQ198		Flange adaptor	No.	1	540,33	540,33
		<u>Pipeline SCM09 - 160 mm dia:</u>				
BQ199		Double lying socket	No.	2	184,45	368,90
Carried forward / ...						9 329 728,79

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						9 329 728,79
BQ200		<u>Pipeline SCM10 - 160 mm dia:</u> Double lyng socket	No.	2	184,45	368,90
BQ201		Flange adaptor	No.	1	540,33	540,33
BQ202		<u>Pipeline SCM11 - 160 mm dia:</u> Double lyng socket	No.	2	184,45	368,90
BQ203		<u>Pipeline SCM12 - 160 mm dia:</u> Double lyng socket	No.	2	184,45	368,90
BQ204		Flange adaptor	No.	1	540,33	540,33
BQ205		<u>Pipeline SCM13 - 160 mm dia:</u> Double lyng socket	No.	2	184,45	368,90
BQ206		<u>Pipeline SCM14 - 160 mm dia:</u> Double lyng socket	No.	2	184,45	368,90
BQ207		Flange adaptor	No.	1	540,33	540,33
BQ208		<u>Pipeline SCM15 - 160 mm dia:</u> Double lyng socket	No.	2	184,45	368,90
BQ209		Flange adaptor	No.	1	540,33	540,33
BQ210		<u>Pipeline SCM16 - 160 mm dia:</u> Double lyng socket	No.	2	184,45	368,90
BQ211		Flange adaptor	No.	1	540,33	540,33
BQ212		<u>Pipeline SCM17 - 160 mm dia:</u> Double lyng socket	No.	2	184,45	368,90
BQ213		Flange adaptor	No.	1	540,33	540,33
BQ214		<u>Pipeline SCM18 - 160 mm dia:</u> Double lyng socket	No.	2	184,45	368,90
BQ215		Flange adaptor	No.	2	540,33	1 080,66
Carried forward / ...						9 337 371,53

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SECTION BQ : INTERCONNECTING
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Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						9 337 371,53
		<u>Pipeline SCM19 - 160 mm dia:</u>				
BQ216		60 degree bend	No.	1	412,30	412,30
BQ217		Double lyng socket	No.	2	184,45	368,90
BQ218		Flange adaptor	No.	1	540,33	540,33
		<u>Pipeline SCM20 - 160 mm dia:</u>				
BQ219		Double lyng socket	No.	2	184,45	368,90
BQ220		Flange adaptor	No.	1	540,33	540,33
		<u>Pipeline SCM21 - 160 mm dia:</u>				
BQ221		11.25 degree bend	No.	2	412,30	824,60
BQ222		45 degree bend	No.	1	412,30	412,30
BQ223		Double lyng socket	No.	2	184,45	368,90
BQ224		Flange adaptor	No.	2	540,33	1 080,66
		<u>Pipeline SCM22 - 160 mm dia:</u>				
BQ225		Double lyng socket	No.	2	184,45	368,90
BQ226		Flange adaptor	No.	1	540,33	540,33
		<u>Pipeline SCM23 - 160 mm dia:</u>				
BQ227		Double lyng socket	No.	2	184,45	368,90
BQ228		Flange adaptor	No.	1	540,33	540,33
		<u>Pipeline SCM24 - 160 mm dia:</u>				
BQ229		30 degree bend	No.	1	412,30	412,30
BQ230		Double lyng socket	No.	2	184,45	368,90
BQ231		Flange adaptor	No.	1	540,33	540,33
		<u>Pipeline SCM25 - 160 mm dia:</u>				
BQ232		Double lyng socket	No.	2	184,45	368,90
BQ233		Flange adaptor	No.	1	540,33	540,33
Carried forward / ...						9 346 337,97

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c	
Brought forward / ...						9 346 337,97	
BQ234	PART SPEC GRP 8.1.2	<u>Pipeline SCM26 - 160 mm dia:</u> Double lyng socket	No.	2	184,45	368,90	
BQ235		Flange adaptor	No.	1	540,33	540,33	
BQ236		<u>Pipeline SCM27 - 160 mm dia:</u> Double lyng socket	No.	2	184,45	368,90	
BQ237		Flange adaptor	No.	2	540,33	1 080,66	
BQ238		<u>Pipeline SCM28 - 160 mm dia:</u> 90 degree bend	No.	2	480,66	961,32	
BQ239		Double lyng socket	No.	2	184,45	368,90	
BQ240		<u>Pipeline SCM29 - 160 mm dia:</u> 11.25 deegree bend	No.	2	412,30	824,60	
BQ241		30 degree bend	No.	1	412,30	412,30	
BQ242		45 degree bend	No.	1	412,30	412,30	
BQ243		90 degree bend	No.	2	480,66	961,32	
BQ244		Double lyng socket	No.	5	184,45	922,25	
BQ245		<u>Pipeline SCM30 - 160 mm dia:</u> 35 deegree bend	No.	1	412,30	412,30	
BQ246		55 degree bend	No.	1	412,30	412,30	
BQ247		60 degree bend	No.	1	412,30	412,30	
BQ248		90 degree bend	No.	3	480,66	1 441,98	
BQ249		Double lyng socket	No.	5	184,45	922,25	
BQ250		Extra-over for supply, lay, joint, bed, specials, fittings for GRP pipes and valves complete with couplings (with stainless steel bolts) and corrosion protection as per specification: <u>Pipeline RAS01 - 400 mm dia:</u> 45 degree bend	No.	1	6 520,85	6 520,85	
BQ251		60 degree bend	No.	1	16 763,25	16 763,25	
Carried forward / ...						9 380 444,98	

MBR PLANT AND BOTTLENECK ALLEVIATION
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SECTION BQ : INTERCONNECTING
PIPEWORK

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						9 380 444,98
BQ252		GRP rocker pipe	No.	1	2 929,50	2 929,50
BQ253		GRP REKA coupling	No.	1	1 302,00	1 302,00
		<u>Pipeline RAS02 - 400 mm dia:</u>				
BQ254		11.25 degree bend	No.	2	4 936,75	9 873,50
BQ255		GRP rocker pipe	No.	1	2 929,50	2 929,50
BQ256		GRP REKA coupling	No.	1	1 302,00	1 302,00
		<u>Pipeline RAS03 - 600 mm dia:</u>				
BQ257		30 degree bend	No.	1	9 645,65	9 645,65
BQ258		90 degree bend	No.	1	16 763,25	16 763,25
BQ259		GRP rocker pipe	No.	1	5 587,75	5 587,75
BQ260		GRP REKA coupling	No.	1	2 441,25	2 441,25
		<u>Pipeline RAS04 - 400 mm dia:</u>				
BQ261		45 degree bend	No.	1	6 520,85	6 520,85
BQ262		GRP rocker pipe	No.	1	2 929,50	2 929,50
BQ263		GRP REKA coupling	No.	1	1 302,00	1 302,00
		<u>Pipeline RAS05 - 400 mm dia:</u>				
BQ264		GRP rocker pipe	No.	1	2 929,50	2 929,50
BQ265		GRP REKA coupling	No.	1	1 302,00	1 302,00
		<u>Pipeline RAS06 - 600 mm dia:</u>				
BQ266		30 degree bend	No.	1	9 645,65	9 645,65
BQ267		90 degree bend	No.	1	16 763,25	16 763,25
BQ268		GRP rocker pipe	No.	1	5 587,75	5 587,75
BQ269		GRP REKA coupling	No.	1	2 441,25	2 441,25
		<u>Pipeline FEF03 - 500 mm dia:</u>				
BQ270		45 degree bend	No.	1	1,08	1,08
BQ271		GRP rocker pipe	No.	2	3 526,25	7 052,50
BQ272		GRP REKA coupling	No.	2	1 410,50	2 821,00
Carried forward / ...						9 492 515,71

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						9 492 515,71
		<u>Pipeline FEF04 - 500 mm dia:</u>				
BQ273		60 degree bend	No.	1	16 763,25	16 763,25
BQ274		GRP rocker pipe	No.	2	3 526,25	7 052,50
BQ275		GRP REKA coupling	No.	2	1 410,50	2 821,00
		<u>Pipeline FEF05 - 500 mm dia:</u>				
BQ276		GRP rocker pipe	No.	2	3 526,25	7 052,50
BQ277		GRP REKA coupling	No.	2	1 410,50	2 821,00
		<u>Pipeline FEF11 - 1200 mm dia:</u>				
BQ278		GRP rocker pipe	No.	2	13 996,50	27 993,00
BQ279		GRP REKA coupling	No.	2	4 774,00	9 548,00
		<u>Pipeline FEF12 - 1200 mm dia:</u>				
BQ280		GRP rocker pipe	No.	2	13 996,50	27 993,00
BQ281		GRP REKA coupling	No.	2	4 774,00	9 548,00
		<u>Pipeline MXL01 - 700 mm dia:</u>				
BQ282		5.5 degree bend	No.	1	12 043,50	12 043,50
BQ283		22.5 degree bend	No.	1	12 054,35	12 054,35
BQ284		60 degree bend	No.	1	16 784,95	16 784,95
BQ285		GRP rocker pipe	No.	2	6 781,25	13 562,50
BQ286		GRP REKA coupling	No.	2	2 821,00	5 642,00
		<u>Pipeline MXL02 - 700 mm dia:</u>				
BQ287		5.5 degree bend	No.	1	12 043,50	12 043,50
BQ288		45 degree bend	No.	1	16 784,95	16 784,95
BQ289		60 degree bend	No.	1	16 784,95	16 784,95
BQ290		GRP rocker pipe	No.	2	6 781,25	13 562,50
BQ291		GRP REKA coupling	No.	2	2 821,00	5 642,00
Carried forward / ...						9 729 013,16

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						9 729 013,16
		<u>Pipeline MXL03 - 700 mm dia:</u>				
BQ292		5.5 degree bend	No.	1	12 043,50	12 043,50
BQ293		22.5 degree bend	No.	1	12 054,35	12 054,35
BQ294		45 degree bend	No.	1	16 784,95	16 784,95
BQ295		GRP rocker pipe	No.	2	6 781,25	13 562,50
BQ296		GRP REKA coupling	No.	2	2 821,00	5 642,00
		<u>Pipeline MXL04 - 700 mm dia:</u>				
BQ297		7.5 degree bend	No.	1	12 043,50	12 043,50
BQ298		45 degree bend	No.	1	16 784,95	16 784,95
BQ299		50 degree bend	No.	1	16 784,95	16 784,95
BQ300		GRP rocker pipe	No.	2	6 781,25	13 562,50
BQ301		GRP REKA coupling	No.	2	2 821,00	5 642,00
	SANS 1200 L PSL 8.2.1 PSL 8.2.19	PIPEWORK				
BQ302	8.2.2 PSG 8.6	Cast in of pipes and specials (such as flanges etc. where required) through concrete (including hydrophilic rubber sealant, as specified or shown on drawings);				
BQ303		(a) MH1	No.	3	1 772,24	5 316,72
BQ304		(b) MH02-A	No.	1	1 772,24	1 772,24
BQ305		(c) MH02-C	No.	2	1 772,24	3 544,48
BQ306		(d) MH03-A	No.	1	1 772,24	1 772,24
BQ307		(e) MH03-B	No.	2	1 772,24	3 544,48
BQ308		(f) MH6	No.	2	1 772,24	3 544,48
BQ309		(g) MH7	No.	2	1 772,24	3 544,48
BQ310		(h) MH8	No.	3	1 772,24	5 316,72
Carried forward / ...						9 882 274,20

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						9 882 274,20
BQ311	8.2.2 PSL 8.2.2 PSL 8.2.17 PSL 8.2.19 SANS 1200 G PSG 8.6	Extra-over Item PSG 8.6 above for flexible couplings and/or flanges where applicable (see DRG-CS-1778 to 1781); (a) MH02-B	No.	3	4 593,24	13 779,72
BQ312	SANS 1200 L 8.2.13 PSL 8.2.14 PSLD 8.2.5	Construct valve, air and fire hydrant chamber complete as shown on Drg No 440585-GC-606 110585-WWTW-DRG-CC-1666 including cover and frame and building in of pipes. for depths: 160 mm dia	No.	1	10 436,93	10 436,93
BQ313		400 mm dia	No.	1	12 524,31	12 524,31
BQ314		500 mm dia	No.	1	15 655,39	15 655,39
BQ315		600 mm dia	No.	1	18 786,47	18 786,47
BQ316		700mm dia	No.	1	25 048,63	25 048,63
BQ317	PSA 8.12	Extra-over for supplying and installing extension spindle (various lengths) for depth greater 1.5 m	m	2	737,80	1 475,60
	PSL 8.2.14 PSLD 8.2.5	Construct scum manholes(precast concrete), inspections chambers, etc complete as shown on Drg No 110585-WWTW-DRG-CS-1307 including cover and frame and building in of pipes, for depths: Pipes up to 160 mm dia for depths: <u>Pipeline SCM03-160Ø-uPVC (MHS01) as shown on Drawing No. 110585-WWTW-DRG-CC-1558</u> Over and Up to 1,5 m 2,5 m	No.	1	12 592,62	12 592,62
BQ318		<u>Pipeline SCM05-160Ø-uPVC (MHS02) as shown on Drawing No. 110585-WWTW-DRG-CC-1558</u> Over and Up to 1,5 m 2,5 m	No.	1	12 592,62	12 592,62
BQ319			No.	1	12 592,62	12 592,62
Carried forward / ...						10 005 166,49

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SECTION BQ : INTERCONNECTING
PIPEWORK

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						10 005 166,49
BQ320		<u>Pipeline SCM07-160Ø-uPVC (MHS03) as shown on Drawing No. 110585-WWTW-DRG-CC-1558</u> Over and Up to 1,5 m 2,5 m	No.	1	12 592,62	12 592,62
BQ321		<u>Pipeline SCM09-160Ø-uPVC (MHS04) as shown on Drawing No. 110585-WWTW-DRG-CC-1559</u> Over and Up to 2,5 m 3,5 m	No.	1	13 791,24	13 791,24
BQ322		<u>Pipeline SCM11-160Ø-uPVC (MHS05) as shown on Drawing No. 110585-WWTW-DRG-CC-1560</u> Over and Up to 1,5 m 2,5 m	No.	1	12 592,62	12 592,62
BQ323		<u>Pipeline SCM13-160Ø-uPVC (MHS06) as shown on Drawing No. 110585-WWTW-DRG-CC-1560</u> Over and Up to 1,5 m 2,5 m	No.	1	12 592,62	12 592,62
BQ324		<u>Pipeline SCM15-160Ø-uPVC (MHS07) as shown on Drawing No. 110585-WWTW-DRG-CC-1560</u> Over and Up to 1,5 m 2,5 m	No.	1	12 592,62	12 592,62
BQ325		<u>Pipeline SCM17-160Ø-uPVC (MHS08) as shown on Drawing No. 110585-WWTW-DRG-CC-1561</u> Over and Up to 1,5 m 2,5 m	No.	1	12 592,62	12 592,62
BQ326		<u>Pipeline SCM20-160Ø-uPVC (MHS09) as shown on Drawing No. 110585-WWTW-DRG-CC-1562</u> Over and Up to 2,5 m 3,5 m	No.	1	13 791,24	13 791,24
Carried forward / ...						10 095 712,07

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						10 095 712,07
BQ327	PSL 8.2.14 PSLD 8.2.5	Pipeline SCM26-160Ø-uPVC (MHS10) as shown on Drawing No. 110585-WWTW-DRG-CC-1565 Over and Up to 1,5 m 2,5 m Construct manholes (precast concrete), inspections chambers, etc. complete as shown on Drg No 110585-WWTW-DRG-CS-1360 including cover and frame and building in of pipes for depths: Construct concrete manholes complete as shown on drawing 110585-WWTW-DRG-CS-1306 including cover and frame and building in of pipes for depths: Pipes over 160 mm dia and up to 315 mm dia for depths: Pipeline FEF01-525Ø-CONCRETE (MH01) as shown on Drawing No. 110585-WWTW-DRG-CC-1542	No.	1	12 592,62	12 592,62
BQ328		Over and Up to 2,5 m 3,5 m Pipeline FEF02-525Ø-CONCRETE (MH03) as shown on Drawing No. 110585-WWTW-DRG-CC-1542	No.	1	13 791,24	13 791,24
BQ329		Over and Up to 2,5 m 3,5 m Pipeline FEF03-500Ø-GRP (MH02) as shown on Drawing No. 110585-WWTW-DRG-CC-1542	No.	1	13 791,24	13 791,24
BQ330		Over and Up to 2,5 m 3,5 m Pipes over 1000 mm dia and up to 2000 mm dia for depths: Pipeline FEF06-1200Ø-GRP (MH06) as shown on Drawing No. 110585-WWTW-DRG-CC-1543	No.	1	13 791,24	13 791,24
BQ331		Over and Up to 4,5 m 5,5 m	No.	1	50 471,77	50 471,77
Carried forward / ...						10 200 150,18

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SECTION BQ : INTERCONNECTING
PIPEWORK

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						10 200 150,18
BQ332	PSL 8.2.14 PSLD 8.2.5	Pipeline FEF07-1200Ø-GRP (MH07) as shown on Drawing No. 110585-WWTW-DRG-CC-1543 Over and Up to 4,5 m 5,5 m	No.	1	50 471,77	50 471,77
BQ333		Pipeline FEF08-1200Ø-GRP (MH08) as shown on Drawing No. 110585-WWTW-DRG-CC-1543 Over and Up to 4,5 m 5,5 m	No.	1	50 471,77	50 471,77
BQ334		Construct manholes (GRP), inspections chambers, etc complete as shown on Drg No 110585-WWTW-DRG-CC-1300 (TYPE A) including cover and frame and building in of pipes. for depths: Pipes over 315 mm dia and up to 600 mm dia for depths: Pipeline RAS03-600Ø-GRP (MH04) as shown on Drawing No. 110585-WWTW-DRG-CC-1554 Over and Up to 3,5 m 4,5 m	No.	1	106 317,50	106 317,50
BQ335		Pipeline FEF06-600Ø-GRP (MH05) as shown on Drawing No. 110585-WWTW-DRG-CC-1556 Over and Up to 2,5 m 3,5 m	No.	1	90 183,55	90 183,55
BQ336	SANS 1200 G PSG 8.23	Extra-over for supply, install and test HDPE anchor knob sheeting	m²	100	302,34	30 234,00
BQ337	SANS 1200 L 8.2.5	Supply, lay and test flanged RSV valves:				
BQ338		Resilient seal valves 160 mm dia	No.	1	3 914,68	3 914,68
BQ339		400 mm dia	No.	1	34 065,46	34 065,46
Carried forward / ...						10 565 808,91

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SECTION BQ : INTERCONNECTING
PIPEWORK

PIPEWORK

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c	
Brought forward / ...						10 565 808,91	
BQ340	PSL 8.2.11	500 mm dia	No.	1	59 017,80	59 017,80	
BQ341		600 mm dia	No.	1	101 760,09	101 760,09	
BQ342		700mm dia	No.	1	175 041,24	175 041,24	
		Miscellaneous					
BQ343		Anchor/Thrust blocks, with reinforced concrete Grade 20 MPa/ 19 mm @ 85 kg of steel per m³ of concrete volume	m³	10	1 466,38	14 663,80	
		Concrete support structure where pipes cross each other for pipelines:					
BQ344		FEF01 & SCM20	m³	1	1 809,36	1 809,36	
BQ345		RAS01 & FEF05	m³	1	1 809,36	1 809,36	
BQ346		PIPELINE Nr 16 & FEF07	m³	7	1 809,36	12 665,52	
BQ347		PIPELINE Nr 17 & FEF07	m³	7	1 809,36	12 665,52	
BQ348		FEF09 & WAS01	m³	2	1 809,36	3 618,72	
BQ349		PIPELINE NR 16 & FEF09	m³	7	1 809,36	12 665,52	
BQ350		RAS01 & SCM20	m³	1	1 809,36	1 809,36	
BQ351		RAS04 & FEF05	m³	1	1 809,36	1 809,36	
BQ352		SCM23 & FEF04	m³	1	1 809,36	1 809,36	
BQ353		RAS06 & EXISTING 400Ø-AC	m³	1	1 809,36	1 809,36	
BQ354		FEF01 & SCM21	m³	1	1 809,36	1 809,36	
BQ355		RAS01 & SCM21	m³	1	1 809,36	1 809,36	
BQ356		SCM22 & RAS04	m³	1	1 809,36	1 809,36	
BQ357		PSLE 8.2.20	Break into existing manhole and install pipe up to 400 mm dia and make good	No.	5	4 331,88	21 659,40
BQ358		SANS 1200 LD 8.2.9	Marker posts	No.	100	86,80	8 680,00
BQ359		PSA 8.12	Stand pipes complete as per drawing (Refer to Drg No 110585-CC-605)	No.	5	3 569,30	17 846,50
BQ360		PSA 8.12	Training for GRP pipe installation with manufacturer	Sum	-	0,00	0,00
TOTAL SECTION BQ CARRIED TO SUMMARY						R 11 022 377,26	

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BR: SLEEVES

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION BR: SLEEVES				
	SABS 1200 DB PSLB 8.1.6	EARTHWORKS (PIPE TRENCHES)				
	8.3.2	EXCAVATION				
	PSDB 8.3.2(a) PSLB 8.1.5	Excavate in all materials for trenches up to 1000 mm wide, backfill, compact and dispose of surplus material for ducts up to 160 mm dia for depth:				
BR1		Over 0,5 m up to 1,0 m	m	20	87,23	1 744,60
BR2		Over 1,0 m up to 1,5 m	m	40	145,38	5 815,20
	PSDB 8.3.2(a) PSLB 8.1.5	Excavate in all materials for trenches up to 1500 m wide, backfill, compact and dispose of surplus material for ducts up to 160 mm dia for depth:				
BR3		Over 0,5 m up to 1,0 m	m	50	130,84	6 542,00
BR4		Over 1,0 m up to 1,5 m	m	220	218,07	47 975,40
	PSDB 8.3.2(b)	Hand excavation and backfill where directed by the Engineer in:				
BR5		Soft material	m³	5	386,62	1 933,10
BR6	8.3.2(c)	Excavate and dispose of unsuitable material from trench bottom	m³	5	73,72	368,60
	PSDB 8.3.3	EXCAVATION ANCILLARIES				
	8.3.3.1	Make up deficiency in backfill material:				
BR7		From other necessary excavations on site	m³	5	73,72	368,60
	SABS 1200 LB PSLB 8.1.1	BEDDING (PIPES)				
	8.2.1	Provision of Bedding from Trench Excavations				
BR8		Selected granular material	m³	80	63,63	5 090,40
BR9		Selected fill material	m³	50	63,63	3 181,50
Carried forward / ...						73 019,40

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						73 019,40
BR10	8.2.2.1	From other necessary excavations on site (a) Selected granular material	m³	20	84,84	1 696,80
BR11		(b) Selected fill material	m³	10	84,84	848,40
	SABS 1200 LC	CABLE DUCTS				
	PSLC 8.2.5 PSLC 8.2.8	Supply, handle, lay bed as for flexible pipes and prove the following class 6 uPVC ducts, including provision of draw wire. 110 mm dia				
BR12		2 Pipes per trench 160 mm dia	m	20	57,89	1 157,80
BR13		2 Pipes per trench	m	20	106,89	2 137,80
BR14		3 Pipes per trench	m	20	106,89	2 137,80
BR15		6 Pipes per trench	m	250	106,89	26 722,50
BR16		10 Pipes per trench	m	20	106,89	2 137,80
	PSLC 8.2.7	Draw pits/ electrical manholes: Manholes complete as shown on drawings (110585-CC-0619):				
BR17		Type 1	No.	1	15 682,66	15 682,66
BR18		Type 2	No.	1	15 682,66	15 682,66
BR19		Type 3	No.	3	15 682,66	47 047,98
BR20		Type 4	No.	3	15 682,66	47 047,98
	PSLC 8.2.10	Duct destinations All labour and materials required to construct duct destination details (Drg 110585-CC-0619)				
BR21		Type 1	No.	2	2 352,40	4 704,80
BR22		Type 2	No.	2	2 352,40	4 704,80
Carried forward / ...						244 729,18

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BR: SLEEVES

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						244 729,18
BR23	8.2.8	Cable markers: Route markers	No.	5	336,35	1 681,75
BR24		Kerb markers	No.	5	336,35	1 681,75
TOTAL SECTION BR CARRIED TO SUMMARY						R 248 092,68

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
SECTION BS: ROADWORKS						
EARTHWORKS (ROADS, SUBGRADE)						
BS1	SABS 1200 DM PSDM 8.3.12 PSDM 8.3.3	Treatment of roadbed:				
	PSDM 8.3.3(a)	Roadbed preparation and compaction of material to minimum of 93% MAASHTO density (100% for sand)	m³	400	36,54	14 616,00
	PSDM 8.3.4	Cut to fill, borrow to fill				
BS2		Cut to fill, material compacted to minimum of 93% MAASHTO density (100% for sand) to Roads	m³	100	53,42	5 342,00
BS3		to Shoulder	m³	50	53,42	2 671,00
BS4		Borrow to fill, material compacted to minimum of 93% MAASHTO density (100% for sand)				
		to Roads	m³	200	53,42	10 684,00
BS5		to Shoulder	m³	50	53,42	2 671,00
BS6	PSDM 8.3.5	Selected layer using material from designated borrow pits or excavations:				
		G7 material compacted to 100% of modified AASHTO density (sand)	m³	600	56,00	33 600,00
BS7	PSDM 8.3.7	Cut to Spoil from:				
		Soft Excavation	m³	1 000	41,77	41 770,00
SUBBASE						
BS8	SABS 1200 ME PSME 8.3.9					
	PSME 8.3.3	Construct the subbase course/shoulders/gravel wearing course with material from commercial sources:				
BS8		150 mm G5 material compacted to 95% modified AASHTO density for roads	m³	100	312,06	31 206,00
BS9		150 mm C4 material compacted to 95% modified AASHTO density for paved roads	m³	350	312,06	109 221,00
Carried forward / ...						251 781,00

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BS: ROADWORKS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						251 781,00
BS10		100 mm G5 material compacted to 95% modified AASHTO density for Walkways	m³	250	365,15	91 287,50
BS11		100 mm G5 gravel wearing course compacted to 95% modified AASHTO density for road shoulder	m³	50	312,06	15 603,00
	8.3.5	Process subbase material by the following processes, as relevant, and use in the subbase				
BS12		Stabilization	m³	350	12,51	4 378,50
	8.3.8	Stabilization agent				
BS13		Portland cement (CEM II 32.5N)	t	15	1 519,00	22 785,00
	SABS 1200 MF PSMF 8.3.9	BASE				
	8.3.3	Construct base with material from commercial sources or designated borrow areas:				
BS14		150 mm G4 material compacted to 97% modified AASHTO density for Asphalt Roads	m³	30	428,91	12 867,30
	SABS 1200 MH PSMH 8.1.2	ASPHALT BASE AND SURFACING				
	8.5.1	Prime coat:				
BS15		MC-30 cutback bitumen	m²	100	8,81	881,00
BS16		Col Prime E	m²	100	10,09	1 009,00
	PSMH 8.5.4	Asphalt surfacing:				
		Continuously graded (medium grade) asphalt surfacing using:				
BS17		40 mm on Roads	m²	200	130,18	26 036,00
	SABS 1200 MJ	SEGMENTED PAVING				
BS18	PSMJ 8.2.1	Provision of edge restraints	m	600	128,74	77 244,00
Carried forward / ...						503 872,30

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						503 872,30
BS19	PSMJ 8.2.2	Construction of paving complete: 80 mm Interlocking grey concrete pavers (35 MPa) on 20 mm sand bedding	m ²	500	202,69	101 345,00
BS20		50 mm grey concrete pavers for sidewalks on 20 mm sand	m ²	2 300	178,21	409 883,00
	SABS 1200 MK	KERBING AND CHANNELLING				
	PSMK 8.2.1	Concrete kerbing:				
	8.2.2	BK2				
BS21		Radius up to 15 m	m	20	289,71	5 794,2
BS22		Radius over 15 m and straight sections	m	100	209,36	20 936,00
	8.2.2	BK2 + C1				
BS23		Radius up to 15 m	m	20	382,24	7 644,80
BS24		Radius over 15 m and straight sections	m	100	297,61	29 761,00
	8.2.2	E-3 Edging as per detail:				
BS25		Radius up to 15 m	m	50	131,76	6 588,00
BS26		Radius over 15 m and straight sections	m	550	131,76	72 468,00
	8.2.2	2 x C1 V-channel (on 150 mm thick concrete)				
BS27		Radius up to 15 m	m	10	494,20	4 942,00
BS28		Radius over 15 m and straight sections	m	50	413,91	20 695,5
BS29	PSMK 8.2.16	Kerb markings	No.	10	379,70	3 797,00
	SABS 1200 MM	ANCILLARY ROADWORKS				
	8.2	GUARDRAILS				
	8.2.1	Guardrails on Posts				
BS30		Galvanised	m	50	404,89	20 244,50
BS31	8.2.2	Extra-Over Item 8.2.1 for Horizontal curved Guardrails Factory-Bent to radius of less than 150 m	m	40	271,25	10 850,00
Carried forward / ...						1 218 821,30

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BS: ROADWORKS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 218 821,30
BS32	8.2.3	End Units				
		End Wings	No.	2	542,50	1 085,00
	8,3	PERMANENT ROADSIGNS				
	8.3.6	Statutory signs, street names and the like, supplied and erected, complete				
BS33		Type R1 Stop Sign (600 mm)	No.	1	1 267,93	1 267,93
BS34		Type R2 Yield Sign (600 mm)	No.	1	1 267,93	1 267,93
	8,4	ROAD MARKINGS				
	8.4.1	Non reflectorized paint applied at nominal rate of 0.42 l/m²:				
		White/yellow lines (broken or unbroken):				
BS35		100 mm wide	m	50	15,19	759,50
BS36		300 mm wide	m	10	27,12	271,20
BS37		White characters and symbols	m²	10	81,38	813,80
BS38		Yellow characters and symbols	m²	1	81,38	81,38
		Sundry:				
BS39	PSDM 8.3.19	Tie-in with existing road edge: Site roads	m	50	813,75	40 687,50
TOTAL SECTION BS CARRIED TO SUMMARY						R 1 265 055,54

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
SECTION BT: STORMWATER DRAINAGE						
EARTHWORKS (PIPE TRENCHES)						
EXCAVATION						
	SABS 1200 DB 8.3.2 PSLB 8.1.6 PSDB 8.3.2(a) PSLB 8.1.5	Excavate in all materials, for trenches, backfill, compact and dispose of surplus material: Pipes over 200 mm dia up to 600 mm dia for depths:				
BT1		Over 0,5 and up to 1,0 m	m	50	164,20	8 210,00
BT2		Over 1,0 m and up to 1,5 m	m	150	273,67	41 050,5
BT3		Over 1,5 m and up to 2,0 m	m	50	383,14	19 157,00
BT4	PSDB 8.3.2(b)	Extra over subitems PSDB 8.3.2(a) above for: Hard rock excavation	m³	10	472,09	4 720,90
BT5		Hand excavation and backfill where directed by the Engineer in: Soft material	m³	20	386,62	7 732,40
BT6	8.3.2(c)	Excavate and dispose of unsuitable material from trench bottom	m³	5	73,72	368,60
EXCAVATION ANCILLARIES						
BT7	PSDB 8.3.3 8.3.3.1 SABS 1200 LB PSLB 8.1.1 8.2.1	Make up deficiency in backfill material: From other necessary excavations on site BEDDING (PIPES) Provision of Bedding from Trench Excavations	m³	20	98,29	1 965,8
BT8		Selected granular material	m³	30	63,63	1 908,90
BT9		Selected fill material	m³	100	63,63	6 363,00
BT10	8.2.2.1	From other necessary excavations on site Selected granular material	m³	10	84,84	848,40
BT11		Selected fill material	m³	40	84,84	3 393,60
Carried forward / ...						95 719,10

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BT: STORMWATER DRAINAGE

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						95 719,10
BT12	SABS 1200 LE	STORMWATER PIPES				
	8.2.2	Supply, handle and lay uPVC pipes on a class C bedding:				
		250 mm dia class 12	m	50	310,47	15 523,50
BT13	8.2.2	Supply, handle and lay spigot and socket type reinforced precast concrete pipes type SC on a class C bedding:				
		375 mm dia class 100D	m	200	668,98	133 796,00
		450 mm dia class 100D	m	10	766,63	7 666,30
BT14		450 mm dia class 100D	m	10	766,63	7 666,30
BT15		525 mm dia class 100D	m	10	853,43	8 534,30
BT16	PSLE 8.2.8	HEADWALLS				
		Construct pipe culvert inlet/outlet (headwall) structure complete to detail drawing 110585-CC-583 for the following pipes:				
		375 mm dia	No.	1	10 068,85	10 068,85
BT17		450 mm dia	No.	1	10 068,85	10 068,85
BT18		525 mm dia	No.	1	10 068,85	10 068,85
BT19	PSLE 8.2.8	MANHOLES				
		Supply and install precast concrete manholes, complete as per the detail drawing 110585-CC-580 for depths for:				
		Pipes up to 525 mm diameter:				
BT19		Over 0,5 m and up to 1,0 m	No.	1	12 857,40	12 857,40
BT20		Over 1,0 m and up to 1,5 m	No.	1	15 084,47	15 084,47
BT21		Over 1,5 m and up to 2,0 m	No.	1	15 812,21	15 812,21
BT22		Over 2,0 m and up to 2,5 m	No.	1	16 283,10	16 283,10
Carried forward / ...						351 482,93

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						971 809,11
	SABS 1200 DK	GABIONS AND PITCHING				
BT33	PSDK 8.2.2	Construct Gabions with mesh type 80 openings, with 2.7 mm Class A Galfan (ZN95Al5) and PVC coated wire, for the following dimensions: 3.0 m x 1.0 m x 0.5 m	m ³	40	1 766,02	70 640,80
BT34	PSDK 8.2.2	Construct Reno Mattresses with mesh type 60 openings, with 2.2 mm Class A Galfan (ZN95Al5) and PVC coated wire, for the following dimensions: 2.0 m x 1.0 m x 0.3 m	m ³	30	1 941,43	58 242,90
BT35	PSDK 8.2.3	Extra Over PSDK 8.2.2 for packing selected stone for exposed face	m ²	40	168,22	6 728,80
BT36	8.2.4	Supply and Installation of non-woven geotextile (min 210 g/m ²) and strength of 9.8 Kn/m in all directions	m ²	60	11,24	674,40
TOTAL SECTION BT CARRIED TO SUMMARY						1 108 096,01

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION BU: WATER RETICULATION				
	SABS 1200 DB	EARTHWORKS (PIPE TRENCHES)				
	8.3.2 PSLB 8.1.6	EXCAVATION				
	PSDB 8.3.2(a) PSLB 8.1.5	Excavate in all materials, for trenches, backfill, compact and dispose of surplus material for main pipes: Pipes up to 125 mm dia for depths:				
BU1		Over 0,5 and up to 1,0 m	m	50	98,60	4 930,00
BU2		Over 1,0 m and up to 1,5 m	m	150	164,33	24 649,50
BU3		Over 1,5 m and up to 2,0 m	m	20	230,06	4 601,20
	PSDB 8.3.2(b)	Extra over items PSDB 8.3.2(a) above for: Hand excavation and backfill where directed by the Engineer in:				
BU4		Soft material	m³	10	386,62	3 866,20
BU5	8.3.2(c)	Excavate and dispose of unsuitable material from trench bottom	m³	5	73,72	368,60
	PSDB 8.3.3	EXCAVATION ANCILLARIES				
	8.3.3.1	Make up deficiency in backfill material:				
BU6		From other necessary excavations on site	m³	10	73,72	737,20
BU7	PSDB 8.3.3.3	Compaction in road crossings	m³	10	73,72	737,20
	SABS 1200 LB PSLB 8.1.1	BEDDING (PIPES)				
	8.2.1	Provision of Bedding from Trench Excavations				
BU8		Selected granular material	m³	20	63,63	1 272,60
BU9		Selected fill material	m³	60	63,63	3 817,80
	8.2.2.1	From other necessary excavations on site				
BU10		Selected granular material	m³	5	84,84	424,20
BU11		Selected fill material	m³	10	84,84	848,40
Carried forward / ...						46 252,90

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BU: WATER RETICULATION

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						46 252,90
	SABS 1200 L	MEDIUM PRESSURE PIPELINES				
	PSL 8.2.1	Supply, lay, joint, bed and test as for flexible pipes, complete with couplings:				
		HDPE PN12.5 PE63 pipes (Screw type couplings)				
BU12		25mm dia	m	150	19,16	2 874,00
BU13		50mm dia	m	150	43,06	6 459,00
		uPVC Class 12 pipes				
BU14		110 mm dia	m	150	98,18	14 727,00
		SPECIALS AND FITTINGS				
	PSL 8.2.2	Extra over items PSL 8.2.1 for the supplying, laying and bedding of specials complete with couplings:				
		11,25 degree bends:				
BU15		110 mm dia uPVC	No.	1	258,66	258,66
		22,5 degree bends:				
BU16		110 mm uPVC	No.	1	258,66	258,66
		45 degree bends:				
BU17		110 mm dia uPVC	No.	2	258,66	517,32
		90 degree bends:				
BU18		50 mm dia HDPE	No.	1	141,48	141,48
BU19		110 mm dia uPVC	No.	1	258,66	258,66
		Tees:				
BU20		50 mm dia HDPE	No.	1	167,52	167,52
BU21		110 mm dia uPVC	No.	1	524,49	524,49
		Reducing Tees:				
BU22		110 mm x 50mm CI Flanged branch	No.	3	942,21	2 826,63
Carried forward / ...						75 266,32

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BU: WATER RETICULATION

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						75 266,32
		End caps:				
BU23		50 mm HDPE	No.	2	112,19	224,38
BU24		110 mm uPVC	No.	1	274,94	274,94
		Flange adaptors:				
BU25		50 mm HDPE	No.	1	226,11	226,11
BU26		110 mm uPVC	No.	1	345,46	345,46
		VALVES AND HYDRANTS				
	8.2.3	Extra over items PSL 8.2.1 for supplying, fixing and bedding flanged gate valves:				
BU27		50 mm dia	No.	1	1 509,67	1 509,67
BU28		110 mm dia	No.	1	2 074,88	2 074,88
BU29		250 mm dia	No.	1	9 229,01	9 229,01
	8.2.3	Extra over item PSL 8.2.1 for supplying, fixing and bedding of fire hydrants (pedestal) including double flanged distance piece between hydrant and tee complete as per detail drawings:				
BU30		110 mm dia	No.	2	1 175,06	2 350,12
BU31	8.2.3	Extra over items PSL 8.2.1 for installing a Stand pipe complete as per detail drawings	No.	7	3 569,30	24 985,10
		ANCILLARIES				
	PSL 8.2.11	Anchor blocks / thrust blocks and pedestals:				
BU32		Class 15 MPa/19 mm Concrete	m³	10	1 783,74	17 837,40
		VALVE AND HYDRANT CHAMBERS				
	8.2.13	Valve and hydrant chambers complete to detail drawings:				
BU33	PSG 8.18	Valve chamber	No.	2	3 335,58	6 671,16
BU34	PSL 8.2.18	Connection to existing main supply pipe of 110 mm	No.	2	1 584,10	3 168,20
Carried forward / ...						144 162,75

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BU: WATER RETICULATION

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						144 162,75
	SABS 1200 LF	ERF CONNECTIONS (WATER)				
	PSLF 8.2.1	Provide water connections complete as per drawings				
BU35		25 mm Standpipe less than 15 m	No.	4	3 569,30	14 277,20
BU36		50 mm dia building connection less than 15 m	No.	3	3 148,67	9 446,01
BU37	8.2.8	Marker posts	No.	2	86,80	173,60
TOTAL SECTION BU CARRIED TO SUMMARY						R 168 059,56

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION BV: SEWER RETICULATION				
	SABS 1200 DB	EARTHWORKS (PIPE TRENCHES)				
	8.3.2 PSLB 8.1.6	EXCAVATION				
	PSDB 8.3.2(a) PSLB 8.1.5	Excavate in all materials, for trenches, backfill, compact and dispose of surplus material for main pipes:				
		Pipes up to 125 mm dia for depths:				
BV1		Over 0,5 and up to 1,0 m	m	20	98,60	1 972,00
BV2		Over 1,0 m and up to 1,5 m	m	100	164,33	16 433,00
BV3		Over 1,5 m and up to 2,0 m	m	20	230,06	4 601,20
	PSDB 8.3.2(b)	Extra over items PSDB 8.3.2(a) above for:				
BV4		Hard rock excavation	m³	2	472,09	944,18
		Hand excavation and backfill where directed by the Engineer in:				
BV5		Soft material	m³	5	386,62	1 933,10
BV6	8.3.2(c)	Excavate and dispose of unsuitable material from trench bottom	m³	5	73,72	368,60
	PSDB 8.3.3	EXCAVATION ANCILLARIES				
	8.3.3.1	Make up deficiency in backfill material:				
BV7		From other necessary excavations on site	m³	5	73,72	368,60
BV8	PSDB 8.3.3.3	Compaction in road crossings	m³	10	73,72	737,20
	SABS 1200 LB PSLB 8.1.1	BEDDING (PIPES)				
	8.2.1	Provision of Bedding from Trench Excavations				
BV9		Selected granular material	m³	20	63,63	1 272,60
BV10		Selected fill material	m³	100	63,63	6 363,00
Carried forward / ...						34 993,48

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BV: SEWER RETICULATION

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						34 993,48
BV11	SABS 1200 LB 8.2.2.1	From other necessary excavations on site				
BV12		Selected granular material	m³	5	84,84	424,20
		Selected fill material	m³	20	84,84	1 696,80
	SABS 1200 LD 8.2.1	SEWERS				
		Supply, lay, joint, bed on class C bedding and test pipeline:				
		uPVC Class class 34 pipes				
BV13		110 mm dia	m	50	80,45	4 022,50
BV14		160 mm dia	m	100	161,83	16 183,00
		PRECAST CONCRETE MANHOLES				
	8.2.3	Precast fibre cement manholes complete as per detail drawings with concrete slab and ductile iron covers and frames for depths:				
BV15		Over 0,5 and up to 1,0 m	No.	1	11 958,20	11 958,20
BV16		Over 1,0 m and up to 1,5 m	No.	1	11 958,20	11 958,20
BV17		Over 1,5 m and up to 2,0 m	No.	1	11 958,20	11 958,20
BV18	8.2.5	Rodding eye as shown on Drawings	No.	5	3 538,55	17 692,75
	8.2.6	Erf Connections				
BV19		Connect to 110 mm sewer pipeline less than 15 m	No.	1	1 157,48	1 157,48
BV20		Connect to 160 mm sewer pipeline less than 15 m	No.	1	2 714,45	2 714,45
TOTAL SECTION BV CARRIED TO SUMMARY						114 759,26

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BW: MISCELLANEOUS
STRUCTURES

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION BJ: MISCELLANEOUS STRUCTURES				
		Drawing No. 110585-WW-1324 : SST Effluent Junction Chamber				
		Drawings No. 110585-WW-1760 to 1761 : SST Flow Meter Chamber				
		Drawing No. 110585-WW-1770 : New Scum Pumpstation				
	SANS 1200 D	EARTHWORKS				
		as specified in SANS 1200 D and in the project specifications				
	8.3.4 PSD 8.3.4	Importing of materials:				
		(a) Pioneer stone layer 300mm thick consisting of clean imported particles of 200mm to 300mm diameter to be used as working platform				
BW1						
BW2		(i) SST Effluent Junction Chamber	m³	10,3	410,67	4 229,90
BW3		(ii) SST Flow Meter Chamber	m³	16,4	410,67	6 734,99
		(iii) New Scum Pumpstations (4 No.)	m³	11,5	410,67	4 722,71
	SANS 1200 G	CONCRETE WORK				
	8.1.1 PSG 8.1.1	Formwork				
	8.2.1	Rough formwork:				
		Plane vertical to:				
BW4		(a) SST Effluent Junction Chamber				
BW5		(i) Sides of perimeter walls measured from FFL to 300mm below NGL	m²	72,3	389,15	28 135,55
		(ii) Sides of footings up to 400 mm high	m²	22,1	389,15	8 600,22
BW6		(b) SST Flow Meter Chamber				
BW7		(i) Sides of perimeter walls measured from FFL to 300mm below NGL	m²	112,8	389,15	43 896,12
BW8		(ii) Sides of footings up to 400 mm high	m	29,6	171,62	5 079,95
BW9		(iii) Pipe support foundations	m	6,0	171,62	1 029,72
BW10		(iv) Pipe support walls	m²	8,4	482,46	4 052,66
Carried forward / ...						106 481,81

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BW: MISCELLANEOUS
STRUCTURES

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						106 481,81
BW11	SANS 1200 G	(c) New Scum Pumpstations (4 No.)				
		(i) Sides of perimeter walls measured from FFL to 300mm below NGL	m ²	143,0	389,15	55 648,45
BW12		(ii) Sides of footings up to 300 mm high	m	49,6	171,62	8 512,35
BW13		(iii) Sides of concrete slab 250 mm high	m	50,4	171,62	8 649,65
	8.2.2	Smooth formwork:				
		Plane vertical to:				
		(a) SST Effluent Junction Chamber				
BW14		(i) External perimeter walls measured from 300mm below NGL to TOC 15.60	m ²	29,3	435,81	12 769,2
BW15		(ii) Internal perimeter walls measured from FFL 10.00 to TOC 15.600	m ²	86,9	435,81	37 871,89
		(b) SST Flow Meter Chamber				
BW16		(i) External perimeter walls measured from 300mm below NGL to TOC 15.60	m ²	11,2	435,81	4 881,07
BW17		(ii) Internal perimeter walls measured from FFL 9.55 to 14.300	m ²	117,8	435,81	51 338,42
		(c) New Scum Pumpstations (4 No.)				
BW18		(i) External perimeter walls measured from 300mm below NGL to TOC 15.60	m ²	3,0	435,81	1 307,43
BW19		(i) Internal perimeter walls measured from FFL to TOC 15.600	m ²	31,8	435,81	13 858,76
		Plane horizontal to:				
BW20		(a) SST Effluent Junction Chamber underside of baffle wall, 250 mm wide with an average prop height of approximately 2.151m measured from FFL at 10.00	m ²	5,4	664,60	3 588,84
BW21		(b) SST Effluent Flow Meter Chamber cover slab, with an average prop height of approximately 4.75m measured from FFL at 9.55	m ²	29,2	697,15	20 356,78
		Box out holes/form voids:				
		(a) For 610 by 610 mm manhole on cover slabs	No.	1,0	1 438,10	1 438,10
Carried forward / ...						326 702,78

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BW: MISCELLANEOUS
STRUCTURES

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						326 702,78
BW22	SANS 1200 A PSA 8.18 SANS 1200 G PSG 8.6	Box out with continuous rebar in terms of PSG 5.5.20				
	8,3	(a) 1.2m by 1.2m box out for SST Effluent pipes	No.	2	1 904,65	3 809,30
	8.3.1	Reinforcement:				
		Mild steel bars:				
BW23		(a) 8 mm dia	t	0,7	12 038,08	8 426,66
BW24		(b) 10 mm dia	t	0,9	12 038,08	10 834,27
BW25		(c) 12 mm dia	t	0,7	12 038,08	8 426,66
		High tensile steel bars:				
BW26		(a) 10 mm dia	t	1,0	12 038,08	12 038,08
BW27		(b) 12 mm dia	t	2,1	12 038,08	25 279,97
BW28		(c) 16 mm dia	t	3,1	12 038,08	37 318,05
BW29		(d) 20 mm dia	t	7,2	12 038,08	86 674,18
BW30		(e) 25 mm dia	t	6,2	12 038,08	74 636,10
BW31		(f) 32 mm	t	1,0	12 038,08	12 038,08
	SANS 1200 G 8.1.3 PSG 8.1.3	Concrete:				
		Concrete Grade 15 MPa/20 mm (mass concrete) to:				
BW32	PSG 8.13	(a) Blinding 75 mm minimum thickness	m ²	17,6	118,64	2 088,06
		Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for footings and floor slabs to:				
BW33		(a) SST Effluent Junction Chamber floor slab 400 mm thick	m ³	13,7	1 780,93	24 398,74
BW34		(b) SST Flow Meter Chamber floor slab 400 mm thick	m ³	21,9	1 780,93	39 002,37
BW35		(c) New Scum Pumpstations (4 No.) floor slabs 300 mm thick	m ³	11,5	1 780,93	20 480,70
Carried forward / ...						692 153,98

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BW: MISCELLANEOUS
STRUCTURES

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						692 153,98
	SANS 1200 G	Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for walls:				
BW36		(a) SST Effluent Junction Chamber walls 400 mm thick	m³	48,9	1 780,93	87 087,48
BW37		(b) SST Flow Meter Chamber walls 400 mm thick	m³	48,3	1 780,93	86 018,92
BW38		(c) New Scum Pumpstations (4 No.) walls 250 mm thick	m³	8,9	1 780,93	15 850,28
	PSG 8.4.4	Unformed surface finishes:				
		Horizontal wood floated finish to:				
BW39		(a) SST Effluent Junction Chamber footing	m²	8,7	30,65	266,6b
BW40		(b) SST Effluent Flow Meter Chamber footing	m²	16,3	30,65	499,60
BW41		(c) New Scum Pumpstations (4No.) footings	m²	13,4	30,65	410,71
BW42		(d) New Scum Pumpstations (4No.) pump platform slab	m²	70,6	30,65	2 163,89
		Horizontal steel-floated finish:				
BW43		(a) SST Effluent Junction Chamber floor slab	m²	34,2	38,29	1 309,52
BW44		(b) Top of SST Effluent Junction Chamber walls	m²	3,7	38,29	141,67
BW45		(c) SST Effluent Flow Meter Chamber cover slab	m²	38,4	38,29	1 470,34
BW46		(d) Top of New Scum Pumpstations (4No.) walls	m	4,6	38,29	176,1
	SANS 1200 G 8.5 PSG 8.1.1 PSG 8.1.1.7 PSG 8.5	Designated Joints				
		Expansion/Construction joints as detailed and indicated on drawings and/or specified in the Project Specification:				
BW47		(a) Joint Type F:	m	18,6	205,29	3 818,39
Carried forward / ...						891 367,56

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION BW: MISCELLANEOUS
STRUCTURAL

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						891 367,5
	SANS 1200 L PSL 8.2.1 PSL 8.2.19	PIPEWORK				
	8.2.2 PSG 8.6	Cast in of pipes and specials (such as flanges etc. where required) through concrete (including hydrophilic rubber sealant, as specified or shown on drawings):				
BW48		(a) SEJ1	No	2	31 501,24	63 002,48
BW49		(b) SEJ2	No	1	11 089,13	11 089,13
BW50		(c) SEJ3	No	1	7 739,74	7 739,74
BW51		(d) AEC1	No	1	11 089,13	11 089,13
BW52		(e) AEC2	No	1	7 703,93	7 703,93
	8.2.2 PSL 8.2.2 PSL 8.2.17 PSL 8.2.19 SANS 1200 G PSG 8.6	Extra-over for flexible couplings and/or flanges where applicable (see DRG-CS-1778 to 1781):				
BW50		(a) SEJ4	No	1	195,30	195,30
	SANS 1200 LE	UNDERDRAINAGE SYSTEM				
		as specified in SANS 1200 LE and in the project specifications				
BW51		(a) Filter bed - 100mm no-fines concrete layer including provision for 20 mm thick packed mortar skin	m2	34,2	231,11	7 903,96
	SANS 1200 A PSA 8.18	Construct drain complete including excavation, 19 mm stone fill, geofabric blanket and 110 mm dia perforated flexible drainage pipe as shown on drawings				
BW52		(b) Transverse drains including 110mm diameter class 9 uPVC perforated drainage pipe	m	15,0	198,38	2 975,70
BW53		(c) Trench excavation for non perforated pipes	m³	1,4	103,22	144,51
BW54		(d) Supply and lay 110 mm dia PVC-U Class 9 non-perforated connector pipes	m	9,0	113,90	1 025,10
Carried forward / ...						1 004 236,54

**SECTION BW: MISCELLANEOUS
STRUCTURES**

Contract
Part C2: Pricing Data
Reference No. 179Q/2016/17

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIT WASTEWATER TREATMENT WORKS

SECTION BX : DECOMMISSIONING
ALTERATION AND DEMOLITION WORKS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 721 000,9
		MISCELLANEOUS				
	SANS 1200 A 8.9-A	(a) Flooring: Supply and install Hot Dip Galvanised (HDG) Open Banded Grating with a nominal size of 40 x 40mm as shown on drawings				
BX60		(i) at Chamber F101	m ²	7	1 716,47	12 015,29
BX61		(ii) at Chlorine Contact Tank A and B Entry Chambers	m ²	6	1 716,47	10 298,82
		(b) 45 x 45 x 5 mm Hot Dip Galvanised (HDG) angle cast in concrete to support HDG grating specified above				
BX62		(i) at Chamber F101	m	11	376,50	4 141,50
BX63		(ii) at Chlorine Contact Tank A and B Entry Chambers	m	14	376,50	5 271,00
	PSG 8.10	Testing for water tightness:				
		(a) Chlorine Dosing Splitter Chamber				
BX64		(i) at Chamber F101	Sum	-	9 861,09	9 861,09
BX65		(ii) at Chlorine Contact Tank A Entry Chambers	Sum	-	9 861,09	9 861,09
BX66		(iii) at Chlorine Contact Tank A Entry Chambers	Sum	-	9 861,09	9 861,09
TOTAL SECTION BX CARRIED TO SUMMARY						R 1 782 310,83

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
SECTION BY : FENCING						
Existing Fence						
BY1	PSC 8.2.11	Dismantle and temporary store (on site) existing Betafence including razor wire as instructed by the engineer	m	650	48,82	31 733,00
BY2	PA7.1	Re-erecting the dismantled fence on original alignment	m	170	358,05	60 868,50
BY3	PA7.1	Re-erecting the dismantled fence on new alignment as directed by Engineer	m	170	358,05	60 868,50
BY4		Extra over re-erecting dismantled fence for supply of additional new intermediate posts where required	No.	30	1 898,75	56 962,50
BY5		Extra over re-erecting dismantled fence for supply of additional new straining posts where required	No.	30	1 898,75	56 962,50
New Fence						
Supply all material and install complete:						
BY6	PA7.1	2,4 m High security fencing, Betafence 358 Dublo (Zincalu and PVC coated) or similar approved (equivalent), secured to fencing posts as per manufacturer's specification including concrete footings for fence posts	m	350	2 940,35	1 029 122,50
BY7	PA7.2	Single flatwrap galvanised razor wire (to match existing z-profile combo serrated spike) including single post extensions	m	350	32,55	11 392,50
BY8		Extra over new fence for corner post	No.	10	2 940,35	29 403,50
BY9	PSA 8.12	Class 25 MPa/19 500x100 mm Concrete anti-dig for fence line	m	350	146,48	51 268,00
Gates						
Supply all material and install complete:						
BY10	PA7.3	6,0 m Wide x 2,4 m high Betafence Nylofor double swing gate, or similar approved (equivalent), including posts and locking bracket	No.	1	44 973,25	44 973,25
TOTAL SECTION BY CARRIED TO SUMMARY						R 1 433 554,75

PORTION C OF THE WORKS

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION CA: GENERAL AND
TEMPORARY WORKS

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
	SANS 1200 A PSA 8.11	SECTION CA: GENERAL AND TEMPORARY WORKS				
		GENERAL WORKS:				
		General:				
CA1	PSA 8.8.1	Dealing with access, including construction of temporary site roads	Sum	-	103 031,82	103 031,82
CA2	PSA 8.8.1	Remove temporary site roads and reinstate site	Sum	-	37 167,65	37 167,65
CA3	PSA8.12	Attendance on the Mechanical and Electrical Contractor as specified in C3.4: Scope of Work	Sum	-	0,00	0,00
CA4		Liaison and co-operation with other contractors as specified in C3.4: Scope of Work	Sum	-	0,00	0,00
CA5	PSA 8.18	Dismantling and removal of existing bioreactor glass-fused steel tank	Sum	-	0,00	0,00
CA6	PSA8.8.11.2	Setting out of the Works	Sum	-	0,00	0,00
CA7	PSA8.8.11.4	Survey for and preparation of as-built data	Sum	-	0,00	0,00
	SANS 1200 A PSA 8.5.2	Sums stated provisionally by the Engineer:				
CA8	PSA 8.17	All costs associated with late permission/ access to undertake the removal of Glass-Fused Steel Tank and Construction of Reinforced Concrete Water Retaining Walls at MBR A Bioreactor as specified in C3.4.5.12 of Part C3: Scope of Work	Week	12	28 861,00	346 332,00
CA9	PSA 8.5	Provision of furniture for offices	Prov-Sum	-	-	-
CA10	PSA 8.5	Percentage adjustment on Item CA9 for Contractor's overheads and profit (state % and extend as an amount)	%	175 400	-	-
CA11		Locating, protection, alteration and relocation of existing services carried out by authorities	Prov Sum	-	-	40 000,00
CA12	SANS 1200 A PSA 8.5.2	Percentage adjustment on Item CA11 for Contractor's overheads and profit (state % and extend as an amount)	%	40 000	10,00%	4 000,00
Carried forward / ...						530 531,47

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIE T WASTEWATER TREATMENT WORKS

SECTION CB : SITE CLEARANCE

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION CB : SITE CLEARANCE				
	SANS 1200 D PSD 8.3.6	EARTHWORKS				
	PSD 8.2 PSD 8.3.2	Bulk excavation:				
	PSD 8.3.2(a)	Excavate in all materials and use for embankment or backfill or dispose as ordered, from:				
CB1		Necessary excavations	m ³	1 000	41,77	41 770,00
CB2		Designated borrow areas	m ³	1 000	41,77	41 770,00
CB3		Commercial sources	m ³	3 000	134,00	402 000,00
	PSD 8.3.2(b)	Excavate in all materials and dispose on site:				
CB4		Unsuitable material	m ³	50	41,77	2 088,50
	PSD 8.3.2(c)	Extra-over Items BC2, BC3 and BC5 for:				
CB5		Hard rock excavation	m ³	50	472,09	23 604,50
	PSD 8.3.3	Restricted excavation:				
	PSD 8.3.3(a)	Excavate for restricted foundations, footings in all materials and use for embankment, backfill or dispose as ordered, for:				
CB6		Existing MBR A	m ³	1 100	142,00	156 200,00
CB7		MBR A Filtration Inspection Chamber	m ³	50	142,00	7 100,00
	8.3.5 PSD 8.3.5	Extra excavation in all materials to provide working space around structure:				
CB8		Existing MBR A	m ²	150	142,00	21 300,00
CB9		MBR A Membrane Inspection Chamber	m ²	50	142,00	7 100,00
		FINISHINGS (see also Section AE)				
CB10	PSD 8.3.10	Topsolling	m ²	2 000	61,87	123 740,00
	PSD 8.3.11	Grassing:				
CB11		Hydroseeding	m ²	500	1,30	650,00
TOTAL SECTION CB CARRIED TO SUMMARY						R 827 323,00

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION CC : BIOREACTOR INNER AND
OUTER PERIMETER CONCRETE WALL

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION CC : BIOREACTOR INNER AND OUTER PERIMETER CONCRETE WALL				
		Drawing No. 110585-CS-1329 to 1336: MBR A Bioreactor Concrete Wall				
	SANS 1200 G	CONCRETE WORK				
	8.1.1 PSG 8.1.1	Formwork				
	8.2.1	Rough formwork:				
		Vertical formwork for:				
CC1		(a) External face of ring footing, circular in plan, with radius 25,585 m	m ²	65	435,81	28 327,65
	8.2.2	Smooth formwork:				
		Vertical formwork for:				
CC2		(a) Wall, internal face, circular in plan with radius 24,885m	m ²	860	342,50	294 550,00
CC3		(b) Wall, external face, circular in plan with radius 25,185m	m ²	870	342,50	297 975,00
CC4		(c) Wall, internal face, circular in plan with radius 18,910m	m ²	655	342,50	224 337,50
CC5		(d) Wall, external face, circular in plan with radius 19,210m	m ²	665	342,50	227 762,50
CC6		(e) Inlet channel walls (up to 7m off footing)	m ²	45	389,15	17 511,75
CC7		(f) Inlet channel circular columns, 350mm Ø	m ²	15	482,46	7 236,90
CC8		(g) Transfer/recycle pumpstation channel walls (up to 10m off footing)	m ²	350	435,81	152 533,50
CC9		(h) Inlet channel column footings	m ²	5	482,46	2 412,30
	PSG 8.1.1.10	Horizontal formwork for:				
CC10		(a) Inlet channel slab soffit (up to 5m off footing)	m ²	8	664,60	5 316,80
CC11		(b) Inlet channel beams supporting slab at inlet side (up to 5m off footing)	m ²	8	664,60	5 316,80
CC12		(c) Transfer pump station slab soffit (up to 10m off footing)	m ²	120	794,80	95 376,00
Carried forward / ...						1 358 656,70

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION CC : BIOREACTOR INNER AND
OUTER PERIMETER CONCRETE WALL

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						1 358 656,70
	SANS 1200 G 8.2.5	Narrow widths:				
		Vertical smooth formwork for:				
CC13		Joint, circular in plan, 200 mm high, with radius 23,785 m	m	150	171,62	25 743,00
CC14		Joint, circular in plan, 200 mm high, with radius 20,310 m	m	130	171,62	22 310,60
CC15		Joint, 200 mm high	m	60	171,62	10 297,20
CC16		Joint, up to 300mm high (Inlet Channels and Transfer/Recycle Pumpstation slabs)	m	225	171,62	38 614,50
		(b) Tapered internal walls				
CC17		(i) Internal face of tapered outside wall 650 mm wall to 350 mm thick, measured from TOG 16.50 to FFL 14.70	m ²	4044,2		
CC18		(ii) Internal face of tapered inside wall 650 mm wall to 350 mm thick, measured from TOG 16.50 to FFL 14.70	m ²	4547,7		
	8.2.6	Box out holes/form voids:				
CC19		(a) 1080x1500mm in 250 thick wall	No	5	3 765,02	18 825,10
CC20		(b) 1050x700mm in 250 thick wall	No	9	3 528,80	31 759,20
	PSG 8.1.2	Reinforcement:				
	8.3.1	Mild steel bars:				
CC21		(a) 8 mm dia	t	5,0	11 923,95	59 619,75
CC22		(b) 10 mm dia	t	14,0	11 923,95	166 935,30
CC23		(c) 12 mm dia	t	3,0	11 923,95	35 771,85
	8.3.1	High tensile steel bars:				
CC24		(a) 10 mm dia	t	21,0	11 923,95	250 402,95
CC25		(b) 12 mm dia	t	38,0	11 923,95	453 110,10
CC26		(c) 16 mm dia	t	36,0	11 923,95	429 262,20
CC27		(d) 20 mm dia	t	24,0	11 923,95	286 174,80
CC28		(e) 25 mm dia	t	10,0	11 923,95	119 239,50
CC29		(f) 32 mm	t	5,0	11 923,95	59 619,75
Carried forward / ...						3 366 342,50

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION CC : BIOREACTOR INNER AND
OUTER PERIMETER CONCRETE WALL

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						3 366 342,50
	SANS 1200 G 8.4	Concrete:				
	8.4.2	Blinding layer in 15MPa/19 mm concrete:				
		Mortar skim:				
CC30		(a) Under wall footing and floor, 20mm thick	m ²	1060	72,37	76 712,20
CC31		No-fines layer	m ²	1060	199,08	211 024,80
		(b) Under wall footing and floor, 100mm thick				
	PSG 8.13	Class 35 MPa/27 mm (watertight concrete):				
CC32		(a) Surfacebeds	m ³	100	1 740,59	174 059,00
CC33		(b) Footings	m ³	10	1 740,59	17 405,90
CC34		(c) Outside wall ring footing	m ³	100	1 740,59	174 059,00
CC35		(d) Inside wall ring footing	m ³	100	1 740,59	174 059,00
CC36		(e) Inside wall	m ³	260	1 740,59	452 553,40
CC37		(f) Outside wall	m ³	200	1 740,59	348 118,00
CC38		(g) Column footings for columns at inlet channel	m ³	2	1 740,59	3 481,18
CC39		(h) Columns supporting inlet channel	m ³	2	1 740,59	3 481,18
CC40		(i) Beams above columns at inlet channel	m ³	2	1 740,59	3 481,18
CC41		(j) Inlet channel slab	m ³	5	1 740,59	8 702,95
CC42		(k) Inlet channel walls	m ³	15	1 740,59	26 108,85
CC43		(l) Transfer pumpstation walls	m ³	90	1 740,59	156 653,10
CC44		(m) Transfer pumpstation channel slabs	m ³	120	1 740,59	208 870,80
CC45		(n) Transfer pumpstation new support footing	m ³	6	1 740,59	10 443,54
CC46		(o) Transfer pumpstation new support wall	m ³	25	1 740,59	43 514,75
Carried forward / ...						5 459 071,33

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION CC : BIOREACTOR INNER AND
OUTER PERIMETER CONCRETE WALL

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						5 459 071,33
CC47	8.4.4 PSG 8.4.4	Unformed surface finishes:				
		Steel-floated finish to:				
		(a) top of mortar skim	m ²	1060	38,29	40 587,40
CC48		(b) top of walls	m ²	85	38,29	3 254,65
CC49		Wood-floated finish to:				
		(a) top of surface bed, wall footings and slabs	m ²	1050	30,65	32 182,50
CC50	SANS 1200 G 8.5 PSG 8.1.1 PSG 8.1.1.7 PSG 8.5	Joints:				
		(a) Joint type B complete with corners, junctions etc. as per drawing 110585-WWTW-DRG-CS-0110	m	280	453,21	126 898,80
		(b) Joint type D complete with corners, junctions etc. as per drawing 110585-WWTW-DRG-CS-0110	m	65	369,80	24 037,00
		(c) Horizontal construction joints F in reservoir wall, complete, as per drawing 110585-WWTW-DRG-CS-0110	m	600	205,29	123 174,00
		(d) Sika combiflex SG bandage joint to old concrete (20cm x 2mm)	m	160	460,65	73 704,00
		(e) Joint type X as per drawing 110585-WWTW-DRG-WW-1331	m	25	564,85	14 121,25
CC55		(f) Joint type Y complete with corners, junctions etc. as per 110585-WWTW-DRG-WW-1331	m	12	512,12	6 145,44
CC56	PSG 8.16	Dowels tying in new to old concrete:				
		(a) 12 mm dia	No.	250	177,40	44 350,00
		(b) 16 mm dia	No.	150	183,91	27 586,50
CC58		(c) 20 mm dia	No.	50	226,22	11 311,00
Carried forward / ...						5 986 423,87

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION CC : BIOREACTOR INNER AND
OUTER PERIMETER CONCRETE WALL

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						5 986 423,87
	SANS 1200 L PSL 8.2.1 PSL 8.2.19 8.2.2 PSG 8.6	PIPEWORK Cast in of pipes and specials (such as flanges etc. where required) through concrete (including hydrophilic rubber sealant, as specified or shown on drawings):				
CC59		(a) Circular pipe penetrations up to 0,75 m diameter through 300mm thick wall	No	3	1 300,92	3 902,76
CC60		(b) Circular pipe penetrations up to 800mm diameter through 250mm thick wall	No	8	1 300,92	10 407,36
CC61		(c) Circular penetrations up to 800mm diameter through 250mm tick slab	No	5	1 300,92	6 504,60
CC62		(d) Circular pipe penetrations up to 800mm diameter through reinforced concrete ring footing	No	1	1 300,92	1 300,92
	SANS 1200 A PSA 8.18	Miscellaneous items:				
CC63		(a) Manholes as par drawing 110585-WWTW-DRG-CS-0116	No	3	13 791,24	41 373,72
		Subsurface drainage pipes				
CC64		(b) Circumferential subsurface drain complete as per Detail 1, drawing 110585-WWTW-DRG-WW-1332	m	160	198,38	31 740,80
CC65		(c) Radial subsurface drain complete as per SECTION D, drawing 110585-WWTW-DRG-WW-1330	m	65	198,38	12 894,70
CC66		(d) Pressure test existing pop-up valves	Sum	1	0,00	0,00
CC67		(e) Ground-water relief valves	No.	16	1 347,57	21 561,12
		Circular pipes				
CC68		(f) 110mm Ø UPVC class 12 pipe	m	30	96,01	2 880,30
CC69		(g) 200mm Ø UPVC class 12 pipe	m	170	214,99	36 548,30
CC70		(h) Backfill around structure using G7 material in layers on 150mm compacted to 43% MOD AASHTO	m³	2650	56,00	148 400,00
Carried forward / ...						6 303 938,45

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION CC : BIOREACTOR INNER AND
OUTER PERIMETER CONCRETE WALL

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						6 303 938,45
CC71	SANS 1200 A PSA 8.18	DEMOLITION/REMOVAL Concrete Footing (a) Demolition and removal of Inner and outer reinforced concrete ring footings (to specified radius as per drawing 110585-WWTW-DRG-WW-1329), surface bed, no-fines mattress and drains.	m ³	235	304,91	71 653,85
CC72		Steel Tank Wall (b) Demolition and removal of inner and outer steel wall including fixing details	Sum	1	220 402,13	220 402,13
CC73		Inlet Channel (c) Partial demolition and removal of concrete/steel elements (as indicated on drawing 110585-WWTW-DRG-WW-1329), including concrete bases, columns, beams, slabs, walls, steel elements (rectagrid, handrails) etc. Removal of reinforcement and waterbars/joint material where required is included	Sum	1	110 201,06	110 201,06
CC74		Transfer/recycle Pumpstation (d) Demolition and removal of concrete/steel elements (as indicated on drawing 110585-WWTW-DRG-WW-1329), including concrete bases, columns, beams, slabs, walls, steel elements (rectagrid, handrails, gantry) etc. Removal of reinforcement and waterbars/joint material where required, is included.	Sum	1	110 201,06	110 201,06
CC75		(e) Demolition of no-fines mattress and no-fines drains below reinforced concrete ring footings and surface bed	m ²	1250	59,47	74 337,50
		Testing for water tightness:				0,00
CC76	SANS 1200 A PSA 8.18	(a) Inner zone of MBR A Bioreactor	Sum	1	30 572,18	30 572,18
CC77		(b) Outer zone of MBR A Bioreactor	Sum	1	30 572,18	30 572,18
TOTAL SECTION CC CARRIED TO SUMMARY					R	6 951 878,41

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION CD : ULTRA-FILTRATION
INSPECTION CHAMBER

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		SECTION CD : ULTRA-FILTRATION INSPECTION CHAMBER				
		Drawing No. 110585-CS-1337				
	SANS 1200 G	CONCRETE WORK				
	8.1.1 PSG 8.1.1	Formwork				
	8.2.1	Rough formwork:				
		Plane vertical to:				
CD6		(a) Sides of MBR Inspection Chamber footings up to 350 mm high:	m	22,4	171,62	3 844,29
CD7		(b) Sides of MBR Inspection Chamber drainage sump up to 350 mm high:	m	4,0	171,62	686,48
	8.2.2	Smooth formwork:				
		Plane vertical to:				
		(a) External walls				
CD8		(i) MBR Inspection Chamber perimeter walls measured from TOC 16.50 to FFL 14.70	m ²	70,0	435,81	30 506,70
		(b) Internal walls				
CD9		(i) MBR Inspection Chamber perimeter walls measured from TOC 16.50 to FFL 14.70	m ²	67,8	435,81	29 547,92
CD10		(ii) MBR Inspection Chamber drainage sump internal walls measured from 14.70 to FFL 14.200	m ²	2,0	435,81	871,62
	8.2.5	Narrow Sections				
CD11		(a) To sides of stairs 300 mm high extreme	m	5,2	171,62	892,46
CD12		(b) To stair risers up to 200 mm high	m	19,2	171,62	3 295,10
CD13		(c) Sides of staircase and walkway platform	m	10,0	171,62	1 716,20
		Plane horizontal to:				
CD14		(a) MBR Inspection Chamber staircase platform slab, with an average prop height of approximately 2.75m measured from GL 15.20	m ²	2,4	571,29	1 371,10
Carried forward / ...						72 731,83

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION CD : ULTRA-FILTRATION
INSPECTION CHAMBER

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						72 731,83
CD15	SANS 1200 G PSG 8.1.1.9 PSG 8.1.1.10	Plane sloping to: (a) Underside/soffit of concrete stairs	m ²	6,2	571,29	3 542,00
CD16	8,3	Reinforcement:				
	8.3.1	Mild steel bars:				
CD16		(a) 8 mm dia	t	0,2	12 038,08	2 407,62
CD17		(b) 10 mm dia	t	0,2	12 038,08	2 407,62
CD18		(c) 12 mm dia	t	0,2	12 038,08	2 407,62
CD19		High tensile steel bars:				
		(a) 10 mm dia	t	0,2	12 038,08	2 407,62
CD20		(b) 12 mm dia	t	0,5	12 038,08	6 019,04
CD21		(c) 16 mm dia	t	0,7	12 038,08	8 426,66
CD22		(d) 20 mm dia	t	1,7	12 038,08	20 464,74
CD23		(e) 25 mm dia	t	1,5	12 038,08	18 057,12
CD24		(f) 32 mm	t	0,2	12 038,08	2 407,62
CD25	SANS 1200 G 8.4	Concrete:				
	8.4.2	Blinding layer in 15MPa/19 mm concrete:				
CD25		(a) 75 mm minimum thickness blinding under MBR Inspection Chamber	m ²	31	118,64	3 677,84
CD26		(b) Benching inside Inspection Chamber	m ³	2	1 466,83	2 933,66
CD27	PSG 8.13	Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for footings and floor slabs to:				
		(a) MBR Inspection Chamber footing 350 mm thick	m ³	11	1 740,59	19 146,49
CD28		(b) Drainage sump footing 200 mm thick	m ³	0,2	1 740,59	348,12
Carried forward / ...						167 385,57

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS

SECTION CD : ULTRA-FILTRATION
INSPECTION CHAMBER

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						167 385,57
CD29	SANS 1200 G	Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for suspended slabs (platforms and walkway slabs): (a) MBR Inspection Chamber and walkway staircase platform	m³	4,0	1 740,59	6 962,36
CD30		Strength concrete Grade 35 MPa/20 mm (watertight reinforced concrete) for walls: (a) MBR Inspection Chamber perimeter walls 300 mm thick	m³	21	1 740,59	36 552,39
CD31		(b) Drainage sump walls 200 mm thick	m³	0,1	1 740,59	174,06
CD32		(c) Cassette plinth 200 mm thick	m³	4	1 740,59	6 962,36
	PSG 8.4.4	Unformed surface finishes: Horizontal wood floated finish to:				
CD33		(a) MBR Inspection Chamber top of blinding layer	m²	31,2	30,65	956,28
CD34		(b) MBR Inspection Chamber stair case and walkway platform	m²	5,5	30,65	168,58
CD35		(c) Top of staircases treads and readings with granolithic screed	m²	5,8	30,65	177,77
		Horizontal steel-floated finish:				
CD36		(a) MBR Inspection Chamber floor slab	m²	19	38,29	727,51
CD37		(b) MBR Inspection Chamber drainage sump slab	m²	0,3	38,29	11,49
CD38		(c) Cassette plinth 200 mm thick	m³	20	38,29	765,80
	SANS 1200 G 8.5 PSG 8.1.1 PSG 8.1.1.7 PSG 8.5	Designated Joints Expansion/Construction joints as detailed and indicated on drawings and/or specified in the Project Specification:				
CD39		(a) Joint Type F:	m	20	205,29	4 105,80
Carried forward / ...						224 949,96

MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIE T WASTEWATER TREATMENT WORKS

SECTION CD : ULTRA-FILTRATION
INSPECTION CHAMBER

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						224 949,96
CD40	PSG 8.7	Grouting: (a) Grouting of pockets in concrete after support frame Installation	m³	0,5	13 270,60	6 635,30
	SANS 1200 HA	METALWORK as specified in SANS 1200 HA and in the project specifications Supply and Install:				
CD41	PSHA 8.3.2	(a) Grade 316 handrails, complete mounted on (l) Stairs	m	16	940,70	15 051,20
		MISCELLANEOUS				
CD42	PSG 8.10	Testing for water tightness: (a) MBR Inspection Chamber	Sum	1	940,70	940,70
TOTAL SECTION CD CARRIED TO SUMMARY						R 247 577,16

**MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS**

**SECTION CE : MISCELLANEOUS
WORKS**

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
CE1	SANS 1200 A PSA 8.18	SECTION CE : MISCELLANEOUS WORKS Drawing No. 110585-CS-1329-1332 Remove retaining (Ioffelstein) walls (4 m high on average) around the MBR A Bioreactor, and stockpile on Site	m	250	599,90	149 975,00
CE2	SANS 1200 A PSA 8.18	Drawing No. 110585-WW-1732: Demolition of Existing MBR A Inlet Chamber and New Pipeline Alignment Demolish and dispose of Existing MBR A Inlet Chamber	Sum	-	11 384,02	11 384,02
TOTAL SECTION CE CARRIED TO SUMMARY						161 359,02

**MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIE T WASTEWATER TREATMENT WORKS**

SUMMARY			
SECTION A:	PRELIMINARY AND GENERAL FOR ALL SECTIONS OF THE WORKS	R	65 554 224,01
	<u>PORTION A OF THE WORKS</u>		
SECTION AA:	GENERAL AND TEMPORARY WORKS	R	1 523 008,99
SECTION AB:	SITE CLEARANCE	R	296 787,16
SECTION AC:	EARTHWORKS	R	3 664 421,80
SECTION AD:	MBR FINE SCREENING FACILITY	R	4 959 180,84
SECTION AE:	BIOLOGICAL REACTOR	R	36 380 291,22
SECTION AF:	ULTRA-FILTRATION MEMBRANE PLANT	R	9 804 334,88
SECTION AG:	MACHINE BUILDING	R	29 070 720,51
SECTION AH:	MACHINE BUILDING - SMALL POWER AND LIGHTING	R	1 598 142,26
SECTION AI:	TEMPORARY ADMIN BUILDING (REFURBISHED EXISTING DEWATERING BUILDING)	R	2 913 760,30
SECTION AJ:	TEMPORARY ADMIN BUILDING - SMALL POWER AND LIGHTING	R	297 883,77
SECTION AK:	BUILDING - INFORMATION MANAGEMENT	R	1 534 375,29
SECTION AL:	INTERCONNECTING PIPEWORK	R	5 487 038,59
SECTION AM:	SLEEVES	R	390 705,10
SECTION AN:	ROADWORKS	R	3 926 723,47
SECTION AO:	STORMWATER DRAINAGE	R	1 841 436,84
SECTION AP:	WATER RETICULATION	R	385 196,60
SECTION AQ:	SEWER RETICULATION	R	141 834,77
SECTION AR:	MISCELLANEOUS WORKS	R	1 529 108,90
SECTION AS:	DECOMMISSIONING, ALTERATION AND DEMOLITION WORKS	R	209 485,70
SECTION AT:	EARTH RETAINING SYSTEMS	R	414 826,56
SECTION AU:	GENSET	R	681 964,67
	TOTAL OF PORTION A PRICED ITEMS (TO BE CARRIED THROUGH TO SUMMARY PAGE)	R	172 585 452,23

**MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS**

<u>PORTION B OF THE WORKS</u>		
SECTION BA: GENERAL AND TEMPORARY WORKS	R	822 639,47
SECTION BB: SITE CLEARANCE	R	561 744,76
SECTION BC: EARTHWORKS	R	3 738 237,40
SECTION BD: CAS PLANT OUTLET CHAMBER	R	1 499 228,71
SECTION BE: CLARIFIERS	R	15 071 374,80
SECTION BF: CHLORINE DISINFECTION CHAMBER	R	1 747 356,52
SECTION BG: CHLORINE CONTACT TANK	R	3 323 521,31
SECTION BH: ADMINISTRATION AND CONTROL BUILDING	R	8 449 500,00
SECTION BI: ADMIN AND CONTROL BUILDING - SMALL POWER AND LIGHTING	R	385 864,67
SECTION BJ: CHEMICAL DOSING BUILDING	R	5 192 646,15
SECTION BK: CHEMICAL DOSING BUILDING - SMALL POWER AND LIGHTING	R	217 500,15
SECTION BL: CHLORINE DISINFECTION BUILDING	R	3 810 211,39
SECTION BM: CHLORINE DISINFECTION BUILDING - SMALL POWER AND LIGHTING	R	220 476,86
SECTION BN: BUILDING - INFORMATION MANAGEMENT	R	1 218 906,41
SECTION BO: HEATING, VENTILLATION AND AIR-CONDITIONING (HVAC) UNITS	R	N/A
SECTION BP: CHEMICAL DOSING PIPEWORK AND TRENCHES	R	5 316 807,30
SECTION BQ: INTERCONNECTING PIPEWORK	R	11 022 377,26
SECTION BR: SLEEVES	R	248 092,60
SECTION BS: ROADWORKS	R	1 265 055,54
SECTION BT: STORMWATER DRAINAGE	R	1 108 096,01
SECTION BU: WATER RETICULATION	R	168 059,56
SECTION BV: SEWER RETICULATION	R	114 759,26
SECTION BW: MISCELLANEOUS WORKS	R	1 090 838,95
SECTION BX: DECOMMISSIONING, ALTERATION AND DEMOLITION WORKS	R	1 782 310,83
SECTION BY: FENCING	R	1 433 554,75
TOTAL OF PORTION B PRICED ITEMS (TO BE CARRIED THROUGH TO SUMMARY PAGE)	R	69 809 161,42

**MBR PLANT AND BOTTLENECK ALLEVIATION
AT ZANDVLIET WASTEWATER TREATMENT WORKS**

<u>PORTION C OF THE WORKS</u>		
SECTION CA:	GENERAL AND TEMPORARY WORKS	R 1 012 145,09
SECTION CB:	SITE CLEARANCE AND EARTHWORKS	R 827 323,00
SECTION CC:	BIOREACTOR INNER AND OUTER PERIMETER CONCRETE WALL	R 6 951 878,41
SECTION CD:	ULTRA-FILTRATION INSPECTION CHAMBER	R 247 577,16
SECTION CE:	MISCELLANEOUS WORKS	R 161 359,02
TOTAL OF PORTION C PRICED ITEMS (TO BE CARRIED THROUGH TO SUMMARY PAGE)		R 9 200 282,68
TOTAL OF ALL PRICED ITEMS (PORTION A + PORTION B + PORTION C)		R 251 594 896,33
<i>Allow 10% contingencies (to be expended as directed by the Engineer and to be deducted in whole or in part if not required)</i>		R 25 159 489,63
NET TOTAL OF TENDER		R 276 754 385,96
Add 14% for Value Added Tax		R 38 745 614,03
GROSS TOTAL OF TENDER (PORTION A + PORTION B + PORTION C) Carried to Form C1.1, Form of Offer		R 315 500 000,00

ADDENDUM TO TENDER DOCUMENTS No. 1



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

FINANCE
SUPPLY CHAIN MANAGEMENT

06 February 2017

TO ALL TENDERERS

Dear Sirs,

ADDENDUM TO TENDER DOCUMENTS No 1
(11 Pages)

CITY OF CAPE TOWN

BOX NUMBER: 172

for

TENDER NUMBER: 179Q/2016/17

DESCRIPTION:

**THE CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT
ZANDVLIEET WASTEWATER TREATMENT WORKS: CIVIL WORKS**

CLOSING DATE OF TENDER:

27 FEBRUARY 2017

Dear Sir/Madam

Your attention is specifically drawn to the following amendments which are to be made to the Contract Document for the above in terms of Clause F.3.2 of the Standard Conditions of Tender and you will be deemed to have made allowance necessary to provide for these amendments in your Tender offer.

This "Addendum to Tender Documents (ATD)" is an addition to the Tender Documents listed in the Tender Data. Any tender submitted will be deemed to be in accordance with those Documents amended in accordance with the following instructions:

Tenderers should take note of the following:

(Continued overleaf)

Table 4-A: Functionally score for Tenderer's expertise and experience

Item No.	Project/component of work description	Points per project		Maximum Points per category
		Year when project completed	Points	
4	Construction of the following components:			
4.1	Building work with a construction value exceeding R 1.5 million excluding VAT	2002 to 2016	2	4
		1997 to 2001	1	
4.2	Road works/pavement with a construction value exceeding R 3 million excluding VAT	2002 to 2016	2	4
		1997 to 2001	1	
4.3	Bulk earthworks (for water and wastewater treatment works) with a construction value exceeding R 2 million excluding VAT	2002 to 2016	5	5
		1997 to 2001	3	
4.4	Underground fuel tanks with a capacity of at least 2 000 l	2002 to 2016	5	5
		1997 to 2001	1	
4.5	Diversion of and connecting into live sewers of at least 300 mm in diameter	2002 to 2016	5	5
		1997 to 2001	1	
4.6	HDPE corrosion protection (anchor knob sheeting) in pipeline or on concrete walls/surfaces of water retaining structures	2002 to 2016	5	5

ATD1 - 2 Part C1: C1.2: Contract Data (Volume 3)

ATD1 - 2.1 Clause 1.1.1.14:

Delete the entire Clause 1.1.1.14, and replace with the following:

"The times for achieving Practical Completion of the Works are:

- For Portion A of the Works as defined in C3.1 of the Scope of Work, seventy six (76) weeks, calculated from the Commencement Date.
- For Portion B of the Works as defined in C3.1 of the Scope of Work, one hundred and ten (110) weeks, calculated from the Commencement Date.
- For Portion C of the Works as defined in C3.1 of the Scope of Work, one hundred and sixty five (165) weeks, calculated from the Commencement Date.

The above durations are inclusive of the 14 day period referred to in Clause 5.3.2 below, and inclusive of non-working days referred to in Clause 5.8.1 below, but exclusive of Special non-working days (Clause 5.8.1)."

ATD1 - 3 Part C2: C2.2: Schedule of Quantities (Volume 3)

ATD1 - 3.1 Electronic copy of Bill of Quantities Issued in accordance with F.2.13.2 of T1.2: Tender Data

An updated Bill of Quantities in PDF and MS Excel format (file name: "179Q-2016-17_T1 Tenderer's copy") with amendments highlighted in red, and with the changes below, will be uploaded onto Dropbox for Tenderers' convenience (Note: An e-mail will be sent to all Tenderers with the Dropbox link). This file supersedes the earlier versions issued to Tenderers with the Tender Documents. This updated electronic copy of the Bill of Quantities is issued in good faith, and can be submitted in lieu of the hard copy issued with the tender documents subject to the requirements of Clause F.2.13.2 of T1.2: Tender Data.

ATD1 - 3.10 Summary: Portion B of the Works

ATD1 - 3.10.1 On page 425, amend the description for Section BF from "CHLORINE CONTACT TANK SPLITTER AND OVERFLOW CHAMBER" to "CHLORINE DISINFECTION CHAMBER".

ATD1 - 3.10.2 On page 425, delete the entire row for "SECTION BO: HEATING, VENTILLATION AND AIR CONDITIONING (HVAC) UNITS".

ATD1 - 4 Part C3: Scope of Work (Volume 3A)

ATD1 - 4.1 C3.4: Construction

ATD1 - 4.1.1 C3.4.7.8: Right of access to Site

Delete the entire "Table 2: Sequencing of Work with the mechanical and electrical contract", and replace with the following table:

Table 1-A: Sequencing of Work with the mechanical and electrical contract

Portion of the Site	Date when Portion/area of Site will be ready for installation of Equipment (see specified definition below)
Portion A of Site	76 weeks after Commencement Date of the Works
Portion B of Site	110 weeks after Commencement Date of the Works
Portion C of Site	165 weeks after Commencement Date of the Works

Drawing Number/File Name:	Drawing Description	Portion of Works
110585-WWTW-DRG-CS-1711-T0	ADMINISTRATION BUILDING : SHOPFRONT, WINDOW AND DOOR SCHEDULE - SHEET 3 OF 4	PORTION B
110585-WWTW-DRG-CS-1712-T0	ADMINISTRATION BUILDING : SHOPFRONT, WINDOW AND DOOR SCHEDULE - SHEET 4 OF 4	PORTION B
110585-WWTW-DRG-CS-1713-T0	ADMINISTRATION BUILDING : ELECTRICAL LAYOUT AND REFLECTED CEILING PLAN - GROUND FLOOR	PORTION B
110585-WWTW-DRG-CS-1714-T0	ADMINISTRATION BUILDING : ELECTRICAL LAYOUT AND REFLECTED CEILING PLAN - FIRST FLOOR	PORTION B
110585-WWTW-DRG-CS-1715-T0	ADMINISTRATION BUILDING : BALUSTRADE SCHEDULE	PORTION B
110585-WWTW-DRG-CS-1716-T0	ADMINISTRATION BUILDING : IRONMONGERY SCHEDULE	PORTION B
110585-WWTW-DRG-WW-0032-T0	NEW CHLORINE CONTACT TANK (C)	PORTION B
110585-WWTW-DRG-WW-0122-T0	ALTERATIONS TO EXISTING RAS PUMPSTATIONS A - SHEET 1 OF 2	PORTION B
110585-WWTW-DRG-WW-0123-T0	ALTERATIONS TO EXISTING RAS PUMPSTATIONS A - SHEET 2 OF 2	PORTION B
110585-WWTW-DRG-WW-0124-T0	ALTERATIONS TO EXISTING RAS PUMPSTATIONS B - SHEET 1 OF 2	PORTION B
110585-WWTW-DRG-WW-0125-T0	ALTERATIONS TO EXISTING RAS PUMPSTATIONS B - SHEET 2 OF 2	PORTION B
110585-WWTW-DRG-WW-0900-T0	CHEMICAL DOSING BUILDING : FOUNDATION & COLUMN LAYOUT	PORTION B
110585-WWTW-DRG-WW-0901-T0	CHEMICAL DOSING BUILDING : GROUND FLOOR LAYOUT	PORTION B
110585-WWTW-DRG-WW-0902-T0	CHEMICAL DOSING BUILDING : FIRST FLOOR LAYOUT	PORTION B
110585-WWTW-DRG-WW-0903-T0	CHEMICAL DOSING BUILDING : SECTIONS A & B	PORTION B
110585-WWTW-DRG-WW-0904-T0	CHEMICAL DOSING BUILDING : SECTIONS C & D	PORTION B
110585-WWTW-DRG-WW-0905-T0	CHEMICAL DOSING BUILDING : SECTION F & DETAILS	PORTION B
110585-WWTW-DRG-WW-1312-T0	CHLORINE DISINFECTION CHAMBER - SHEET 1 OF 3	PORTION B
110585-WWTW-DRG-WW-1313-T0	CHLORINE DISINFECTION CHAMBER - SHEET 2 OF 3	PORTION B
110585-WWTW-DRG-WW-1314-T0	CHLORINE DISINFECTION CHAMBER - SHEET 3 OF 3	PORTION B
110585-WWTW-DRG-WW-1319-T0	CAS A REACTOR OUTLET CHAMBER : PLAN - SHEET 1 OF 3	PORTION B

Drawing Number/File Name:	Drawing Description	Portion of Works
110585-WWTW-DRG-WW-1740-T0	EXISTING FLAMMABLE STORE	PORTION B
110585-WWTW-DRG-WW-1741-T0	EXISTING CENTRIFUGE BUILDING	PORTION B
110585-WWTW-DRG-WW-1745-T0	SECONDARY SETTING TANKS NO. 5A, 6A, 5B & 6B - LAYOUT OF NEW TANKS	PORTION B
110585-WWTW-DRG-WW-1746-T0	SECONDARY SETTING TANKS NO. 5A, 6A, 5B & 6B - 3D VIEWS	PORTION B
110585-WWTW-DRG-WW-1747-T0	SECONDARY SETTING TANKS NO. 5A, 6A, 5B & 6B - GENERAL LAYOUT PLAN	PORTION B
110585-WWTW-DRG-WW-1748-T0	SECONDARY SETTING TANKS NO. 5A, 6A, 5B & 6B - DRAINAGE AND JOINTS	PORTION B
110585-WWTW-DRG-WW-1749-T0	SECONDARY SETTING TANKS NO. 5A, 6A, 5B & 6B - SECTIONS	PORTION B
110585-WWTW-DRG-WW-1750-T0	SECONDARY SETTING TANKS NO. 5A, 6A, 5B & 6B - SECTIONS AND DETAILS - SHEET 1 OF 3	PORTION B
110585-WWTW-DRG-WW-1751-T0	SECONDARY SETTING TANKS NO. 5A, 6A, 5B & 6B - SECTIONS AND DETAILS - SHEET 2 OF 3	PORTION B
110585-WWTW-DRG-WW-1752-T0	SECONDARY SETTING TANKS NO. 5A, 6A, 5B & 6B - SECTIONS AND DETAILS - SHEET 2 OF 3	PORTION B
110585-WWTW-DRG-WW-1753-T0	SECONDARY SETTING TANKS NO. 5A, 6A, 5B & 6B - MECHANICAL PLAN, SECTION AND DETAILS	PORTION B
110585-WWTW-DRG-WW-1754-T0	SECONDARY SETTING TANKS NO. 5A, 6A, 5B & 6B - SLUDGE BLANKET METER	PORTION B
110585-WWTW-DRG-WW-1759-T0	SST EFFLUENT JUNCTION CHAMBER	PORTION B
110585-WWTW-DRG-WW-1760-T0	NEW SCUM PUMPSTATION : PLAN AND SECTIONS	PORTION B
110585-WWTW-DRG-WW-1761-T0	SST EFFLUENT FLOW METER CHAMBER : ACCESS LADDER DETAILS	PORTION B
110585-WWTW-DRG-WW-1770-T0	NEW SCUM PUMPSTATION : PLAN AND SECTIONS	PORTION B

Also, note: that all Drawings are available in merged and split format from the following Dropbox link:

<https://www.dropbox.com/sh/c17nvkhsf2abj/AABp2xbcmBqG1w9ha-dxRVLQ?dl=0>

WRITTEN ACKNOWLEDGEMENT OF RECEIPT

ADDENDUM TO TENDER DOCUMENTS No 1

CITY OF CAPE TOWN

BOX NUMBER: 172

for

TENDER NUMBER: 179Q/2016/17

DESCRIPTION:

THE CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIE
WASTEWATER TREATMENT WORKS: CIVIL WORKS

CLOSING DATE OF TENDER:

27 FEBRUARY 2017

Kindly acknowledge receipt of this Addendum by e-mailing this

We acknowledge receipt of the above Addendum and confirm that any tender we submit will take account of the instructions detailed therein.

Signature..... Date.....

Legal and full name of tendering entity:

.....
.....

ADDENDUM TO TENDER DOCUMENTS No. 2



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

FINANCE
SUPPLY CHAIN MANAGEMENT

22 February 2017

TO ALL TENDERERS

Dear Sirs,

ADDENDUM TO TENDER DOCUMENTS No 2
(9 Pages)

CITY OF CAPE TOWN

BOX NUMBER: 172

for

TENDER NUMBER: 179Q/2016/17

DESCRIPTION: THE CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT
ZANDVLIEET WASTEWATER TREATMENT WORKS: CIVIL WORKS

CLOSING DATE OF TENDER: 13 MARCH 2017

Dear Sir/Madam

Your attention is specifically drawn to the following amendments which are to be made to the Contract Document for the above in terms of Clause F.3.2 of the Standard Conditions of Tender and you will be deemed to have made allowance necessary to provide for these amendments in your Tender offer.

This "Addendum to Tender Documents (ATD)" is an addition to the Tender Documents listed in the Tender Data. Any tender submitted will be deemed to be in accordance with those Documents amended in accordance with the following instructions:

Tenderers should take note of the following:

(Continued overleaf)

- ATD2 - 5.2 Section A: Preliminary and General for all Portions of Works**
- ATD2 - 5.2.1 In Item A84, amend the quantity from "100,000" to "150,000"
- ATD2 - 5.2.2 In the Item below Item A85, insert Item No "A85(a)" against the Short Description "Percentage adjustment on Item A85 for Contractor's overheads and profit (state % and extend as a amount)".
- ATD2 - 5.2.3 In Item A85(a), amend the quantity from "100,000" to "90,000"
- ATD2 - 5.3 Section AA: General and Temporary Works**
- ATD2 - 5.3.1 Delete the entire Short Description of Item AA21, and replace with "Conversion of the existing Sludge Dewatering Building into the New Maintenance and Workshop Building and Refurbishment of Existing Workshop Building."
- ATD2 - 5.4 Section AD: MBR Fine Screening Facility**
- ATD2 - 5.4.1 In Item AD102, amend the Short Description from "[b] Joint Type I" to "[b] Isolation Joint 10mm Jointex between concrete surfaces, up to 300mm high"
- ATD2 - 5.5 Section AH: Machine Building – Small Power and Lighting**
- ATD2 - 5.5.1 In the Unit column of Item AH100, amend "m³" to "m²"
- ATD2 - 5.6 Section AL: Interconnecting Pipework**
- ATD2 - 5.6.1 In the Short Description column, above Item AL80, amend the drawing number from "110585-WWTW-DRG-CC-1574" to "110585-WWTW-DRG-CC-1666"
- ATD2 - 5.6.2 In the Short Description column, above Item AL81, amend the heading from "Construct manholes (precast concrete), inspection chambers, etc complete as shown drawings including cover and frame and building in of pipes, for depths;" to "Construct concrete manholes complete as shown drawing 110585-WWTW-DRG-CS-1306 including cover and frame and building in of pipes, for depths;"
- ATD2 - 5.7 Section AO: Stormwater Drainage**
- ATD2 - 5.7.1 In the Short Description column above Item AO16, amend the drawing number from "110585-WWTW-DRG-CC-583" to "110585-WWTW-DRG-CC-1678".
- ATD2 - 5.7.2 In the Short Description column above Item AO19, amend the drawing number from "110585-WWTW-DRG-CC-580" to "110585-WWTW-DRG-CC-1682" and amend "Pipes up to 525 mm diameter;" to "Pipes up to 600 mm diameter;"
- ATD2 - 5.7.3 In the Short Description column above Item AO23, amend the drawing number from "110585-WWTW-DRG-CC-596" to "110585-WWTW-DRG-CC-1682" and amend "Pipes up to 525 mm diameter;" to "Pipes over 600 mm diameter;"
- ATD2 - 5.7.4 In the Short Description column above Item AO27, amend the drawing number from "110585-WWTW-DRG-CC-582" to "110585-WWTW-DRG-CC-1677".
- ATD2 - 5.7.5 In the Short Description column above Item AO30, amend the drawing number from "110585-WWTW-DRG-CC-582" to "110585-WWTW-DRG-CC-1677".
- ATD2 - 5.7.6 In the Short Description column above Item AO34, amend the drawing number from "110585-WWTW-DRG-CC-566" to "110585-WWTW-DRG-CC-1655".
- ATD2 - 5.7.7 In the Short Description column in Item AO35, amend the drawing number from "110585-WWTW-DRG-CC-568 and 589" to "110585-WWTW-DRG-CC-1657 and 1683".
- ATD2 - 5.7.8 In the Short Description column in Item AO36, amend the drawing number from "110585-WWTW-DRG-CC-586" to "110585-WWTW-DRG-CC-1681".

In addition to the furnishings specified in Sub-clause 3.2, the following facilities shall be provided for each of the offices:

- i) Furniture;
- ii) 2 x 5 A power sockets;
- iii) 1 x air conditioner for warm/cool air, with cooling capacity of at least 2,0 kW.
- iv) 1 toilet, to be connected to the existing sewage system.

Such office accommodation shall be provided within the vicinity of the existing Administration and Control Building as shown on Drawing 110585-CS-1733.

The Contractor shall provide on Site for the duration of the Contract, fifteen (15) carports for the sole use of the Employer and his staff. The carport shall be constructed so that the vehicle parked under it is always protected against the direct rays of the sun and rain. The carport area shall be at least 290 m² and the floor shall be covered paved with asphalt to alleviate dusty and muddy conditions. The carport shall be positioned so as to provide easy and convenient access to the temporary Administration and Control Building as shown on Drawing 110585-CS-1790 to 1798.

The Contractor shall provide a detailed method statement for this work, for approval by the Engineer prior to executing the Works.

The abovementioned work is to be done as part of Portion A of the Works.

ATD2 - 6.1.2 C3.4.5.5: Refurbishment of Existing Workshop Building

Delete the entire C3.4.5.5, and replace with the following:

"C3.4.5.5 New Maintenance and Workshop Building and Refurbishment of Existing Workshop Building.

a) New Maintenance and Workshop Building

The New Maintenance and Workshop Building shall be in the existing Sludge Dewatering Building (which is currently being used for processing sludge via mechanical belt-filter press etc.). In future, once the Mechanical and Electrical Contractor (for Contract 85Q/2016/17) has successfully completed his work, the Contractor shall be given access to execute the required work. It is anticipated that access will be given at approximately ninety (90) weeks after the Commencement Date of this Contract. This work is to be done in Portion B of the Works.

Once access is granted to the Contractor, he is required to carry out the Works contemplated herein as follows:

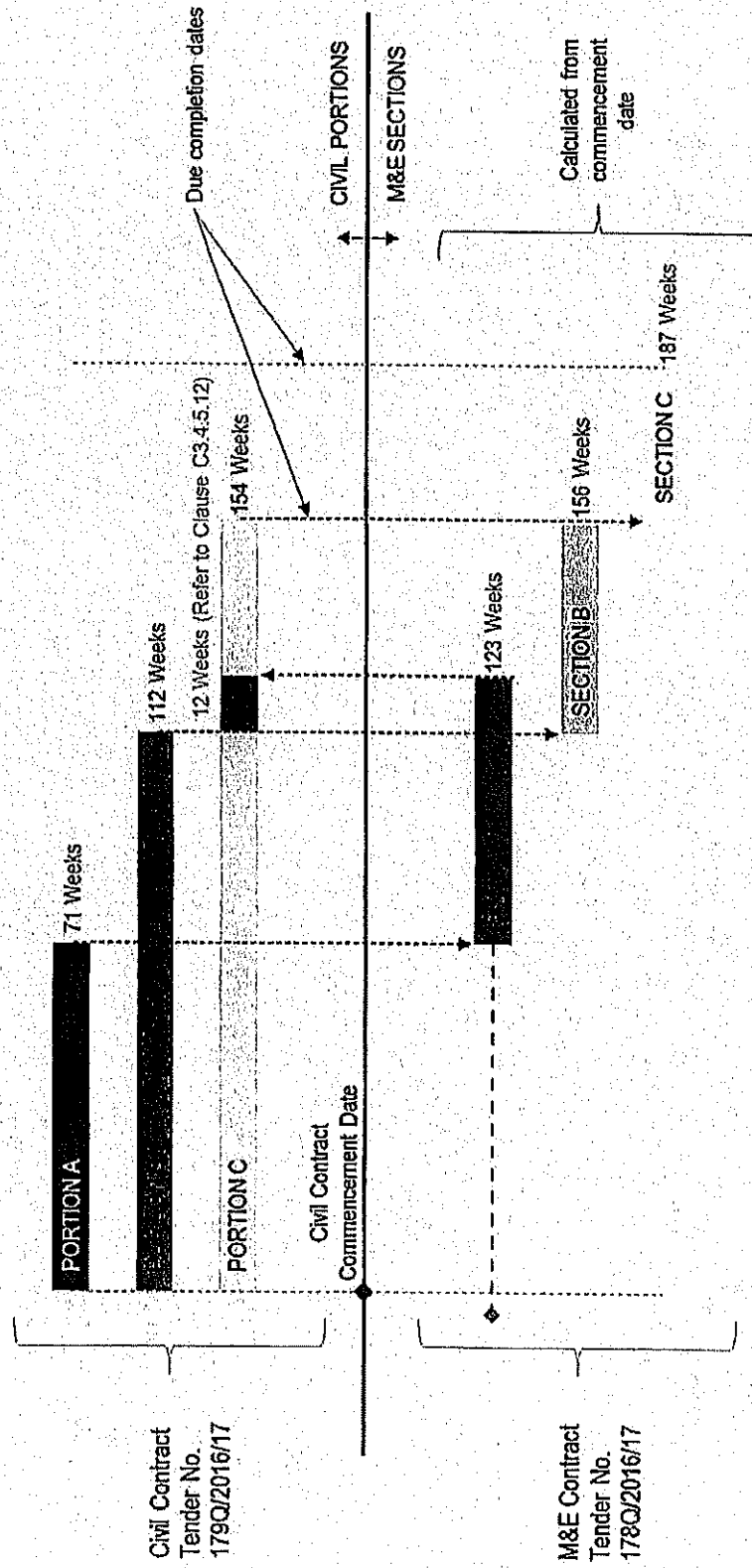
- i) Remove all the mechanical and electrical equipment and deliver to the Municipal Storage Yard located on Site as shown on drawings; and
- ii) Completely scrub, clean and disinfect (decontaminate) the existing Sludge Dewatering Building in accordance with the OHS Act;

b) Refurbishment of Existing Workshop Building

The Contractor is required to refurbish the existing Workshop Building (refer to Drawing 110585-WW-1738). During this time, the Employer's and Site Staff along with all equipment (such as furniture, computers, electronic hardware, IT servers, etc.) are to be moved and housed at the new Maintenance and Workshop Building as described above. This work is to be done in Portion B after successful completion of Works described in C3.4.5.5(a) above. The extent of the Works is shown on Drawings 110585-CC-0002.

The Contractor shall provide a detailed method statement for this work, for approval by the Engineer prior to executing the Works".

Timeline for Sequencing of Work with the Mechanical & Electrical Contract **(Tender No. 178Q/2016/17)**



WRITTEN ACKNOWLEDGEMENT OF RECEIPT

ADDENDUM TO TENDER DOCUMENTS No 2

CITY OF CAPE TOWN

BOX NUMBER: 172

for

TENDER NUMBER: 179Q/2016/17

DESCRIPTION:

**THE CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET
WASTEWATER TREATMENT WORKS: CIVIL WORKS**

CLOSING DATE OF TENDER: 13 MARCH 2017

Kindly acknowledge receipt of this Addendum by e-mailing th

We acknowledge receipt of the above Addendum and confirm that any tender we submit will take account of the instructions detailed therein.

Signature..... Date.....

Legal and full name of tendering entity:

.....
.....

Annex C

Local Content Declaration - Summary Schedule

(C1)	Tender No.	179Q-2016-17
(C2)	Tender description:	WBL ZANDVUUR
(C3)	Designated product(s)	VALVES
(C4)	Tender Authority:	COOT
(C5)	Tendering Entity name:	
(C6)	Tender Exchange Rate:	Pula
(C7)	Specified local content %	

GBP 17.20

EU 15.00

Note: VAT to be excluded from all calculations

Calculation of local content						
Tender item no's	List of items	Tender price per UoM (excl VAT)	Exempted imported value	Tender value net of exempted imported content	Imported value	Local content % (per item)
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C15)
Section AP	Items AP27- AP29 inclusive (Valves)	35498-	0	35498-	9050-	74.5
Section BU	Items BU27 to BU29 inclusive (Valves)	24494	0	24494-	6245-	74.5
Section BQ	Items BQ338 to BQ342 inclusive (Valves)	786166	0	786166-	227079-	71.1
Section AH	Items AH87 - AH94 inclusive, Item AH 107 (Cables)					
Section AJ	Items AJ81 - AJ88 inclusive, Item AJ 101 (Cables)					
Section AK	Item AK9, AK11, AK23 (cables)					
Section BI	Items BI40 - BI54 inclusive, Item BI67 (Cables)					
Tender						
Part T2: Returnable Documents						
Reference No. 179Q/2016/17						
70						

Tender summary			
Anticipated Annual Tender Qty (m)	Total tender value	Total exempted imported content	Total Imported content
(C16)	(C17)	(C18)	(C19)
VARIOUS 35498	35498	0	35498-
VARIOUS 24494	24494		6245-
VARIOUS 786166	786166		227079-

T2.2
Returnable Schedules



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

FINANCE
SUPPLY CHAIN MANAGEMENT

06 February 2017

TO ALL TENDERERS

Dear Sirs,

ADDENDUM TO TENDER DOCUMENTS No. 1
(11 Pages)

CITY OF CAPE TOWN

BOX NUMBER: 172

for

TENDER NUMBER: 179Q/2016/17

DESCRIPTION:

**THE CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT
ZANDVLIET WASTEWATER TREATMENT WORKS; CIVIL WORKS**

CLOSING DATE OF TENDER:

27 FEBRUARY 2017

Dear Sir/Madam

Your attention is specifically drawn to the following amendments which are to be made to the Contract Document for the above in terms of Clause F.3.2 of the Standard Conditions of Tender and you will be deemed to have made allowance necessary to provide for these amendments in your Tender offer.

This "Addendum to Tender Documents (ATD)" is an addition to the Tender Documents listed in the Tender Data. Any tender submitted will be deemed to be in accordance with those Documents amended in accordance with the following instructions:

Tenderers should take note of the following:

(Continued overleaf)

ADDENDUM TO TENDER DOCUMENTS (ATD) NO 1

ATD1 - 1 Part T1: T1.2: Tender Data (Volume 3)

ATD1 - 1.1 Delete the entire "Table 4: Functionality Score for Tenderer's Expertise and Experience", and replace with the following table:

Table 4-A: Functionality score for Tenderer's expertise and experience				
Item No.	Project/component of work description	Points per project		Maximum Points per category
		Year when project completed	Points	
1	Civil work construction of water and waste water treatment works:			
1.1	Civil work construction of water and waste water treatment works of average dry weather flow (ADWF) capacity of less than 10 Ml/d (average daily flow), or Civil work construction of less than 10 Ml/d (average daily flow) capacity upgrades to water and waste water treatment works.	2002 to 2016	6	10
		1997 to 2001	3	
	Civil work construction of water and waste water treatment works of average dry weather flow (ADWF) capacity greater than 10 Ml/d (average daily flow), or Civil work construction of greater than 10 Ml/d (average daily flow) capacity upgrades to water and waste water treatment works.	2002 to 2016	10	
		1997 to 2001	4	
2	Construction of the following reinforced concrete water retaining structures components:			
2.1	Inlet works with a capacity of less than 5 000 m³/d	2002 to 2016	6	9
		1997 to 2001	2	
	Inlet works with a capacity of more than 5 000 m³/d	2002 to 2016	9	
		1997 to 2001	5	
2.2	Biological reactor/ reservoir with a capacity of less than 5 000 m³	2002 to 2016	5	10
		1997 to 2001	1	
	Biological reactor/ reservoir with a capacity of more than 5 000 m³	2002 to 2016	10	
		1997 to 2001	4	
2.3	Secondary settling tank (SST)/ clarifiers or primary sedimentation tank (PST) with a diameter of less than 20 m	2002 to 2016	5	8
		1997 to 2001	1	
	Secondary settling tank (SST)/ clarifiers or primary sedimentation tank (PST) with a diameter of less than 20 m	2002 to 2016	8	
		1997 to 2001	3	
2.4	Breaking into and building on to existing structures (i.e. joining new structures to existing structures)	1997 to 2001	3	3
		1997 to 2001	1	
3	Construction of the following water and wastewater (sewage) bulk and/ or interconnecting pipelines components:			
3.1	Pipelines less than 355 mm in diameter and at least 300m in length	2002 to 2016	5	5
		1997 to 2001	1	
3.2	Pipelines between 355 mm and 700 mm in diameter and at least 200m in length	2002 to 2016	7	7
		1997 to 2001	1	
3.3	Pipelines between 700 mm and 1000 mm in diameter and at least 100m in length	2002 to 2016	8	8
		1997 to 2001	1	
3.4	Pipelines greater than 1000 mm in diameter and at least 50m in length	2002 to 2016	10	10
		1997 to 2001	1	

Table 4-A: Functionality score for Tenderer's expertise and experience

Item No.	Project/component or work description	Points per project		Maximum Points per category
		Year when project completed	Points	
4	Construction of the following components:			
4.1	Building work with a construction value exceeding R 1.5 million excluding VAT	2002 to 2016	2	4
		1997 to 2001	1	
4.2	Road works/pavement with a construction value exceeding R 3 million excluding VAT	2002 to 2015	2	4
		1997 to 2001	1	
4.3	Bulk earthworks (for water and wastewater treatment works) with a construction value exceeding R 2 million excluding VAT	2002 to 2016	5	5
		1997 to 2001	3	
4.4	Underground fuel tanks with a capacity of at least 2 000 l	2002 to 2016	5	5
		1997 to 2001	1	
4.5	Diversion of and connecting into live sewers of at least 300 mm in diameter	2002 to 2016	5	5
		1997 to 2001	1	
4.6	HDPE corrosion protection (anchor knob sheeting) in pipeline or on concrete walls/surfaces of water retaining structures	2002 to 2016	5	5

ATD1 - 2 Part C1: C1.2: Contract Data (Volume 3)

ATD1 - 2.1 Clause 1.1.1.14:

Delete the entire Clause 1.1.1.14, and replace with the following:

"The times for achieving Practical Completion of the Works are:

- ✓ a) For Portion A of the Works as defined in C3.1 of the Scope of Work, seventy six (76) weeks, calculated from the Commencement Date.
- b) For Portion B of the Works as defined in C3.1 of the Scope of Work, one hundred and ten (110) weeks, calculated from the Commencement Date.
- c) For Portion C of the Works as defined in C3.1 of the Scope of Work, one hundred and sixty five (165) weeks, calculated from the Commencement Date.

The above durations are inclusive of the 14 day period referred to in Clause 5.3.2 below, and inclusive of non-working days referred to in Clause 5.8.1 below, but exclusive of Special non-working days (Clause 5.8.1)."

ATD1 - 3 Part C2: C2.2: Schedule of Quantities (Volume 3)

ATD1 - 3.1 Electronic copy of Bill of Quantities Issued in accordance with F.2.13.2 of T1.2: Tender Data

An updated Bill of Quantities in PDF and MS Excel format (file name: "179Q-2016-17_T1 Tenderer's copy") with amendments highlighted in red, and with the changes below, will be uploaded onto Dropbox for Tenderers' convenience (Note: An e-mail will be sent to all Tenderers with the Dropbox link). This file supersedes the earlier versions issued to Tenderers with the Tender Documents. This updated electronic copy of the Bill of Quantities is issued in good faith, and can be submitted in lieu of the hard copy issued with the tender documents subject to the requirements of Clause F.2.13.2 of T1.2: Tender Data.

ATD1 - 3.2 Bill Section AG: MBR Plant – Machine Building

- ATD1 - 3.2.1 ✓ In Item AG118, insert the quantity "3"
- ATD1 - 3.2.2 ✓ In Item AG119, insert the quantity "2"
- ATD1 - 3.2.3 ✓ In Item AG120, insert the quantity "65"
- ATD1 - 3.2.4 ✓ In Item AG143, insert the quantity "1"
- ATD1 - 3.2.5 ✓ In Item AG144, insert the quantity "1"
- ATD1 - 3.2.6 ✓ In Item AG145, insert the quantity "1"
- ATD1 - 3.2.7 ✓ In Item AG146, insert the quantity "1"
- ATD1 - 3.2.8 ✓ In Item AG147, insert the quantity "1"
- ATD1 - 3.2.9 ✓ Delete Item AG172.
- ATD1 - 3.2.10 ✓ Delete Item AG173.
- ATD1 - 3.2.11 ✓ Delete Item AG174.
- ATD1 - 3.2.12 ✓ On page 183, above item AG158, as a heading, insert "PD10.14" into the Payment Clause column and insert "Paintwork" into the description column.

ATD1 - 3.3 Bill Section AH: Machine Building – Small Power and Lighting

- ATD1 - 3.3.1 ✓ In Item AH106, insert "R 115,000.00" into the Amount column.

ATD1 - 3.4 Bill Section BH: Administration and Control Building

- ATD1 - 3.4.1 ✓ In Item BH105, insert the quantity "97"
- ATD1 - 3.4.2 ✓ In Item BH106, insert the quantity "15"
- ATD1 - 3.4.3 ✓ In Item BH107, insert the quantity "13"
- ATD1 - 3.4.4 ✓ In Item BH108, insert the quantity "2"
- ATD1 - 3.4.5 ✓ In Item BH133, insert the quantity "22"
- ATD1 - 3.4.6 ✓ In Item BH134, insert the quantity "6"
- ATD1 - 3.4.7 ✓ In Item BH135, insert the quantity "8"
- ATD1 - 3.4.8 ✓ In Item BH136, insert the quantity "13"
- ATD1 - 3.4.9 ✓ In Item BH137, insert the quantity "8"
- ATD1 - 3.4.10 ✓ On page 305, below item BH158, in the Description column, amend "FURNITURE" to "FURNITURE BY CECIL NURSE OR SIMILAR APPROVED/ EQUIVALENT".

ATD1 - 3.5 Bill Section BK: Chemical Dosing Building – Small Power and Lighting

- ATD1 - 3.5.1 ✓ In Item BK55, insert "R 50,000.00" into the Amount column.

ATD1 - 3.6 Bill Section BO: Heating, Ventilation and Air Conditioning (HVAC) Units

- ATD1 - 3.6.1 ✓ Delete the entire Bill of Quantity section.

ATD1 - 3.7 Bill Section CA: General and Temporary Works

- ATD1 - 3.7.1 ✓ Delete Item CA5.
- ATD1 - 3.7.2 ✓ Delete Item CA 9.
- ATD1 - 3.7.3 ✓ Delete Item CA10.

ATD1 - 3.8 Bill Section CC: Bioreactor Inner and Outer Perimeter Concrete Wall

- ATD1 - 3.8.1 ✓ In the Description column of Item CC16, delete Sub-item (b), "Tapered internal walls".
- ATD1 - 3.8.2 ✓ Delete Item CC17.
- ATD1 - 3.8.3 ✓ Delete Item CC18.

ATD1 - 3.9 Bill Section CE: Miscellaneous Works

- ATD1 - 3.9.1 Delete Item CE1, and replace with the following

Item No	Short Description	Unit	Quantity	Rate	Amount R c
CE1	SECTION CE : MISCELLANEOUS WORKS Remove retaining (loftstein) walls (4.5 m high on average) around the MBR A Bioreactor, and stockpile on Site	m	250		

ATD1 - 3.10 Summary: Portion B of the Works

ATD1 - 3.10.1 On page 425, amend the description for Section BF from "CHLORINE CONTACT TANK SPLITTER AND OVERFLOW CHAMBER" to "CHLORINE DISINFECTION CHAMBER".

ATD1 - 3.10.2 On page 425, delete the entire row for "SECTION BO: HEATING, VENTILLATION AND AIR CONDITIONING (HVAC) UNITS".

ATD1 - 4 Part C3: Scope of Work (Volume 3A)

ATD1 - 4.1 C3.4: Construction

ATD1 - 4.1.1 C3.4.7.8: Right of access to Site

Delete the entire "Table 2: Sequencing of Work with the mechanical and electrical contract", and replace with the following table:

Table 1-A: Sequencing of Work with the mechanical and electrical contract

Portion of the Site	Date when Portion/Area of Site will be ready for Installation of Equipment (see specified definition below)
Portion A of Site	76 weeks after Commencement Date of the Works
Portion B of Site	110 weeks after Commencement Date of the Works
Portion C of Site	165 weeks after Commencement Date of the Works

ATD1 - 5 Book of Drawings (Volume 4)

Add the following Drawings which were inadvertently omitted in the Tender Documents [i.e. Volume 4; Book of Drawings]. However, we note that this omission/ error was communicated at the Clarification Meeting of 14 December 2016 to all prospective Tenderers, and that a Dropbox link (<https://www.dropbox.com/sh/c17nvokhsf2abj/AA8p2xcm8aG1w9ha-cxRIVLa3dl=Q>) for downloading these drawings was sent to all prospective Tenderers (who attended the Clarification Meeting) on 15 December 2016.

Drawing Number/File Name	Drawing Description	Portion of Works
COVER_179Q-2016-17_VOL 4 BK of DRG	DRAWING BOOK COVER PAGE	GENERAL
REGISTER_179Q-2016-17_VOL 4 BK of DRG	DRAWING REGISTER	GENERAL
110585-WWTW-DRG-CC-1623-T0	EARTHWORKS : FINISHED PLATFORM (FPL) CHLORINE CONTACT TANK LAYOUT	PORTION B
110585-WWTW-DRG-CC-1635-T0	EARTHWORKS : ADMIN & CONTROL BUILDING SECTIONS - SHEET 1 OF 2	PORTION B
110585-WWTW-DRG-CC-1636-T0	EARTHWORKS : ADMIN & CONTROL BUILDING SECTIONS - SHEET 2 OF 2	PORTION B
110585-WWTW-DRG-CC-1637-T0	EARTHWORKS SECONDARY SETTLING TANKS 5A AND 6A SECTION	PORTION B
110585-WWTW-DRG-CC-1638-T0	EARTHWORKS SECONDARY SETTLING TANKS 5B AND 6B SECTION	PORTION B
110585-WWTW-DRG-CS-1701-T0	ADMINISTRATION BUILDING : GROUND FLOOR PLAN	PORTION B
110585-WWTW-DRG-CS-1702-T0	ADMINISTRATION BUILDING : FIRST FLOOR PLAN	PORTION B
110585-WWTW-DRG-CS-1703-T0	ADMINISTRATION BUILDING : ROOF PLAN	PORTION B
110585-WWTW-DRG-CS-1704-T0	ADMINISTRATION BUILDING : ELEVATIONS - 1 OF 2	PORTION B
110585-WWTW-DRG-CS-1705-T0	ADMINISTRATION BUILDING : ELEVATIONS - 2 OF 2	PORTION B
110585-WWTW-DRG-CS-1706-T0	ADMINISTRATION BUILDING : SECTIONS - SHEET 1 OF 2	PORTION B
110585-WWTW-DRG-CS-1707-T0	ADMINISTRATION BUILDING : SECTIONS - SHEET 2 OF 2	PORTION B
110585-WWTW-DRG-CS-1708-T0	ADMINISTRATION BUILDING : 3D VIEWS	PORTION B
110585-WWTW-DRG-CS-1709-T0	ADMINISTRATION BUILDING : SHOPFRONT, WINDOW AND DOOR SCHEDULE - SHEET 1 OF 4	PORTION B
110585-WWTW-DRG-CS-1710-T0	ADMINISTRATION BUILDING : SHOPFRONT, WINDOW AND DOOR SCHEDULE - SHEET 2 OF 4	PORTION B

Drawing Number/ File Name	Drawing Description	Portion of Works
110585-WWTW-DRG-CS-1711-T0	ADMINISTRATION BUILDING : SHOPFRONT, WINDOW AND DOOR SCHEDULE - SHEET 3 OF 4	PORTION B
110585-WWTW-DRG-CS-1712-T0	ADMINISTRATION BUILDING : SHOPFRONT, WINDOW AND DOOR SCHEDULE - SHEET 4 OF 4	PORTION B
110585-WWTW-DRG-CS-1713-T0	ADMINISTRATION BUILDING : ELECTRICAL LAYOUT AND REFLECTED CEILING PLAN - GROUND FLOOR	PORTION B
110585-WWTW-DRG-CS-1714-T0	ADMINISTRATION BUILDING : ELECTRICAL LAYOUT AND REFLECTED CEILING PLAN - FIRST FLOOR	PORTION B
110585-WWTW-DRG-CS-1715-T0	ADMINISTRATION BUILDING : BALUSTRADE SCHEDULE	PORTION B
110585-WWTW-DRG-CS-1716-T0	ADMINISTRATION BUILDING : IRONMONGERY SCHEDULE	PORTION B
110585-WWTW-DRG-WW-0032-T0	NEW CHLORINE CONTACT TANK (C)	PORTION B
110585-WWTW-DRG-WW-0122-T0	ALTERATIONS TO EXISTING RAS PUMPSTATIONS A - SHEET 1 OF 2	PORTION B
110585-WWTW-DRG-WW-0123-T0	ALTERATIONS TO EXISTING RAS PUMPSTATIONS A - SHEET 2 OF 2	PORTION B
110585-WWTW-DRG-WW-0124-T0	ALTERATIONS TO EXISTING RAS PUMPSTATIONS B - SHEET 1 OF 2	PORTION B
110585-WWTW-DRG-WW-0125-T0	ALTERATIONS TO EXISTING RAS PUMPSTATIONS B - SHEET 2 OF 2	PORTION B
110585-WWTW-DRG-WW-0900-T0	CHEMICAL DOSING BUILDING : FOUNDATION & COLUMN LAYOUT	PORTION B
110585-WWTW-DRG-WW-0901-T0	CHEMICAL DOSING BUILDING : GROUND FLOOR LAYOUT	PORTION B
110585-WWTW-DRG-WW-0902-T0	CHEMICAL DOSING BUILDING : FIRST FLOOR LAYOUT	PORTION B
110585-WWTW-DRG-WW-0903-T0	CHEMICAL DOSING BUILDING : SECTIONS A & B	PORTION B
110585-WWTW-DRG-WW-0904-T0	CHEMICAL DOSING BUILDING : SECTIONS C & D	PORTION B
110585-WWTW-DRG-WW-0905-T0	CHEMICAL DOSING BUILDING : SECTION F & DETAILS	PORTION B
110585-WWTW-DRG-WW-1312-T0	CHLORINE DISINFECTION CHAMBER - SHEET 1 OF 3	PORTION B
110585-WWTW-DRG-WW-1313-T0	CHLORINE DISINFECTION CHAMBER - SHEET 2 OF 3	PORTION B
110585-WWTW-DRG-WW-1314-T0	CHLORINE DISINFECTION CHAMBER - SHEET 3 OF 3	PORTION B
110585-WWTW-DRG-WW-1319-T0	CAS A REACTOR OUTLET CHAMBER : PLAN - SHEET 1 OF 3	PORTION B

Drawing Number/File Name	Drawing Description	Portion of Work
110585-WWTW-DRG-WW-1320-T0	CAS A REACTOR OUTLET CHAMBER : SECTIONS - SHEET 2 OF 3	PORTION B
110585-WWTW-DRG-WW-1321-T0	CAS A REACTOR OUTLET CHAMBER : SECTIONS - SHEET 3 OF 3	PORTION B
110585-WWTW-DRG-WW-1322-T0	CAS B REACTOR OUTLET CHAMBER : PLAN - SHEET 1 OF 3	PORTION B
110585-WWTW-DRG-WW-1323-T0	CAS B REACTOR OUTLET CHAMBER : SECTIONS - SHEET 2 OF 3	PORTION B
110585-WWTW-DRG-WW-1324-T0	CAS B REACTOR OUTLET CHAMBER : SECTIONS - SHEET 3 OF 3	PORTION B
110585-WWTW-DRG-WW-1721-T0	CHLORINE DOSING BUILDING : FOUNDATION AND GENERAL ARRANGEMENT	PORTION B
110585-WWTW-DRG-WW-1722-T0	CHLORINE DOSING BUILDING : MECHANICAL LAYOUT	PORTION B
110585-WWTW-DRG-WW-1723-T0	CHLORINE DOSING BUILDING : SECTIONS A-B	PORTION B
110585-WWTW-DRG-WW-1724-T0	CHLORINE DOSING BUILDING : SECTIONS, DETAILS AND SCHEDULE	PORTION B
110585-WWTW-DRG-WW-1725-T0	CHLORINE DOSING BUILDING : ELEVATIONS AND 3D	PORTION B
110585-WWTW-DRG-WW-1726-T0	ALTERATIONS TO EXISTING VALVE CHAMBER G110	PORTION B
110585-WWTW-DRG-WW-1727-T0	ALTERATIONS TO EXISTING CHAMBER F101	PORTION B
110585-WWTW-DRG-WW-1728-T0	ALTERATIONS TO EXISTING CAS REACTORS - SHEET 1 of 3	PORTION B
110585-WWTW-DRG-WW-1729-T0	ALTERATIONS TO EXISTING CAS REACTORS - SHEET 2 of 3	PORTION B
110585-WWTW-DRG-WW-1730-T0	ALTERATIONS TO EXISTING CAS REACTORS - SHEET 3 of 3	PORTION B
110585-WWTW-DRG-WW-1731-T0	ALTERATIONS TO THE EXISTING CHLORINE CONTACT TANK ENTRY CHAMBERS	PORTION B
110585-WWTW-DRG-WW-1735-T0	EXISTING CHLORINE CONTACT TANKS	PORTION B
110585-WWTW-DRG-WW-1736-T0	EXISTING CHLORINE DOSING BUILDING	PORTION B
110585-WWTW-DRG-WW-1737-T0	EXISTING ADMINISTRATION BUILDING	PORTION B
110585-WWTW-DRG-WW-1738-T0	EXISTING WORKSHOP (BUILDING G 125A)	PORTION B
110585-WWTW-DRG-WW-1739-T0	EXISTING INLET WORKS SWITCHGEAR BUILDING	PORTION B

Drawings Number/File Name	Drawing Description	Portion of Work
110585-WWTW-DRG-WW-1740-T0	EXISTING FLAMMABLE STORE	PORTION B
110585-WWTW-DRG-WW-1741-T0	EXISTING CENTRIFUGE BUILDING	PORTION B
110585-WWTW-DRG-WW-1745-T0	SECONDARY SETTING TANKS NO. 5A, 6A, 5B & 6B - LAYOUT OF NEW TANKS	PORTION B
110585-WWTW-DRG-WW-1746-T0	SECONDARY SETTING TANKS NO. 5A, 6A, 5B & 6B - 3D VIEWS	PORTION B
110585-WWTW-DRG-WW-1747-T0	SECONDARY SETTING TANKS NO. 5A, 6A, 5B & 6B - GENERAL LAYOUT PLAN	PORTION B
110585-WWTW-DRG-WW-1748-T0	SECONDARY SETTING TANKS NO. 5A, 6A, 5B & 6B - DRAINAGE AND JOINTS	PORTION B
110585-WWTW-DRG-WW-1749-T0	SECONDARY SETTING TANKS NO. 5A, 6A, 5B & 6B - SECTIONS	PORTION B
110585-WWTW-DRG-WW-1750-T0	SECONDARY SETTING TANKS NO. 5A, 6A, 5B & 6B - SECTIONS AND DETAILS - SHEET 1 OF 3	PORTION B
110585-WWTW-DRG-WW-1751-T0	SECONDARY SETTING TANKS NO. 5A, 6A, 5B & 6B - SECTIONS AND DETAILS - SHEET 2 OF 3	PORTION B
110585-WWTW-DRG-WW-1752-T0	SECONDARY SETTING TANKS NO. 5A, 6A, 5B & 6B - SECTIONS AND DETAILS - SHEET 2 OF 3	PORTION B
110585-WWTW-DRG-WW-1753-T0	SECONDARY SETTING TANKS NO. 5A, 6A, 5B & 6B - MECHANICAL PLAN, SECTION AND DETAILS	PORTION B
110585-WWTW-DRG-WW-1754-T0	SECONDARY SETTING TANKS NO. 5A, 6A, 5B & 6B - SLUDGE BLANKET METER	PORTION B
110585-WWTW-DRG-WW-1759-T0	SST EFFLUENT JUNCTION CHAMBER	PORTION B
110585-WWTW-DRG-WW-1760-T0	NEW SCUM PUMPSTATION : PLAN AND SECTIONS	PORTION B
110585-WWTW-DRG-WW-1761-T0	SST EFFLUENT FLOW METER CHAMBER : ACCESS LADDER DETAILS	PORTION B
110585-WWTW-DRG-WW-1770-T0	NEW SCUM PUMPSTATION : PLAN AND SECTIONS	PORTION B

Also, note that all Drawings are available in merged and split format from the following Dropbox link:

<https://www.dropbox.com/sh/c17nvpkhsfy2qbj/AABp2xxmBgG1w9na-dxRIVLg3dl=0>

Tenderers are to return a signed copy of this tender addendum with the submission of their tender (see Schedule 18 of Tender Document). Failure to return a signed copy of the Addendum may result in the Tender being declared Non-Responsive.

Kindly acknowledge receipt of this Addendum by e-mail using the enclosed Acknowledgement Receipt.

Yours faithfully,

.....
as am,
For Director, Supply Chain Management

Copy to: mpho.ramphao@aurecongroup.com

Enclosures: a) Bill of Quantities in PDF and MS Excel (file name: "179Q-2016-17_I1 Tenderer's Copy")
b) Drawings (Via Dropbox)
c) Acknowledgement Form

WRITTEN ACKNOWLEDGEMENT OF RECEIPT

ADDENDUM TO TENDER DOCUMENTS No 1

CITY OF CAPE TOWN

BOX NUMBER: 172

for

TENDER NUMBER: 179Q/2016/17

DESCRIPTION:

THE CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET
WASTEWATER TREATMENT WORKS; CIVIL WORKS

CLOSING DATE OF TENDER: 27 FEBRUARY 2017

Kindly acknowledge receipt of this Addendum by e-mailing this to _____

We acknowledge receipt of the above Addendum and confirm that any tender we submit will take account of the instructions detailed therein.

Signature..... Date..... 21.02.17

Legal and full name of tendering entity:



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

FINANCE
SUPPLY CHAIN MANAGEMENT

22 February 2017

TO ALL TENDERERS

Dear Sirs,

ADDENDUM TO TENDER DOCUMENTS No 2
(9 Pages)

CITY OF CAPE TOWN

BOX NUMBER: 172

for

TENDER NUMBER: 179Q/2016/17

DESCRIPTION: THE CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT
ZANDVLIET WASTEWATER TREATMENT WORKS: CIVIL WORKS

CLOSING DATE OF TENDER: 13 MARCH 2017

Dear Sir/Madam

Your attention is specifically drawn to the following amendments which are to be made to the Contract Document for the above in terms of Clause F.3.2 of the Standard Conditions of Tender and you will be deemed to have made allowance necessary to provide for these amendments in your Tender offer.

This "Addendum to Tender Documents (ATD)" is an addition to the Tender Documents listed in the Tender Data. Any tender submitted will be deemed to be in accordance with those Documents amended in accordance with the following instructions:

Tenderers should take note of the following:

(Continued overleaf)

ADDENDUM TO TENDER DOCUMENTS (ATD) NO 2

ATD2 - 1 General Tender Information (Volume 3)

ATD2 - 1.1 On page (i) of the General Tender Information, Amend the closing date from "27 February 2017" to "13 March 2017"

ATD2 - 2 Part T1: T1.1: Tender Notice and Invitation to Tender (Volume 3)

ATD2 - 2.1 On page 2 of T1.1 Tender Notice and Invitation to Tender, in the fourth last paragraph of the sentence starting with "The closing time..." replace "27 February 2017" with "13 March 2017"

ATD2 - 3 Part T1: T1.2: Tender Data (Volume 3)

ATD2 - 3.1 Replace Item 2.3 of "Table 4-A: Functionally Score for Tenderer's Expertise and Experience", as amended in ATD1 - 1.1, with the following:

2.3	Secondary settling tank (SST)/ clarifier or primary sedimentation tank (PST) with a diameter of less than 20 m, or less than the same effective surface area for cases in which the tank is rectangular	2002 to 2016	5	8
		1997 to 2001	1	
	Secondary settling tank (SST)/ clarifier or primary sedimentation tank (PST) with a diameter of greater than 20 m, or greater than the same effective surface area for cases in which the tank is rectangular	2002 to 2016	8	
		1997 to 2001	3	

ATD2 - 4 Part C1: C1.2: Contract Data (Volume 3)

ATD2 - 4.1 Clause 1.1.1.14:

Delete the entire Clause 1.1.1.14, as amended in ATD1 - 2.1, and replace with the following:

"The times for achieving Practical Completion of the Works are:

- For Portion A of the Works as defined in C3.1 of the Scope of Work, seventy one (71) weeks, calculated from the Commencement Date.
- For Portion B of the Works as defined in C3.1 of the Scope of Work, one hundred and twelve (112) weeks, calculated from the Commencement Date.
- For Portion C of the Works as defined in C3.1 of the Scope of Work, one hundred and fifty four (154) weeks, calculated from the Commencement Date.

The above durations are inclusive of the 14 day period referred to in Clause 5.3.2 below, and inclusive of non-working days referred to in Clause 5.8.1 below, but exclusive of Special non-working days (Clause 5.8.1)."

ATD2 - 4.2 Clause 5.8.1:

Amend Item c (iv) from "15 December 2021 to 3 January 2021 inclusive for the fifth year of the Contract" to "15 December 2021 to 3 January 2022 inclusive for the fifth year of the Contract"

ATD2 - 5 Part C2: C2.2: Bill of Quantities (Volume 3)

ATD2 - 5.1 Electronic copy of Bill of Quantities Issued in accordance with F.2.13.2 of T1.2: Tender Data

An updated Bill of Quantities in PDF and MS Excel format [file name: "179Q-2016-17_T2 Tenderer's copy"] with amendments highlighted in red, and with the changes below, will be uploaded onto Dropbox for Tenderers' convenience (Note: An e-mail will be sent to all Tenderers with the Dropbox link). This file supersedes the earlier versions issued to Tenderers with the Tender Documents. This updated electronic copy of the Bill of Quantities is issued in good faith, and can be submitted in lieu of the hard copy issued with the tender documents subject to the requirements of Clause F.2.13.2 of T1.2: Tender Data.

ATD2 - 5.2 Section A: Preliminary and General for all Portions of Works

ATD2 - 5.2.1 In Item A84, amend the quantity from "100,000" to "150,000"

ATD2 - 5.2.2 In the item below Item A85, insert Item No "A85(a)" against the Short Description "Percentage adjustment on Item A85 for Contractor's overheads and profit (state % and extend as a amount)".

ATD2 - 5.2.3 In Item A85(a), amend the quantity from "100,000" to "90,000"

ATD2 - 5.3 Section AA: General and Temporary Works

ATD2 - 5.3.1 Delete the entire Short Description of Item AA21, and replace with "Conversion of the existing Sludge Dewatering Building into the New Maintenance and Workshop Building and Refurbishment of Existing Workshop Building."

ATD2 - 5.4 Section AD: MBR Fine Screening Facility

ATD2 - 5.4.1 In Item AD102, amend the Short Description from "(b) Joint Type I" to "(b) Isolation joint 10mm Jointex between concrete surfaces, up to 300mm high"

ATD2 - 5.5 Section AH: Machine Building – Small Power and Lighting

ATD2 - 5.5.1 In the Unit column of Item AH100, amend "m³" to "m²"

ATD2 - 5.6 Section AI: Interconnecting Pipework

ATD2 - 5.6.1 In the Short Description column, above Item AI80, amend the drawing number from "110585-WWTW-DRG-CC-1574" to "110585-WWTW-DRG-CC-1666"

ATD2 - 5.6.2 In the Short Description column, above Item AI81, amend the heading from "Construct manholes (precast concrete), inspection chambers, etc complete as shown drawings including cover and frame and building in of pipes, for depths:" to "Construct concrete manholes complete as shown drawing 110585-WWTW-DRG-CS-1306 including cover and frame and building in of pipes, for depths:"

ATD2 - 5.7 Section AO: Stormwater Drainage

ATD2 - 5.7.1 In the Short Description column above Item AO16, amend the drawing number from "110585-WWTW-DRG-CC-583" to "110585-WWTW-DRG-CC-1678".

ATD2 - 5.7.2 In the Short Description column above Item AO19, amend the drawing number from "110585-WWTW-DRG-CC-580" to "110585-WWTW-DRG-CC-1682" and amend "Pipes up to 525 mm diameter:" to "Pipes up to 600 mm diameter:".

ATD2 - 5.7.3 In the Short Description column above Item AO23, amend the drawing number from "110585-WWTW-DRG-CC-596" to "110585-WWTW-DRG-CC-1682" and amend "Pipes up to 525 mm diameter:" to "Pipes over 600 mm diameter:".

ATD2 - 5.7.4 In the Short Description column above Item AO27, amend the drawing number from "110585-WWTW-DRG-CC-582" to "110585-WWTW-DRG-CC-1677".

ATD2 - 5.7.5 In the Short Description column above Item AO30, amend the drawing number from "110585-WWTW-DRG-CC-582" to "110585-WWTW-DRG-CC-1677".

ATD2 - 5.7.6 In the Short Description column above Item AO34, amend the drawing number from "110585-WWTW-DRG-CC-566" to "110585-WWTW-DRG-CC-1655".

ATD2 - 5.7.7 In the Short Description column in Item AO35, amend the drawing number from "110585-WWTW-DRG-CC-568 and 589" to "110585-WWTW-DRG-CC-1657 and 1683".

ATD2 - 5.7.8 In the Short Description column in Item AO36, amend the drawing number from "110585-WWTW-DRG-CC-586" to "110585-WWTW-DRG-CC-1681".

ATD2 - 5.8 Section AR: Miscellaneous Structures

ATD2 - 5.8.1 In the Short Description column on Page 238, under the section heading, amend the third paragraph from "Drawing No. 110585-CS-0995 to 0996 MBR WAS Flow Meter Chamber" to "Drawing No. 110585-CS-0995; WAS Flow Meter Chamber"

ATD2 - 5.9 Section BH: Administration and Control Building

ATD2 - 5.9.1 In Item BH158, amend the Short Description from "Supply and install heavy duty LF Raised access flooring as per architect's specification" to "Supply and install heavy duty Pentafloor SolidFeel SF45 raised access flooring 350mm high or similar approved".

ATD2 - 5.10 Section BM: Chlorine Disinfection Building- Small Power and Lighting

ATD2 - 5.10.1 In the Unit column of Item BM51, amend "m³" to "m²".

ATD2 - 5.11 Section BQ: Interconnecting Pipework

ATD2 - 5.11.1 In the Short Description column above Item BQ312, amend the drawing number from "110585-CC-606" to "110585-WWTW-DRG-CC-1666".

ATD2 - 5.11.2 In the Short Description column above Item BQ328, amend the heading from "Construct manholes (precast concrete), inspection chambers, etc complete as shown drawings including cover and frame and building in of pipes, for depths:" to "Construct concrete manholes complete as shown drawing 110585-WWTW-DRG-CS-1306 including cover and frame and building in of pipes, for depths:".

ATD2 - 6 Part C3: Scope of Work (Volume 3A)

ATD2 - 6.1 C3.4: Construction

ATD2 - 6.1.1 C3.4.5.4: Temporary accommodation for Site Staff

Delete the entire C3.4.5.4.1, and replace with the following:

"C3.4.5.4.1 Demolition of the existing Administration Building and Relocation of Plant Personnel into a Temporary Accommodation whilst Constructing the new Administration and Control Building.

The existing Administration and Control Building (refer to Drawing 110585-CS-1737) is to be demolished in its entirety, and a new one constructed (refer to Drawings 110585-CS-1701 to 1716) at the same location. During this time, the Employer's and Site Staff along with all equipment (such as furniture, computers, electronic hardware, IT servers, Plant-Wide Control Systems, laboratory apparatus etc.) are to be moved / relocated and housed in a temporary accommodation (i.e. containers) as contemplated below:

The Contractor shall provide about 120 m² made up of four (4) containers (40 ft) for the exclusive use of the Employer's Staff until such time as the new Administration and Control Building has been completed. The required facilities shall be provided promptly on the commencement of the Contract and failure on the part of the Contractor to provide any facility required in terms of this specification shall constitute grounds for the Engineer to withhold payment of the Contractor's tendered Preliminary and General Items until the facility has been provided.

Such office(s) shall comply with and be furnished in accordance with the requirements of Sub-clause 3.2 of SANS 1200 AB. The Contractor shall maintain the office in accordance with the requirements of Sub-clause 5.2 of SANS 1200 AB as amended by Project Specifications.

All windows in the office shall be fitted with blinds and burglar proofing over the entire glazed area, and with fly screens over the openings.

In addition to the furnishings specified in Sub-clause 3.2, the following facilities shall be provided for each of the offices:

- i) Furniture;
- ii) 2 x 5 A power sockets;
- iii) 1 x air conditioner for warm/cool air, with cooling capacity of at least 2,0 kW.
- iv) 1 toilet, to be connected to the existing sewage system.

Such office accommodation shall be provided within the vicinity of the existing Administration and Control Building as shown on Drawing I 10585-CS-1733.

The Contractor shall provide on Site for the duration of the Contract, fifteen (15) carports for the sole use of the Employer and his staff. The carport shall be constructed so that the vehicle parked under it is always protected against the direct rays of the sun and rain. The carport area shall be at least 290 m² and the floor shall be covered paved with asphalt to alleviate dusty and muddy conditions. The carport shall be positioned so as to provide easy and convenient access to the temporary Administration and Control Building as shown on Drawing I 10585-CS-1790 to 1798.

The Contractor shall provide a detailed method statement for this work, for approval by the Engineer prior to executing the Works.

The abovementioned work is to be done as part of Portion A of the Works.

ATD2 - 6.1.2

C3.4.5.5: Refurbishment of Existing Workshop Building

Delete the entire C3.4.5.5, and replace with the following:

"C3.4.5.5 New Maintenance and Workshop Building and Refurbishment of Existing Workshop Building.

a) New Maintenance and Workshop Building

The New Maintenance and Workshop Building shall be in the existing Sludge Dewatering Building (which is currently being used for processing sludge via mechanical belt-filter press etc.). In future, once the Mechanical and Electrical Contractor (for Contract 85Q/2016/17) has successfully completed his work, the Contractor shall be given access to execute the required work. It is anticipated that access will be given at approximately ninety (90) weeks after the Commencement Date of this Contract. This work is to be done in Portion B of the Works.

Once access is granted to the Contractor, he is required to carry out the Works contemplated herein as follows:

- i) Remove all the mechanical and electrical equipment and deliver to the Municipal Storage Yard located on Site as shown on drawings; and
- ii) Completely scrub, clean and disinfect (decontaminate) the existing Sludge Dewatering Building in accordance with the OHS Act;

b) Refurbishment of Existing Workshop Building

The Contractor is required to refurbish the existing Workshop Building (refer to Drawing I 10585-WW-1738). During this time, the Employer's and Site Staff along with all equipment (such as furniture, computers, electronic hardware, IT servers, etc.) are to be moved and housed at the new Maintenance and Workshop Building as described above. This work is to be done in Portion B after successful completion of Works described in C3.4.5.5(a) above. The extent of the Works is shown on Drawings I 10585-CC-0002.

The Contractor shall provide a detailed method statement for this work, for approval by the Engineer prior to executing the Works".

ATD2 - 7 Book of Drawings (Volume 4)

ATD2 - 7.1.1 Replace the previous Administration and Control Building Drawings (Issued with the Tender Documents) with the following revised versions:

a) I.e. Drawing "110585-WWTW-DRG-CS-1710 rev. T0" with "110585-WWTW-DRG-CS-1710 rev. T1";

b) I.e. Drawing "110585-WWTW-DRG-CS-1711 rev. T0" with "110585-WWTW-DRG-CS-1711 rev. T1";

ATD2 - 7.1.2 Add the following Drawing "110585-WWTW-DRG-WW-1727 rev. T0" to the Tender Document Book of Drawings (Volume 4)

Please note that electronic "full size PDF" copies of the above drawings are available to Tenderers for download on Dropbox via the following link:

<https://www.dropbox.com/sh/c17nvpkhsfy2qbj/AA8p2xkxmBqG1w9ha-dxRIVLa?dl=0>

Tenderers are to return a signed copy of this notice/addendum with the submission of their Tender (See Schedule 18 of Tender Document). Failure to return a signed copy of the Addendum may result in the Tender being declared Non-Responsive.

Kindly acknowledge receipt of this Addendum by e-mail using the enclosed Acknowledgement Receipt.

Yours faithfully,

.....
Director, Supply Chain Management

Copy to: mpho.ramphao@aurecongroup.com

Enclosures: a) BOQ in PDF and MS Excel (file name: "179Q-2016-17_T2 Tenderer's Copy") (Via Dropbox)
 b) Drawings (Via Dropbox)
 c) Acknowledgement Form

WRITTEN ACKNOWLEDGEMENT OF RECEIPT

ADDENDUM TO TENDER DOCUMENTS No 2

CITY OF CAPE TOWN

BOX NUMBER: 172

for

TENDER NUMBER: 179Q/2016/17

DESCRIPTION:

THE CONSTRUCTION OF AN MBR PLANT AND BOTTLENECK ALLEVIATION AT ZANDVLIET
WASTEWATER TREATMENT WORKS: CIVIL WORKS

CLOSING DATE OF TENDER: 13 MARCH 2017

Kindly acknowledge receipt of this Addendum by e-mailing this to Ethel.Swain@capetown.gov.za

We acknowledge receipt of the above Addendum and confirm that any tender we submit will take account of the instructions detailed therein.

Signature.....

Date.....

06.03.17

Let and full name of tendering entity:

.....

.....

 HEALTH & SAFETY MANUAL	Document No: H & S : SEC A	
	Rev: 1	Page 1 of 5

SECTION A

OCCUPATIONAL HEALTH, SAFETY, AND ENVIRONMENTAL POLICY



HEALTH & SAFETY MANUAL

Document No: H & S :
SEC A

Rev: 1

Page 2 of 5

OCCUPATIONAL HEALTH, SAFETY AND ENVIRONMENTAL POLICY

1. CEO signs Health, Safety and Environmental Policy.
2. Copies of Policy displayed at each workplace for all to see.
3. Employees receive regular training on Policy.
4. Copy of Policy supplied to Contractors.
5. Policy re-evaluated each year.



HEALTH & SAFETY MANUAL

Document No: H & S :
SEC A

Rev: 1

Page 3 of 5

HEALTH, SAFETY AND ENVIRONMENTAL POLICY

The Company believes that responsible management of health, safety, and environmental concerns is an integral part of its business ethic.

Through strategic management of health, safety and the environment, commitment to our mission, vision, and values, and by a culture of health, safety and environmental awareness and responsibility, we strive to:

- Apply sound health, safety and environmental management principles and operating practices.
- Protect health and promote safety of personnel, customers and community.
- Be alert to customer needs, technological advancements, and socio-economic priorities.
- Lessen the hazards and potential hazards in our business, which may affect our personnel or the environment.
- Minimize any detrimental impact our business might have on society or the environment.

OUR POLICY IN THIS REGARD IS THEREFORE TO:

- Provide a safe, healthy and environmentally friendly working environment for the well-being of our employees and their families, through staff participation and ownership of health, safety and environmental responsibilities.
- Ensure that the health and safety of the public and neighbouring communities as well as the environment are not compromised by our operations.
- Meet corporate requirements by complying with health, safety and environmental laws and regulations, conducting business according to recognised standards of our type of industry, and committing the necessary resources.
- Build and maintain a constructive relationship with regulatory authorities, meet all operating permit and license obligations, and provide prompt advice on relevant issues.
- Commit ourselves to subcontractor health and safety during their tenure with us, and to enforce standards and procedures laid down by us as a minimum code of conduct for subcontractors and third parties.



HEALTH & SAFETY MANUAL

Document No: H & S :
SEC A

Rev: 1

Page 4 of 5

TO ACHIEVE THESE OBJECTIVES, WE UNDERTAKE TO:

- Motivate, educate, and train employees to assume personal ownership of health, safety, and environmental issues, and in this way to accept the implications of their actions on health, safety and the environment.
- Endeavour to keep the public informed about our operations through timeous communication.
- Focus on the application of appropriate health, safety, and environmental standards, including fire protection, good operating practices, and sound management principles, to ensure that all possible measures are taken to minimise losses and avoid accidents.
- Promote health, safety, and environmental awareness among subcontractors and to reinforce responsible behavior and practices that should be followed when performing work for us.
- Enlist the commitment of all staff to comply with the relevant Act and Regulations and to manage and counter the hazards of our business through well-practiced health, safety, and environmental programmes.
- Make subcontractors aware of their obligations regarding education and training in health, safety, and environmental matters, supporting their efforts where appropriate.
- Co-operate actively with professional bodies in formulating health, safety, and environmental standards, with the intent of making these realistic while achieving a fair balance between health, safety and environmental priorities and economic realities.

SIGNED AT Durbanville THIS 28th DAY OF January 2016

SIGNATURE: _____

CHIEF EXECUTIVE OFFICER

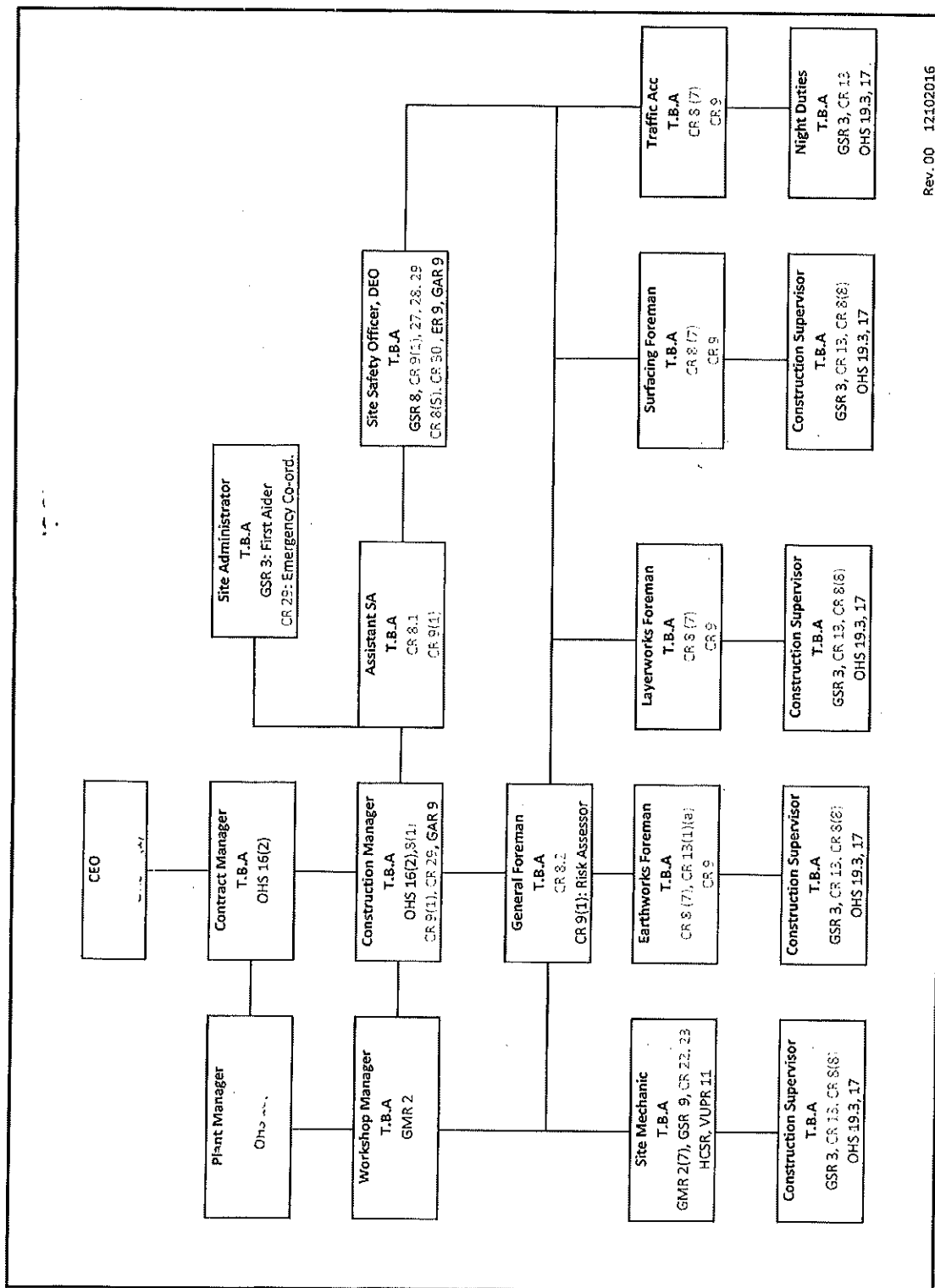


HEALTH & SAFETY MANUAL

Document No: H & S :
SEC A

Rev: 1

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HEALTH & SAFETY RISK ASSESSMENT

NO.	TASK / EQUIPMENT	HAZARD	P	S	RISK RATING	CORRECTIVE ACTIONS TAKEN	P	S	RISK RATING	CORRECTIVE ACTIONS OUTSTANDING
1	Changing gas cylinders	Injuries caused by falling cylinder	3	3	6	Cylinders individually chained to fixed support appropriate PPE issued.	1	3	4	
						Undertaking to wear signed and wearing enforced.				
						Relevant employees trained using training module on "gas welding and compressed gasses".				
		Sprain and strain injuries caused by handling heavy cylinders	4	3	7	Correct lifting methods to be used	1	2	3	
2	Lifting heavy objects	Fire and explosion caused by leaking gas	2	5	7	No smoking or open flames allowed in vicinity	1	5	6	
		Sprain and strain injuries	4	3	6	Correct lifting methods to be used	1	2	3	
		Heavy items falling on feet			7	Appropriate PPE issued.				
		Cuts and abrasions to hands caused by sharp objects	4	3	7	Undertaking to wear signed and wearing enforced. Appropriate PPE issued.	1	2	3	
3	Storage of 200 litre drums	Injuries caused by drums falling	3	4	7	Undertaking to wear signed and wearing enforced. Appropriate PPE issued.	3	2	5	
		Cuts and abrasions to hands caused by sharp edges	4	3	7	Undertaking to wear signed and wearing enforced. Appropriate PPE issued.	1	2	3	
						Undertaking to wear signed and wearing enforced.				
						Undertaking to wear signed and wearing enforced.				
4	Decanting flammable liquid	Spontaneous ignition	2	5	7	No smoking or open flames allowed in vicinity of flammable liquid.	1	5	6	
		Injuries caused by water under pressure	3	2	5	Foot protection issued.	2	2	4	
		Electrocution	1	4	5	Undertaking to wear PPE signed and wearing of PPE enforced. Equipment on register and inspected for safety regularly.	1	4	5	
		Electrocution	1	4	5	Equipment on register and inspected for safety regularly.	1	4	5	
5	Using pressure cleaner	Arc eyes and burns	3	3	6	Yellow protective curtains provided to protect passers by against ultra violet rays. Hand protection, eye and face protection, foot protection issued.	1	2	3	
						Undertaking to wear PPE signed and wearing of PPE enforced for welder and assistant.				
		Fire caused by sparks	4	4	8	Training of relevant employees. Equipment on register and inspected for safety regularly.	2	2	4	
		Inhalation of excessive welding fumes	3	3	6	Fire fighting procedures and equipment put in place. Chemical assessment for chromates done two yearly.	2	2	4	

HEALTH & SAFETY RISK ASSESSMENT

NO.	TASK / EQUIPMENT	HAZARD	P	S	RISK RATING	CORRECTIVE ACTIONS TAKEN	P	S	RISK RATING	CORRECTIVE ACTIONS OUTSTANDING
7	Bench grinder	Foreign body in eye	5	4	9	Eye protection signs posted up. Eye protection issued free of charge. Undertaking to wear PPE signed.	1	3	4	
		Injuries caused by exploding grindstone	3	4	7	Wearing of eye protection enforced. Ring test done when mounting grindstones.	2	4	6	
						Use of correct stone for job in hand. Correct mounting procedure followed. Prohibition of grinding soft metals. Enforcement of correct grinding methods. Tool rest gap adjusted to maximum 3mm.	2	3	5	
		Hand injuries caused by tool being pulled into the grindstone	4	4	8	Appropriate PPE issued. Undertaking to wear PPE signed. Wearing of hand protection enforced. Hearing protection signage posted up.	1	2	3	
		Noise induced hearing loss	2	3	5	Hearing protection issued. Undertaking to wear PPE signed. Wearing of hearing protection enforced. Acuity tests conducted on relevant employees.				
		Fire cause by sparks	4	4	8	Training of relevant employees. Equipment on register and inspected for safety regularly. Fire fighting procedures and equipment put in place.	2	3	5	
						Hot work permit system in place.				
		Foreign body in eye	5	4	9	Eye protection signs posted up. Eye protection issued free of charge. Undertaking to wear PPE signed.	1	3	4	
		Hand injuries caused by touching sharp objects	2	1	3	Wearing of eye protection enforced. Hand protection issued.	1	1	2	
						Undertaking to wear PPE signed. Wearing of hand protection enforced.				
8	Pedestal drill									

HEALTH & SAFETY RISK ASSESSMENT

NO.	TASK / EQUIPMENT	HAZARD	P	S	RISK RATING	CORRECTIVE ACTIONS TAKEN	P	S	RISK RATING	CORRECTIVE ACTIONS OUTSTANDING
9	Gas welding / cutting	Fire and explosion	4	4	8	Relevant employees trained using training module on "gas welding and cutting".	2	4	6	
						Equipment on register and inspected for safety regularly.				
						Flashback arrestors fitted to equipment.				
						Friction type lighter used.				
						Fire fighting procedures and equipment put in place.				
		Burns	4	3	7	Hand protection, eye and face protection, foot protection issued.	2	3	5	
						Undertaking to wear PPE signed.				
						Wearing of PPE enforced for operator and assistant.				
		Handling injuries	2	2	4	Gas cylinders kept chained individually to a fixed support.	1	2	3	
10	Confined space entry	Hazardous gas build up or lack of oxygen	5	5	10	Confined spaces ventilated before entering is permitted.	2	4	6	
						Work permits in place.				
						Appropriate PPE issued.				
						Undertaking to wear signed and wearing enforced.				
						Relevant persons trained using training modules on "Work permits and confined space entry". "Safety Harness".				
						Training of relevant employees using written safe work procedures.				
		Inadvertent starting of machinery or equipment	4	4	8	Lock out system used.	1	4	5	
		Explosion or fire caused by build up of flammable gas	4	5	9	Confined spaces ventilated before entering is permitted.	2	5	7	
						Work permits in place.				
		Falling from heights	4	4	8	Fall protection plan formulated and implemented.	2	4	6	
11	Working in elevated positions					Ladders, scaffolding, catwalks, roof ladders, crawling boards provided.				
						Appropriate PPE issued.				
						Undertaking to wear signed and wearing enforced.				
						Training of relevant employees using written safe work procedures.				
		Falls	4	4	8	Relevant employees training using training module on "ladders".	2	4	6	
12	Working from ladders					Ladders on register and inspected regularly to ensure good condition.				

HEALTH & SAFETY RISK ASSESSMENT

NO.	TASK / EQUIPMENT	HAZARD	P	S	RISK RATING	CORRECTIVE ACTIONS TAKEN	P	S	RISK RATING	CORRECTIVE ACTIONS OUTSTANDING
13	Working with lifting tackle	Loads coming loose and falling	3	4	7	Relevant employees training using training module on "chain slings" and "ropes and slings".	1	4	5	
						Lifting tackle load tested annually, placed on register and inspected regularly to ensure good condition				
		Bumping hazards	3	3	6	Appropriate personal protective equipment issued (hard hats)	2	2	4	
14	Working on electrically driven equipment					Undertaking to wear signed and wearing enforced.				
		Electrocution	4	5	9	Relevant employees trained using training module on "Lock out system".	2	5	7	
						Lock out procedure in place.				
15	Stacking of items					Survey completed to determine where lock out facilities required				
		Stacks falling over	3	4	7	Relevant employees training using training module on "stacking rules".	2	4	6	
						Persons appointed to look after safety of stacks.				
						Health and Safety reps conduct monthly inspections of stacks.				
		possible spider bites	2	3	5	Employee training on awareness of insects during the performance of these tasks and training first aiders on the treatment required for incidents like these	1	3	4	
16	Working with hand tools	Hand injuries caused by hand tools	2	3	5	Relevant employees trained using training module on "hand tools".	1	3	4	
						Hand tools on register and inspected regularly to ensure safe condition.				
		Foreign bodies in eyes	3	4	7	Company hand tools on register and inspected regularly to ensure safe condition.	2	4	6	
17	Operating pressure vessels					Appropriate PPE issued.				
						Undertaking to wear signed and wearing enforced.				
		Explosions caused by excessive pressure build up	2	5	7	Pressure tests and services conducted as per legal requirements.	1	5	6	
						Relevant employees trained using training module on "compressed gasses".				
		Injuries caused by moving machine parts	3	4	7	Drive belts and moving parts effectively guarded.	2	4	6	
		Damage to pressure vessel due to corrosion caused collection of moisture	2	3	5	Vessels drained once a day by opening drain cocks.	1	3	4	

HEALTH & SAFETY RISK ASSESSMENT

NO.	TASK / EQUIPMENT	HAZARD	P	S	RISK RATING	CORRECTIVE ACTIONS TAKEN	P	S	RISK RATING	CORRECTIVE ACTIONS OUTSTANDING
18	Working with hazardous chemical substances	Dermatitis caused by skin contact with chemicals	3	3	6	Alphabetical list of chemical substances found on site drawn up.	2	2	4	
						Material safety data sheets obtained for all hazardous chemicals on site.				
						First Aiders and other relevant employees trained in correct use, precautions, first aid procedures and PPE required.				
						PPE issued.				
						Undertaking to wear signed and wearing enforced.				
		Eye injuries caused by contact with chemicals	3	3	6	Material safety data sheets obtained for all hazardous chemicals on site.	2	2	4	
						First Aiders and other relevant employees trained in correct use, precautions, first aid procedures and PPE required.				
						PPE issued.				
		Injury or illness caused by inhalation of chemical vapours or fumes	3	3	6	Undertaking to wear signed and wearing enforced.	2	2	4	
						Material safety data sheets obtained for all hazardous chemicals on site.				
						First Aiders and other relevant employees trained in correct use, precautions, first aid procedures and PPE required.				
						PPE issued.				
						Undertaking to wear signed and wearing enforced.				
		Injury or illness caused by ingestion of hazardous chemical substances	3	3	6	Chemical substances may only be stored in their original labelled containers.	2	2	4	
						Material safety data sheets obtained for all hazardous chemicals on site.				
						First Aiders and other relevant employees trained in correct use, precautions, first aid procedures and PPE required.				
						PPE issued.				
						Undertaking to wear signed and wearing enforced.				
		Fire caused by incorrect usage of flammable chemicals	3	4	7	Material safety data sheets obtained for all hazardous chemicals on site.	2	4	6	
						Fire team members and other relevant employees trained in correct use and fire precautions.				
						Fire fighting equipment provided and serviced as required.				
						Fire drills practices at regular intervals.				

HEALTH & SAFETY RISK ASSESSMENT

NO.	TASK / EQUIPMENT	HAZARD	P	S	RISK RATING	CORRECTIVE ACTIONS TAKEN	P	S	RISK RATING	CORRECTIVE ACTIONS OUTSTANDING
19	Operating Heavy plant / vehicles	Collisions between plant and persons or separate items of plant	4	4	8	Plant only operated by suitably qualified and licensed persons. Regular medical examinations on plant operators. Daily inspection on plant with report completed and required action taken. Revolving lights fitted to all plant. Reverse hooters fitted to all plant. Regular servicing of plant with service records kept.	2	4	6	
						Reflective tape provided on trucks.				
						Persons directing plant not to stand in "blind spot", but within view of operator.				
						No employees allowed to work or go near any moving plant.				
						All employees on construction site to wear reflective safety jackets.				
		Noise induced hearing loss	3	4	7	Plant exceeding 85dB identified as noise zone.	1	4	5	
						Persons operating plant or working in radius of noise zone sent for baseline acuity test and regular follow up tests.				
						Hearing protection provided to all employees entering a noise zone.				
						Undertaking to wear signed and wearing enforced.				
		Persons falling from plant	4	3	7	"No passengers" stickers provided in cab of plant.	2	3	5	
						No passengers allowed on plant unless plant designed to carry passengers.				
		Inhalation of excessive dust (eg. Broom operators)			7	Approved respirators issued free of charge.				
						Undertaking to wear signed and wearing enforced.				
						Employees working in dusty conditions sent for medical examinations annually.				

HEALTH & SAFETY RISK ASSESSMENT

NO.	TASK / EQUIPMENT	HAZARD	P	S	RISK RATING	CORRECTIVE ACTIONS TAKEN	P	S	RISK RATING	CORRECTIVE ACTIONS OUTSTANDING
20	Excavations	Excavation collapse	3	4	7	Competent person appointed in writing to supervise excavations. Excavation inspected regularly (as per legal requirements) to ensure stability (register completed). Access provided every 6 meters. Shoring and bracing whenever necessary in opinion of competent person. Backfilling done as soon as practicable. Appropriate personal protective equipment issued. Undertaking to wear signed and wearing enforced.	1	4	5	
		Persons falling into excavation	3	3	6	If accessible to the public, barrier at least 1 meter high provided around excavation. Backfilling done as soon as practicable.	2	3	5	
		Damage to existing services	5	2	7	Access provided every 6 meters. Existing services to be located and uncovered before excavations begins (refer to way/leave). No mechanical digging to within 3 meters of existing services.	2	2	4	
		Exposure to snake bites, bee stings and/or spider bites	4	5	9	Employees need to be training on the correct first aid measure to be implemented in the event of a follow employee being bitten or stung, employees need to take note of the shape and colour of the insect or snake and employees affected to be taken to the nearest hospital for medical treatment Awareness training to be conducted before the site operation begins and snake, bees and insect awareness principles to be included in the fortnightly toolbox talk programme Long sleeves and pants to be worn at all times during the performing of this operation	2	5	7	

HEALTH & SAFETY RISK ASSESSMENT

NO.	TASK / EQUIPMENT	HAZARD	P	S	RISK RATING	CORRECTIVE ACTIONS TAKEN	P	S	RISK RATING	CORRECTIVE ACTIONS OUTSTANDING
21	Demolition	Uncontrolled or premature collapse of structure	3	4	7	Competent person appointed in writing to control demolition.	2	4	6	
						Demolition operation inspected regularly to prevent premature collapse.				
						Structural engineering survey report obtained before demolition commences.				
						Existing services to be located and made safe before demolition commences.				
						Appropriate personal protective equipment issued.				
						Undertaking to wear signed and wearing enforced.				
			4	5	9	Competent person appointed to control demolition	2	4	6	
						Demolition operation to be inspected regularly to prevent premature collapse				
						Structural engineering report obtained before demolition commences				
						Existing services to be located and made safe before demolition commences				
						Back propping to engineers specification				
						Appropriate PPE to be issued and worn				
22	Working on or near roads	Flying and falling debris	4	5	9	Hoarding and signing of work area	2	4	6	
		Dust control	3	3	6	Appropriate PPE to be worn	2	2	4	
		Temporary stockpiling of rubble (Overloading)	2	5	7	Wetting down of work area	1	3	4	
		Damage to existing services	3	4	7	Appropriate respiratory equipment to be worn	1	4	5	
						Get permissible load from engineer				
						Only dedicated areas to be worn				
						Wayleaves from engineer				
						Marking out of structure				
						Approval must be obtained from engineer before				
						Signage warning of road works ahead as well as speed limits indicated.	2	4	6	
23	Cutting open of drums					Delineators and road cones used to create barriers.				
						Reflective safety jackets worn by all persons.				
						Drums only cut open if previous contents is known.	2	4	6	
						No drum previously containing flammable substances to be cut open.				
						Drum to be filled with water until it overflows before cutting.				
						No electric equipment to be used, only hammer and chisel.				

HEALTH & SAFETY RISK ASSESSMENT

NO.	TASK / EQUIPMENT	HAZARD	P	S	RISK RATING	CORRECTIVE ACTIONS TAKEN	P	S	RISK RATING	CORRECTIVE ACTIONS OUTSTANDING
24	Working with compressor and jack hammer	Injuries to feet	4	3	7	Appropriate personal protective equipment issued	4	1	5	
						Undertaking to wear signed and wearing enforced.				
		Back injuries	3	4	7	Training provided in correct lifting methods to be followed	2	3	5	
		Noise induced hearing loss	3	4	7	Hearing protection signage posted up.	2	3	5	
						Hearing protection issued.				
						Undertaking to wear PPE signed.				
						Wearing of hearing protection enforced.				
						Acuity tests conducted on relevant employees.				
		Foreign body in eye	3	4	7	Eye protection signs posted up.	2	3	5	
						Eye protection issued free of charge.				
25	Offloading and spreading of cement					Undertaking to wear PPE signed.				
		Back injuries	3	4	7	Wearing of eye protection enforced.	2	3	5	
						Training provided in correct lifting methods to be followed				
		Cement dust in eyes	4	3	7	Appropriate eye protection provided	2	2	4	
						Undertaking to wear PPE signed				
						Wearing of eye protection enforced.				
		Damage to lungs caused by excessive breathing of cement dust	3	4	7	Approved respirators issued free of charge.	2	3	5	
						Undertaking to wear signed and wearing enforced.				
						Employees working in dusty conditions sent for medical examinations annually.				
26	Laying kerbs	Back injuries	3	4	7	Training provided in correct lifting methods to be followed	2	3	5	
		Hand injuries caused by touching sharp objects	2	1	3	Hand protection issued.	1	1	2	
						Undertaking to wear PPE signed.				
						Wearing of hand protection enforced.				
		Injuries to feet	4	3	7	Appropriate personal protective equipment issued	2	3	5	
						Undertaking to wear signed and wearing enforced.				

HEALTH & SAFETY RISK ASSESSMENT

NO.	TASK / EQUIPMENT	HAZARD	P	S	RISK RATING	CORRECTIVE ACTIONS TAKEN	P	S	RISK RATING	CORRECTIVE ACTIONS OUTSTANDING
27	Packing gabions	Back injuries	3	4	7	Training provided in correct lifting methods to be followed	2	3	5	
		Hand injuries caused by touching sharp objects	2	1	3	Hand protection issued.	1	1	2	
		Injuries to feet	4	3	7	Undertaking to wear PPE signed. Wearing of hand protection enforced. Appropriate personal protective equipment issued	2	3	5	
		Working in close proximity to traffic	3	5	8	Undertaking to wear signed and wearing enforced. Traffic accommodation (delineators, flags, signage) Reflective clothing to be worn	2	3	5	
		Injuries caused by working with rocks	3	3	6	Employees to be trained in safe work procedures				
		Working in close proximity to machinery	3	4	7	Employees to be trained in safe work procedures Personal protective equipment to be worn (gloves, Reverse hooters on plant Revolving lights on plant Only trained operators to be used Supervisor to be present at all times Training of the compactor operator	2	2	4	
		Long term illnesses (deafness and lung disease)	3	4	7		1	2	3	
		Exposure to snake bites, bee stings and/or spider bites	4	5	9	Employees trained in safe work procedures Employees need to be training on the correct first aid measure to be implemented in the event of a follow employee being bitten or stung, employees need to take note of the shape and colour of the insect or snake and employees affected to be taken to the nearest hospital for medical treatment	2	5	7	
						Awareness training to be conducted before the site operation begins and snake, bees and insect awareness principles to be included in the fortnightly toolbox talk programme				
						Long sleeves and pants to be worn at all times during the performing of this operation				

HEALTH & SAFETY RISK ASSESSMENT

NO.	TASK / EQUIPMENT	HAZARD	P	S	RISK RATING	CORRECTIVE ACTIONS TAKEN	P	S	RISK RATING	CORRECTIVE ACTIONS OUTSTANDING
28	Working with chain saw	Foreign body in eye	3	4	7	Eye protection signs posted up.	2	3	5	
						Eye protection issued free of charge.				
						Undertaking to wear PPE signed.				
						Wearing of eye protection enforced.				
		Noise induced hearing loss	3	4	7	Hearing protection signage posted up.	2	3	5	
						Hearing protection issued.				
						Undertaking to wear PPE signed.				
						Wearing of hearing protection enforced.				
						Acuity tests conducted on relevant employees.				
		Injuries to feet	4	3	7	Appropriate personal protective equipment issued	2	3	5	
29	Packing of reinforced earth panels					Undertaking to wear signed and wearing enforced.				
		Hand injuries caused by touching sharp objects	2	1	3	Hand protection issued.	1	1	2	
						Undertaking to wear PPE signed.				
						Wearing of hand protection enforced.				
		Collisions between workers and panels and chains	3	4	7	Employees instructed to stand well clear of moving panels and to be alert at all times	2	3	5	
						Worker directing the crane/TLB should always remain in sight of the operator				
						Appropriate personal protective equipment (hard hats, safety boots) issued				
						Undertaking to wear signed and wearing enforced.				
		Panels could fall over and cause injury and damage	3	4	7	Panels to be propped properly and only experienced and trained persons to supervise propping of panels at all times	2	3	5	
		Collisions between vehicles driving past or employees walking past propping could cause injury or damage	3	4	7	Areas where props are situated to be cordoned off or barricaded by means of danger tape or delineators	2	4	6	

HEALTH & SAFETY RISK ASSESSMENT

NO.	TASK / EQUIPMENT	HAZARD	P	S	RISK RATING	CORRECTIVE ACTIONS TAKEN	P	S	RISK RATING	CORRECTIVE ACTIONS OUTSTANDING
30	Pouring concrete using a concrete bucket	Eye injuries or dermatitis caused by splashing of cement	3	4	7	Eye protection signs posted up.	2	3	5	
						Eye protection issued free of charge.				
						Undertaking to wear PPE signed.				
						Wearing of eye protection enforced.				
		Collision between employees and concrete bucket	3	3	6	Only person directing the crane allowed at the loading and discharge areas	2	3	5	
						Workers to be instructed to stand well clear of load. Ensure that the operator has seen you before approaching. Crane to be fitted with a reverse hooter.				
		Crane colliding into other plant or LDV	3	4	7	Crane to be operated by a competent and trained operator. Operator to keep to the designated area of work.	2	4	6	
		Crane working in incorrect place	3	3	6	Crane to be operated at a safe speed and the task to be supervised by a competent supervisor.	2	3	5	
		Crane lifting to heavy load.	2	4	6	The load chart in the crane to be followed, onboard computer to be tested to ensure correct readings, rigging of material to be done by a trained and competent rigger.	1	4	5	
		Load swinging out of control.	3	4	7	Load to be secured by means of guide ropes, no high lifts to be done in any strong winds, crane to be operated by a trained and competent operator and the task must be supervised by a competent supervisor.	1	4	5	
31	Steel fixing	Load falling on to an employee.	3	4	7	Area of lifting operation to be barricaded and warning signs posted no entry, watch men to be posted to ensure that no body enters the area. All employees to undergo induction before entering the site. Task to be supervised by a competent supervisor.	1	4	5	
		Lifting tackle braking.	3	5	8	Rigging to be done by a trained and competent rigger. all lifting tackle to be inspected prior to the lift, all lifting tackle to be inspected by a competent person and all findings to be recorded on to a register.	2	5	7	
		Hand injuries caused by touching sharp objects	2	1	3	Hand protection issued.	1	1	2	
						Undertaking to wear PPE signed.				
						Wearing of hand protection enforced.				
		Frame could collide or break loose and fall on workers causing injury or damage	3	4	7	Lifting tackle to be inspected regularly and findings entered into the register provided	2	3	5	
						All lifting tackle to be load tested annually and the certificate kept in the safety file				
						All employees to stand well clear of the load				

HEALTH & SAFETY RISK ASSESSMENT

NO.	TASK / EQUIPMENT	HAZARD	P	S	RISK RATING	CORRECTIVE ACTIONS TAKEN	P	S	RISK RATING	CORRECTIVE ACTIONS OUTSTANDING
32	Working under overhead power lines	Electrocution due to plant touching the overhead power lines	4	5	9	All plant and equipment to stay away a minimum of 5 meters from the nearest overhead power line	2	5	7	
						All work under overhead power lines to be monitored and assessed before and during working by the supervisor				
						No working in the vicinity of power lines or other servitudes will be allowed without the owner of the servitudes' written approval (permit)				
						No person will be allowed to climb the pylon under any circumstances				
		Electric cables falling due to pylon damage	4	5	9	Bottom of pylons to be cordoned off substantially to prevent accidental collision between plant and pylon	2	5	7	
33	Traffic accommodation (Robot/Stop/Go)					Every new operator to be trained in the risk assessment and hazards to be pointed out clearly				
		Collisions between vehicles and persons	4	5	9	Road signage placed as warning of stop / go operation and to reduce speed.	2	5	7	
						Only competent stop / go operators used (training done on site).				
						Radios provided to assist communication.				
						Lighting provided at night or dark conditions to ensure visibility.				
						Appropriate personal protective equipment issued and undertaking to wear the PPE signed and the wearing thereof enforced.				
						Pedestrians to be asked to leave the construction site whenever they are found to be walking in dangerous areas				
						No employees allowed to work or go near any moving plant				

HEALTH & SAFETY RISK ASSESSMENT

NO.	TASK / EQUIPMENT	HAZARD	P	S	RISK RATING	CORRECTIVE ACTIONS TAKEN	P	S	RISK RATING	CORRECTIVE ACTIONS OUTSTANDING
34	Felling/removing of trees by means of excavator	Falling tree causing injury to bystanders or damage to property	4	4	8	All vehicles and other equipment to be removed to a safe proximity prior to commencement of work	2	4	6	
						No person to be allowed to remain in the danger zone whilst work is in progress				
						Unauthorised persons to be removed from the area completely				
						Only suitably competent persons to be used in this operation				
		Exposure to snake bites, bee stings and/or spider bites	4	5	9	Employees need to be training on the correct first aid measure to be implemented in the event of a follow employee being bitten or stung, employees need to take note of the shape and colour of the insect or snake and employees affected to be taken to the nearest hospital for medical treatment	2	5	7	
35	Installation of storm water drainage					Awareness training to be conducted before the site operation begins and snake, bees and insect awareness principles to be included in the fortnightly toolbox talk programme				
						Long sleeves and pants to be worn at all times during the performing of this operation				
		Damaging underground services whilst excavating	3	4	7	Wayleave for the area to be obtained	1	2	3	
		Trench collapsing whilst excavating	4	4	8	Do hand excavation to locate services before using mechanical means	1	2	3	
		Pipes falling while laying pipes	3	3	6	Shoring or sloping to the angle of repose				
						Daily inspection of excavation before start of shift and completion of register				
						Use adequate, load tested and regularly inspected lifting tackle	2	2	4	
						Workers to stand clear while pipes are being lowered into trench				
		Trench collapsing before backfilling	3	3	6	Shoring or sloping to the angle of repose	1	2	3	
		Injury caused by compacting equipment	3	3	6	Daily inspection of excavation before start of shift and completion of register				
						Operators of equipment to receive necessary training	2	2	4	
						Appropriate PPE to be used (goggles, dust mask, hearing protection)				
						Adequate maintenance on the plant				

HEALTH & SAFETY RISK ASSESSMENT

NO.	TASK / EQUIPMENT	HAZARD	P	S	RISK RATING	CORRECTIVE ACTIONS TAKEN	P	S	RISK RATING	CORRECTIVE ACTIONS OUTSTANDING
36	Constructing side drains	Collision between workers and plant or traffic	4	5	9	Flagmen to be positioned to warn oncoming traffic	2	5	7	
						Employees to avoid going in close proximity to moving plant				
						All plant to have revolving light and reverse hooters				
		Sprain and strain injuries	3	3	6	All employees to wear reflective clothing	1	2	3	
		Material can fall back into trench	2	2	4	Correct lifting methods to be used	1	2	3	
37	Layer works	Long term effects of dusty environment	3	3	6	Ensure all hand tools are in good condition	1	3	4	
		Collision between plant and public traffic	4	5	9	Place material well away from edge of trench or load and haul away	2	5	7	
		Persons riding or jumping on moving plant	4	4	8	Dust masks and eye protection to be worn	1	4	5	
		Collision between persons and plant	4	5	9	Flagmen and appropriate road signage to be in place and operating at all times	2	4	6	
		Plant leaks can cause damage to the environment	3	3	6	Induction training to cover the "No Passenger" rule	1	3	4	
38	Surfacing	Collision between plant and public traffic	4	5	9	Only trained operators to be used	2	5	7	
		Persons riding or jumping on moving plant	4	4	8	Daily inspections and checklists on all plant to be done	1	4	5	
		Collision between persons and plant	4	5	9	Flagmen and appropriate road signage to be in place and operating at all times	2	4	6	
		Plant leaks can cause damage to the environment	3	3	6	Induction training to cover the "No Passenger" rule	1	3	4	
		Inhalation of toxic fumes	2	3	5	All plant to have reverse hooters and revolving lights	1	3	4	
		Burns from hot substances such as Bitumen	3	4	7	Daily inspections and checklists on all plant to be done	1	4	5	
		Employees getting trapped between truck and chip spreader when hooking	3	4	7	Employees should not come into close proximity to distributor and wear appropriate respiratory equipment	1	4	5	
		Persons falling from chip spreader or into hopper	3	4	7	Only persons trained in the appropriate SWP to be used	1	4	5	
						Full overalls to be worn	1	4	5	
						Only trained employees to be used guide trucks	1	4	5	
						Employee to keep eye contact with operator at all times	2	4	6	
						Hand rails to be placed around chip spreader	2	4	6	
						"No Passenger" stickers to be in place				
						Chain to be placed on side where employees ascend the chip spreader				

HEALTH & SAFETY RISK ASSESSMENT

NO.	TASK / EQUIPMENT	HAZARD	P	S	RISK RATING	CORRECTIVE ACTIONS TAKEN	P	S	RISK RATING	CORRECTIVE ACTIONS OUTSTANDING
39	Excavating and cutting using machine	Swinging of the boom could knock down linemen while excavator loads tippers	3	4	7	Train linemen to stand clear while loading	1	4	5	
		Injury caused by falling material while loading	4	4	8	Regular reminders during training sessions Lineman to stand clear when excavator is loading	1	4	5	
		Tipper could reverse into linemen dipping the level of the cutting floor	4	4	8	Operator to remain in tipper while loading Linemen to stand clear of cutting floor when loading is taking place	2	4	6	
		Persons could trip and fall from the cutting slope	4	4	8	Reverse footers to be operative at all times Only trained employees to walk on the cutting slope	2	4	6	
		Falling rocks from cutting slope can cause injury	4	4	8	Make sure all loose rocks are trimmed off	2	4	6	
40	Concrete slabs cast with concrete mixer	Hand injuries caused by wire cuts from steel fixing	4	3	7	Hand protection to be worn at all times	2	3	5	
		Sprain and strain injuries caused by lifting of heavy steel	3	3	6	Correct lifting methods to be used as per SWP	1	2	3	
		Injuries caused by cutting of wooden form work with saw	3	4	7	Only trained persons to operate saw and appropriate PPE to be worn	1	4	5	
		Breathing of toxic dust from cement	4	3	7	Dust masks to be worn	2	3	5	
		Dermatitis caused by wet cement during poking or floating of cement	4	3	7	Appropriate hand protection to be worn	2	3	5	
		Cement splashes into eyes during poking and floating could cause injury	2	3	5	Appropriate eye protection to be worn	1	2	3	
		Employees could fall while pushing wheel barrows	3	3	6	Walkways to be kept clear and safety boots to be worn	1	2	3	
		Machine can topple over edge when pushing top soil	3	4	7	No persons to be on slope when machine pushes top soil Machine may only be operated by a competent and qualified operator	1	2	3	
		Top soil could fall and injure passing vehicles	3	3	6	No persons or vehicles to be below when pushing topsoil Traffic to be controlled by flagman	1	2	3	
		Workers could fall while raking topsoil on slope	4	4	8	Safety harnesses to be used and attached to fixed anchors on top of cutting Workers to receive rope access training Workers to work only within boundary set	2	2	4	
41	Trimming and topsoiling of cut slopes	Falling tools can cause injury	3	4	7	Tools to be attached or tied to workers	1	2	3	

HEALTH & SAFETY RISK ASSESSMENT

NO.	TASK / EQUIPMENT	HAZARD	P	S	RISK RATING	CORRECTIVE ACTIONS TAKEN	P	S	RISK RATING	CORRECTIVE ACTIONS OUTSTANDING
42	Sub-soil drainage excavation on labour intensive contract	Injuring neighbouring workers with hand tools	4	3	7	Ensure tools in good condition	3	3	6	
						Leave enough space between worker to use their hand tools				
		Employees could be knocked down by moving plant or bucket of excavator	4	4	8	Tools to be kept in demarcated area to prevent persons from having to cross the road to fetch them	2	4	5	
						Excavator must work minimum of 5m away from excavating team				
43	Putting balustrade across road over rail bridge	Electrocution from coming into contact with the electric cable	4	5	9	Agree occupation with Transnet Ensure permit for occupation is handed over Demand for cable to be isolated, locked out and earthed Signage to be put up to view and treat cable as live	2	5	7	
						Labour to be trained to ensure all the above aspects are in place Signage to be used to restrict access to only persons cleared to work in this area Refer to "scaffolding" risk assessment in safety file	1	4	5	
		Working at heights	3	4	7	Scaffolding material to be of non-conductive materials Fall protection plan to be formulated and implemented Selection, training and induction of employees on this job Daily safety talk to remind employees of hazards that will be faced Appropriate PPE to be issued and the usage enforced				
44	Surveying	Injuries caused by moving vehicles and plant	4	4	8	Traffic control using signage and flagmen	2	4	6	
		Long term disease caused by exposure to dust	3	4	7	Dust masks to be worn	1	2	3	
		Sun burn and heat exhaustion	4	4	8	Area to be wetted if possible Sun block to be used and shade to be provided (hat or umbrella)	1	2	3	
		Hearing loss due to drilling holes for droppers	3	3	6	Hearing loss programme to be implemented	1	2	3	
		Hand injuries caused by working with hammers, nails and splinters	3	3	6	Appropriate hand protection to be worn and correct work procedures to be followed when working with hammers and droppers	2	3	5	
		Trips and falls while walking in uneven areas	3	3	6	Appropriate PPE to be worn	2	2	4	

HEALTH & SAFETY RISK ASSESSMENT

NO.	TASK / EQUIPMENT	HAZARD	P	S	RISK RATING	CORRECTIVE ACTIONS TAKEN	P	S	RISK RATING	CORRECTIVE ACTIONS OUTSTANDING
45	Ready mix truck pouring concrete	Person can fall from inspection platform next to drum	3	4	7	Hand rails to be provided	2	2	4	
		Injuries caused by moving gear of drum	3	5	8	Construction of extended platform to reach the rear of the drum				
		Person could be hit by control chute	2	3	5	Provide guard over the gear and provide hand rail for persons to hold on to	1	1	2	
		Collisions between persons and concrete truck	4	4	8	Ensure safety catch on chute is in place	1	2	3	
		Dermatitis caused by wet cement	4	3	7	Person to guide truck into position and remain in line of vision of operator	2	4	5	
46	Milling machine operations	Injuries caused by drum starting to turn when changing picks	2	5	7	Reversing hoiler to be in working order				
		Hand injury caused by bar connecting water truck and milling machine when changing water truck	5	2	7	Revolving light to be in working order				
		Hand injuries caused by wire when cleaning water nozzle	3	1	4	Appropriate hand and face protection to be worn	2	3	5	
		Breathing of toxic dust when spreading cement	4	3	7	Operator to ensure machine is shut down and operator in possession of the key	1	2	3	
		Injuries caused by roller when compacting	4	5	9	Guide to be used to bring water truck and milling machine together	3	2	5	
47	Removal of engine from vehicle	Injury caused by falling from milling machine	2	2	4	Use correct tool and proper PPE	2	1	3	
		Injuries caused by milling in the dark	4	3	7	Dust masks to be worn	2	3	5	
		Lifting tackle can break causing load to fall	3	4	7	Roller operator to keep safe distance from machine and assistant to keep safe distance from machine	2	5	7	
		Oil spillage can cause slipping injuries	3	3	6	Keep 3 points of contact with machine at all times	1	2	3	
		Inadvertent movement of vehicle	3	3	6	Provide adequate lighting and keep area clear of unnecessary items	2	3	5	
		Battery explosion or electrocution	3	3	6	All lifting tackle to be load tested and inspected regularly as required	1	4	5	
						All oil spills to be cleaned up timeously	2	3	5	
						Ensure park brake is activated	1	3	4	
						Battery to be disconnected and removed before removing engine	1	2	3	

HEALTH & SAFETY RISK ASSESSMENT

NO.	TASK / EQUIPMENT	HAZARD	P	S	RISK RATING	CORRECTIVE ACTIONS TAKEN	P	S	RISK RATING	CORRECTIVE ACTIONS OUTSTANDING
48	Working with compactor in trench	Machine can fall on feet causing injury	4	3	7	Machine to be loaded into trench by mechanical means and appropriate PPE to be worn	2	3	5	
		Noise induced hearing loss	3	4	7	Hearing prevention programme to be implemented and hearing protection to be worn Employees to be swapped regularly where possible	2	3	5	
		Employees can be bumped and injured by machine	3	4	7	Only trained employees to be used to operate machine	2	4	6	
		Sprain and strain injuries caused by manhandling machine	3	4	7	Correct lifting methods to be used and employees trained accordingly	2	3	5	
49	Site Establishment	Injuries to employees while off loading equipment and materials	2	2	4	Correct lifting methods to be used and employees trained accordingly	1	1	2	
						Appropriate PPE to be issued and the usage enforced				
		Damage to services could result in injuries such as electrocution	3	4	7	Obtain wayleaves and then mark the services	1	4	5	
50	Clearing and grubbing	Injuries to employees while removing the fence	3	2	5	Inform all workers of the dangers				
		Injuries while working around mobile plant	3	4	7	Appropriate PPE to be issued and the usage enforced	2	2	4	
						Induction of all employees as to the dangers of working around mobile plant	1	4	5	
						Appropriate PPE to be issued and the usage enforced				
						Ensure that reverse hooters on all plant is working				
						Ensure that all plant have flashing amber lights and that they are working				
						Also see risk assessment no. 39				
		Exposure to snake bites, bee stings and/or spider bites	4	5	9	Employees need to be training on the correct first aid measure to be implemented in the event of a follow employee being bitten or stung, employees need to take note of the shape and colour of the insect or snake and employees affected to be taken to the nearest hospital for medical treatment	2	5	7	
						Awareness training to be conducted before the site operation begins and snake, bees and insect awareness principles to be included in the fortnightly toolbox talk programme				
						Long sleeves and pants to be worn at all times during the performing of this operation				

HEALTH & SAFETY RISK ASSESSMENT

NO.	TASK / EQUIPMENT	HAZARD	P	S	RISK RATING	CORRECTIVE ACTIONS TAKEN	P	S	RISK RATING	CORRECTIVE ACTIONS OUTSTANDING
51	Installation and maintenance of temporary electrical supply	Electrocution and injuries	2	4	6	Get an accredited contractor to do the work	2	4	6	
52	Protection from wet and cold conditions	Illness	2	3	5	Get certificate of compliance once installation is complete Under most rainy conditions work will be stopped, but when there is an exception rain suits and gum boots will be issued. In extreme cold conditions work will be stopped	1	3	4	
53	Boundary and access control at the borrow pit and crusher	Injuries to unauthorised persons entering the area	2	4	6	Areas fenced off with only one access point	1	4	5	
						Appropriate signage at the entrance				
		Electrocution	4	4	8	All visitors to be inducted and escorted on site. Ensure cable is in good condition by doing daily checks	1	4	5	
		Persons may fall or climb into the hopper	4	4	8	Cables to be buried or elevated to prevent damage Grid to be placed over the hopper	1	4	5	
54	Batch Plant					Tool to be provided to clear blockages Vibrator to be provided on the hopper to prevent blockages (where possible) Platform on the side of the hopper to have hand rail and kick plate/toe board				
		Persons may get caught in moving machine parts	4	4	8	Lock out system to be implemented for when work needs to be done on the batch plant Machine guards over the tail-end pulley No loose clothing to be worn by persons around the batch plant	1	4	5	
						Trip cable to be provided along the side of the conveyor and tested daily				
		Sprain and strain injuries caused by loading cement	3	3	6	Induction and safe work procedures to be followed	1	3	4	

HEALTH & SAFETY RISK ASSESSMENT

NO.	TASK / EQUIPMENT	HAZARD	P	S	RISK RATING	CORRECTIVE ACTIONS TAKEN	P	S	RISK RATING	CORRECTIVE ACTIONS OUTSTANDING
54	Batch Plant	Collision between plant and persons loading cement bags	3	3	6	Bucket to be lowered to the ground before loading may take place	1	3	4	
		Collision between plant and pedestrians	3	4	7	Loading to take place from the side of the bucket Plant to have flashing amber lights that are switched on Plant to have reverse hooters in working condition	1	4	5	
						Trucks to be directed when reversing by a designated person (when required) Speed limit to be adhered to				
		Bobcat can fall off the ramp	3	4	7	Barrier to be placed on the side of the ramp (where required)	2	4	6	
		Excessive dust caused by the process	4	4	8	Ramp to be high enough to avoid having to lift the bucket to maximum Area to be watered down when possible	1	4	5	
		Noise induced hearing loss	4	4	8	Appropriate dust masks to be worn Hearing protectors to be worn by all in the vicinity	1	4	5	
		Pollution caused by diesel or tar spillage	3	3	6	Bund walls with plastic lining to be provided below and around the tanks to 110% of the tank capacity	1	3	4	
		Working with and storage of hazardous material and waste	3	3	6	Containers made available for storage of hazchem	1	3	4	
						Cage provided for the storage of empty cement bags				
						Appropriate PPE to be issued and the usage enforced				
		Material that is being tipped may miss the hopper and injure people next to it	4	4	8	Ensure that the mouth of the hopper is big enough	1	4	5	
						No persons allowed to stand below the hopper when tipping is in progress Appropriate PPE to be issued and the usage enforced				
		Bad housekeeping could cause tripping and slipping Persons may fall and injure themselves when climbing onto emulsion or water tanks	3	3	6	Good housekeeping practices to be implemented	1	3	4	
			3	3	6	Access and platform to be built around the tank	1	3	4	
						Where required, safety harnesses to be worn				

HEALTH & SAFETY RISK ASSESSMENT

NO.	TASK / EQUIPMENT	HAZARD	P	S	RISK RATING	CORRECTIVE ACTIONS TAKEN	P	S	RISK RATING	CORRECTIVE ACTIONS OUTSTANDING
55	Bulk Earthworks on ½ Width Left / right hand side of road through a Robot Set Up	Excavated Material can fall in road and impose dangers to Traffic	4	5	9	By means of radio communication, plant can be stopped when traffic nears the Plant. Place Flag People in right positions	2	2	4	
		Falling rocks from Trucks and Excavator Bucket	3	4	7	Issue Employee's in the danger area with Hard Hats and Safety Boots	3	3	6	
		Excavator Beam Hazardous to oncoming Traffic and employee's	3	5	8	Control traffic by means of radio communication. Inducting Employeees	2	1	3	
						Toolbox talks - Discuss the dangers of Plant and Trucks towards employee's	3	2	5	
		Employee's and Plant/Trucks are exposed to High Fill Batter on LHS / RHS of Contract	4	5	9	Section Leader to be placed so that he can be visible to all Plant.	2	5	7	
56	Blasting under ESCOM Line					Place Flag People at correct locations Netting to be placed where required and use Barrier Tape				
						Section Leader must constantly warn Operators and Truck Drivers when they get to close to the side of the Batters slopes.				
						Toolbox talks				
		Fire	1	4	5	Shut Power Off	0	0	0	
						Fire prevention equipment on site				
		Electrocution	3	5	8	Remove people to safe area when blasting	1	5	6	
						Close Road off - no traffic	2	5	7	
						Power Off on overhead lines	0	0	0	
		Road Accident	4	5	9	Close Road off to traffic	0	0	0	
		Flying Rocks	2	5	7	Control Blast	1	5	6	
						Remove People and Animals beyond 500m	0	0	0	
		Damage to railway line	1	1	2	Get occupation by Transnet for railway line	0	0	0	

HEALTH & SAFETY RISK ASSESSMENT

NO.	TASK / EQUIPMENT	HAZARD	P	S	RISK RATING	CORRECTIVE ACTIONS TAKEN	P	S	RISK RATING	CORRECTIVE ACTIONS OUTSTANDING
57	Bridge over Railway Line	Power Line Electrocution	5	5	10	Occupation to be obtained and enforced (lock-out) Non conductive barrier to be erected between Workers and Power Lines Warning signs - to be confined with Transnet Timber Formwork to be used Time Schedule of Trains to be obtained Communication between Transnet and H & I (Trains Central)	3	5	8	
		Moving Trains	3	5	8		2	5	7	
		Working at Heights	3	3	6	Assembly Zones when Trains are in transit Warning Hooters when Trains are in transit Induction Relevant Training - Safe work Procedures Relevant P.P.E issued to all Flagman to be positioned as required Road Signage as per site Specifications Induction Temporary Barriers to be erected as and when required	2	2	4	
		Traffic Control	3	3	6		3	2	5	
		Heavy Lifting (Pre- Cast Beam)	3	4	7	Induction Barricade Lifting Area Banksman to direct crane operator Guide rope to be used Load test certificates to be obtained for lifting equipment Induction Safety Nets to be erected when required Relevant P.P.E issued to all	3	4	7	
		Demolishing	3	2	5		3	2	5	
		Collapse of Excavation	3	4	7	Batter excavation Side Slope	1	2	3	
		Access to excavation	3	3	6	Provide Safe Road Side access down to excavation	2	2	4	
		Soffits Collapse	1	3	4	Back Propping Ensure Inspection Checklist are completed and enforced	1	1	2	
		Scaffolding erection Pouring of concrete	3 2	4 2	7 4	All Operators to have Competency Certificates	1 1	2 1	2 2	
58	Deep Culvert Excavation	Falling and rolling of working personnel over rocky mountain edges	3	4	7	Provide safety harnesses and the necessary PPE (including helmet in case of object also falling) The safety harnesses are to be securely hooked onto the lifeline Safe work procedure is set up and enforced (see attached) Signage must be placed to indicate the usage of the safety harnesses and PPE Place delineators and road cones to create barriers between traffic and the workers	2	2	4	
59	Working in close proximity of steep edges									

COMPLETED PROJECTS LAST 10 YEARS)

SITE NUMBER	PROJECT	EMPLOYER	CONSULTANT	CONTRACT VALUE (INCL VAT)	CONTRACT START DATE	CONTRACT COMPLETION DATE
294	TENDER NO. AW2013/14/56 - UPGRADING OF SANDILE WATER TREATMENT WORKS: CONSTRUCTION OF RESERVOIRS AND UPGRADING OF FILTER INFRASTRUCTURE	TEL DEPT OF WATER & SANITATION	TEI	R 110 745 643.11	OCT 14	OCT '16
291	CONTRACT: REF34/14 - DEL 7.1 - DRILLING & BLASTING OF BENCHES FOR SITE ESTABLISHMENT AT CLANWILLIAM DAM IN THE WESTERN CAPE FOR CONSTRUCTION SOUTH	TEL TRANSNET	TEI	R 2 977 816.80	AUG 14	OCT 14
288	CONTRACT: TCP CON 061/2011: TCP007-CPC058- BULK EARTHWORKS AND PILING FOR THE TNPA ADMINISTRATION BUILDING AT THE PORT OF NGOURA	TEL SANRAL	TEI	R 6 630 000.00	FEB 14	JUNE 14
285	CONTRACT NRA N007-030-2012/2 : RE-ALIGNMENT OF APPROXIMATELY 4km OF NATIONAL ROUTE 7 SECTION 3 BETWEEN KRANSVLEIKLOOF (km123.00) AND CLANWILLIAM (km127.21)	TEL SANRAL	M	R 296 000 000.00	OCT'13	APR'16 (END OF MAINTENANCE MAY '17)
283	CONTRACT NRA N007-040-2013/9 : IMPROVEMENT (PATCH & RESEAL WITH ADDITION OF CLIMBING LANES) OF NATIONAL ROUTE 7 SECTION 4 BETWEEN TRAWAL (km42.0) AND VANRHYNSDORP (km75.5)	TEL SANRAL	TEL	R 122 000 000.00	AUG '13	NOV'14
282	CONTRACT NRA N007-030-2012/1 : IMPROVEMENT OF NATIONAL ROUTE 7 SECTION 3 BETWEEN CEDERBERG T-JUNCTION (KM102.5) AND KRANSVLEIKLOOF (± KM123.0)	TEL SANRAL	TEL WOR MF	R 326 000 000.00	JUL '13	DEC'15 (END OF MAINTENANCE MAY '17)
280	CONTRACT NRA N007-060-2013/1 : PERIODIC MAINTENANCE (REPAIR & RESEAL) ON NATIONAL ROUTE 7 SECTION 6 BETWEEN BITTERFONTEIN (km0.0) AND GRIES (km63.4)	TEL WES LERK CAPE GOVERNMENT : TRANSPORT AND PUBLIC WORKS	TEL HHO M	R 128 000 000.00	MAR'13	MAY'14
279	CONTRACT C776.3 : GANSBAAI TO BREDASDORP ROAD UPGRADING : DR1205 UULENSKRAALS RIVIER (KM7.8) TO ELIM (KM36.6)	TEL	TEL	R 277 700 000.00	FEB'13	JUL '15 (END OF MAINTENANCE MARCH '17)

SITE NUMBER	PROJECT	EMPLOYER	CONSULTANT	CONTRACT VALUE (INCL VAT)	CONTRACT START DATE	CONTRACT COMPLETION DATE
278	CONTRACT NRA N.010-003-2005/1 : UPGRADING OF NATIONAL ROUTE N10. SECTION 3 - BAVIAANS RIVER (KM20.1) TO RIET RIVER (KM45.1)	SANRAL		R 241 417 547.41	NOV'12	FEB'15
277	CONTRACT C993.01 FOR THE REMEDIATION OF SLOPE FAILURE AT KM5.0 ON TRUNK ROAD 1 SECTION 1 (OUTENIQUA PASS) NEAR GEORGE	WESTERN CAPE GOVERNMENT : TRANSPORT AND PUBLIC WORKS		R 13 300 000.00	NOV'12	JUL '13
276	CONTRACT NRA N001-150-2003/1 - THE REHABILITATION OF NATIONAL ROUTE 1 SECTION 15 FROM WURASOORD (KM0.0) TO SYDENHAM (KM28.0)			R 377 000 000.00	OCT '12	OCT '14
275	CONTRACT NRA N014-030-2012/1 : EMERGENCY REPAIRS TO ORANGE RIVER BRIDGE AT KAKAMAS ON NATIONAL ROUTE 14 SECTION 3			R 10 699 536.10	JUN '12	DEC '12
274	CONTRACT NRA. R027-080-2011/1 FOR THE STRENGTHENING (PARTIAL RECONSTRUCTION) OF NATIONAL ROUTE R27 SECTIONS 7 AND 8 BETWEEN WESTERN / NORTHERN CAPE BORDER (KM40.0) AND CALVINIA (KM70.0)			R 290 859 330.41	JUN '12	APR '14
273	CONTRACT NRA N007-030-2010/1 THE IMPROVEMENT OF NATIONAL ROUTE 7 SECTION 3 BETWEEN CITRUSDAL (KM75.15 AND CEDERBERG INTERSECTION (KM102.5)			R 342 500 000.00	MAY '12	MAY '15 (END OF MAINTENANCE APRIL '17)
272	CONTRACT NRA N007-010-2009/1 THE IMPROVEMENT OF NATIONAL ROUTE 7 SECTION 1 BETWEEN MELKBOSSTRAND INTERSECTION (KM18.0) AND ATLANTIS INTERSECTION (KM25.5)			R 302 800 000.00	APR '12	NOV '14
271	CONTRACT NRA N.002-160-2008/1 : THE REHABILITATION OF NATIONAL ROUTE 2 SECTION 16 FROM KM16.6 NEAR GONUBIE INTERCHANGE TO BRACKFONTEIN INTERCHANGE (KM27.4)			R 104 300 000.00	OCT '11	JAN '13
270	CONTRACT NO. 659/2010/CTN/NPRA : REHABILITATION OF METRORAIL BRIDGES - WESTERN CAPE REGION			R 10 500 000.00	AUG '11	APR '12
269	CONTRACT NRA N001-100-2011/1 - SPECIAL MAINTENANCE (REPAIR AND RESEAL) OF NATIONAL ROUTE 1 SECTION 10 BETWEEN RICHMOND (KM0.00) AND BONTEBOK (KM47.20)			R 63 900 000.00	JUN '11	NOV '12

SITE NUMBER	PROJECT	EMPLOYER	CONSULTANT	CONTRACT VALUE (INCL VAT)	CONTRACT START DATE	CONTRACT COMPLETION DATE
268	CONTRACT NRA N001-010-2010/3 : EMERGENCY REPAIRS TO HUGO'S VIADUCT (B995) AND MOLENAARS RIVER BRIDGE (B721B) ON NATIONAL ROUTE 1 SECTION 1	TEL SOUTH AFRICAN NATIONAL ROADS AGENCY	TEL	R 2 930 000.00	JUNE '11	JUL '11
267	CONTRACT NRA N010-040-2003/1 - UPGRADING OF NATIONAL ROUTE 10. SECTION 4, FROM TAFELBERG (KM71.5) TO MIDDELBURG SOUTH EXCHANGE (KM95.0)	TEL SOUTH AFRICAN NATIONAL ROADS AGENCY	TEL	R 163 300 000.00	APR '11	APR '13
266	CONTRACT NO. NRA N.002-180-2003/1 - THE IMPROVEMENT OF NATIONAL ROUTE 2. SECTION 18, BETWEEN SITEBE KOMKHULU AND VIEDGESVILLE	TEL SOUTH AFRICAN NATIONAL ROADS AGENCY	TEL	R 341 700 000.00	APR '11	OCT '13
265	CONTRACT NO. C634 : RECONSTRUCTION OF TRUNK ROAD 22 SECTION 1 (KM5.0-KM20.6) AND MAIN ROAD 305 (KM0.00 - KM2.4) BETWEEN GOUDA AND WOLSELEY	TEL PROV. ROAD ADMINISTRATION	TEL	R 223 900 000.00	FEB '11	FEB '13
264	CONTRACT NRA : N.012-140-2010/1 : REHABILITATION OF NATIONAL ROUTE N12 : SECTION 14 : BLOEMHOF TO RIETPAN TO WOLMARANDSTAD (TOTAL 40.0KM)	TEL SOUTH AFRICAN NATIONAL ROADS AGENCY	TEL	R 244 700 000.00	JAN '11	FEB '13
263	CONTRACT NO. NC077 - MAIN ROAD 768 : UPGRADING OF THE GRAVEL ROAD SECTION BETWEEN VOSBUR AND CARNARVON	TEL ROADS AND PUBLICS WORKS NORTHERN CAPE PROVINCE - MR	TEL	R 183 000 000.00	NOV '10	JAN '13
262	CONTRACT NRA N001-010-2010/2 : EMERGENCY REPAIRS TO IMPACT DAMAGE KLAPMUTS ROAD OVER-ROAD BRIDGE B698 ON NATIONAL ROUTE 1 SECTIONS 1 (KM39/1)	TEL SOUTH AFRICAN NATIONAL ROADS AGENCY LTD	TEL	R 808 333.69	SEPT '10	NOV '10
261	CONTRACT NO. N007-030-2010/2 - UPGRADING OF PIEKENIERSKLOOF PASS ON NATIONAL ROUTE 7 SECTION 3 BETWEEN KM65.0 AND CITRUSDAI INTERSECTION (KM75.0)	TEL SOUTH AFRICAN NATIONAL ROADS AGENCY LTD	TEL	R 97,000,000.00	OCT '10	MAY '12
260	CONTRACT NO. PR&T 04/2009 - REHABILITATION OF P9/3 : FROM PETRUS STEYN TO HEILBRON	TEL ROADS & PUBLIC WORKS FREE STATE PROVINCIAL GOVERNMENT	TEL	R 300 000 000.00	JUL '10	MAR '13
259	PROPOSED STRENGTHENING AND REHABILITATION OF THE EXISTING PARKING DECKS AT PLEIN STREET PARK, CAPE TOWN	TEL OLD MUTUAL	TEL	R 8,493,000.00	JUL '10	MAR '11

SITE NUMBER	PROJECT	EMPLOYER	CONSULTANT	CONTRACT VALUE (INCL VAT)	CONTRACT START DATE	CONTRACT COMPLETION DATE
258	MAINTENANCE OF NATIONAL ROUTE 10 SECTION 11 BETWEEN PATERSON AND OLIFANTSKOP	SOUTH AFRICAN NATIONAL ROADS AGENCY		R75 150 000.00	JUL '10	JUN '11
257	CONTRACT N002-050-2010/1 : THE PERIODIC MAINTENANCE OF NATIONAL ROUTE 2 SECTION 5 BETWEEN LIZMORE (KM29.29) AND RIVERSDALE (KM82.04)	TEL : SOUTH AFRICAN NATIONAL ROADS AGENCY LIMITED		R 103 000 000.00	JUL '10	JUN '11
256	CONTRACT NRA N009-070-2006/1 : REHABILITATION OF NATIONAL ROUTE 9 SECTION 7 FROM CARLTON HEIGHTS (KM24.5) TO WOLFEFONTEIN (KM63.9)	TEL : SOUTH AFRICAN NATIONAL ROADS AGENCY LIMITED		R 280 000 000.00	APR '10	JUL '12
254	CONTRACT N010-040-2011/1 : UPGRADING OF NATIONAL ROUTE N10, SECTION 4 - CYPRESS GROV (KM45.1) TO TAFELBERG (KM71.5): PHASE 2	TEL : SOUTH AFRICAN NATIONAL ROADS AGENCY LIMITED - PE		R 98 260 773.41	MAR '10	JUL '11
253	CONTRACT NRA P.002-032-2006/1 FOR THE CONSTRUCTION OF 19KM OF TRUNK ROAD 45 SECTION 1 : BETWEEN NANAGA AND FONTEINSKLOOF	SOUTH AFRICAN NATIONAL ROADS AGENCY LIMITED - PE		R 211 973 684.21	JUL '09	JUL '11
252	CONTRACT NRA : N.012-140-2009/1 : REHABILITATION OF NATIONAL ROUTE N12 : SECTION 14 : RIETPAN T WOLMARANDSTAD (TOTAL 23.1KM)	TEL : SOUTH AFRICAN NATIONAL ROADS AGENCY LIMITED		R 165 000 000.00	MAY '09	MAY '11
251	CONTRACT NO. N.012-112-2009/1 : REHABILITATION OF NATIONAL ROUTE N12 : SECTION 11 AND SECTION 12 NC/NW BORDER TO BEEFMASTER (TOTAL 41.4KM)	TEL : SOUTH AFRICAN NATIONAL ROADS AGENCY LIMITED		R 293 000 000.00	MAY '09	NOV '11
250	CONTRACT NO. NRA N.002-160-2003/9 : FOR THE REHABILITATION OF NATIONAL ROAD 2, SECTION 16 : BETWEEN BLUE WATER INTERSECTION AND KOMGA T-JUNCTION	TEL : SOUTH AFRICAN NATIONAL ROADS AGENCY LIMITED		R 192 525 921.18	FEB '09	MAR '11
249	CONTRACT C776.2 : GANSBAAL TO BREDASDORP ROAD UPGRADING BY LABOUR INTENSIVE CONSTRUCTION : UILENKRAALS MOND SECTION (KM00.0 TO KM7.8)	TEL : DEPT TRANSPORT, ROADS & PUBLIC WORKS	5 2870	R 53 210 572.73	FEB '09	MAY '10

SITE NUMBER	PROJECT	EMPLOYER	CONSULTANT	CONTRACT VALUE (INCL VAT)	CONTRACT START DATE	CONTRACT COMPLETION DATE
243	CONTRACT C842 : THE UPGRADE OF MAIN ROAD 542 AS WELL AS THE REGRAVELLING OF DIVISIONAL ROADS 2183 AND 2189 - CLANWILLIAM	TE DEPT TRANSPORT, ROADS & PUBLIC WORKS	TEI EFG / EKO ENGINEERS	R 68 000 000.04	NOV '08	JUL '09
247	CONTRACT NO. 03092 / BURGUNDY ESTATE FOR THE CONSTRUCTION OF ACCESS ROADS FOR THE BURGUNDY ESTATE DEVELOPMENT IN THE PLATTEKLOOF / DE GRENDEL AREA	TE VISIKRO INVESTMENTS (PTY) LTD	TEI EFG / EKO ENGINEERS	R 20 174 210.06	OCT '08	APR '09
246	CONTRACT NO. NRA N.010-040-2004/1 FOR UPGRADE OF NATIONAL ROUTE 10 SECTION 4 : CYPRESS GROVE (KM45.1) TO TAFELBERG (KM71.5) PHASE 1	TE SOUTH AFRICAN NATIONAL ROADS AGENCY LIMITED	TEI SOUTH AFRICAN NATIONAL ROADS AGENCY	R 168 495 199.98	OCT '08	JUL '10
245	CONTRACT NRA R300-010-2007/1 : IMPROVEMENT OF NATIONAL ROUTE R300 SECTION 1 FROM SWARTKOP INTERCHANGE (km14.0) TO STELLENBERG INTERCHANGE (km31.0)	TE SOUTH AFRICAN NATIONAL ROADS AGENCY LIMITED	TEI SNA / SSI JOINT VENTURE	R 525 172 816.31	JUL '08	JUL '10
244	CONTRACT NO. C794.1 : REHABILITATION, PROTECTION AND UPGRADE OF TRUNK ROAD 2, SECTION 10 BETWEEN WHITE BRIDGE (KM54.4) AND KNYENA (KM59.9)	TE DEPT TRANSPORT, ROADS & PUBLIC WORKS	TEI ERO ENGINEERS	R 180 000 000.00	JUN '08	MAY '10
243	PROJECT WCS 039718 : CONSTRUCTION OF NEW BOAT PARK AT LANGEBAAN, WESTERN CAPE	TE DEPT TRANSPORT, ROADS & PUBLIC WORKS	TEI SENEKAL ALLEN & PTN / GROENEWALD PRELLER	R 82 500 000.00	MAR '09	MAY '11
242	CONTRACT DTRPW 069/2007 - THE IMPROVEMENT OF THE SAFETY OF VERLATEKLOOF PASS	TE DEPT TRANSPORT, ROADS & PUBLIC WORKS	TEI JEFFARES & GREEN	R 29 800 000.00	APR '08	FEB '09
241	CONTRACT NRA N012-100-2006/1 : SPECIAL MAINTENANCE OF NATIONAL ROUTE 12 SECTION 10 KIMBERLEY (km5.00) TO NORTHERN CAPE BORDER (km81.73)	TE SOUTH AFRICAN NATIONAL ROADS AGENCY LIMITED	TEI UWP	R 85 060 000.00	APR '08	JUN '09
240	CONTRACT NRA N.002-190-2004/9 : FOR THE REHABILITATION OF NATIONAL ROUTE 2, SECTIONS 18 & 19 BETWEEN MTHATHA (SECTION 18, km85.9) AND NQADU FOREST (SECTION 19, km22.1)	TE SOUTH AFRICAN NATIONAL ROADS AGENCY LIMITED	TEI UWP / LUKHOZI JOINT VENTURE	R 133 000 000.00	APR '08	SEPT '09
239	CONTRACT NRA R300-010-2007/1 : THE MANUFACTURE AND DELIVERY OF PRECAST F-SHAPED BARRIERS FOR NATIONAL ROUTE R300 SECTION 1	TE SOUTH AFRICAN NATIONAL ROADS AGENCY LIMITED	TEI SOUTH AFRICAN NATIONAL ROADS AGENCY	R 60 000 000.00	APR '08	JUN '09

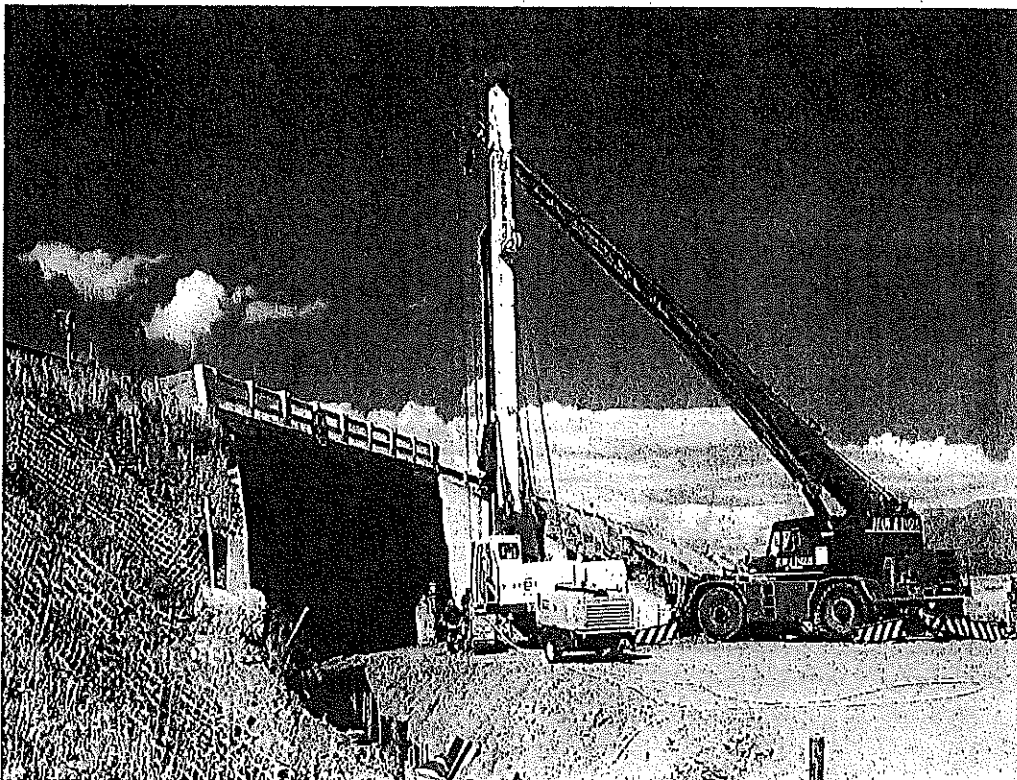
SITE NUMBER	PROJECT	EMPLOYER	CONSULTANT	CONTRACT VALUE (INCL VAT)	CONTRACT START DATE	CONTRACT COMPLETION DATE
238	CONTRACT C638 : REHABILITATION OF MAIN ROAD 237 (KM0.00 TO KM32.157) - RIEBEECK WEST	DEPARTMENT OF ROADS AND TRANSPORT WESTERN CAPE		R 69 660 000.00	MAR '08	MAY '09
237	CONTRACT NO. SCMU 10-07/08-00-46 FOR REHABILITATION OF TRUNK ROAD 45/4 : LILYVAL TO EAST LONDON AIRPORT (JV WITH ROADMAC)	DEPARTMENT OF ROADS AND TRANSPORT EASTERN CAPE		R 124 525 000.00	JAN '08	JUL '09
236	CONTRACT NO. Q07/86 - SETTLERSWAY (M2) HOSPITAL BEND UPGRADING WESTBOUND AND EASTBOUND PRE-SELECTION SCHEME	WESTERN CAPE TOWN - ROADS & STORMWATER WESTERN CAPE		R 250 000 000.00	JAN '08	MAY '10
235	CONTRACT NO. SCMU10-07/08-0016 : THE UPGRADING ROAD DR08328 FROM DR08327 TO MADWALEN MISSION HOSPITAL TO A PAVED ROAD STANDARD	DEPARTMENT OF ROADS AND TRANSPORT SOUTHERN REGION		R 77 649 999.96	JAN '08	MAR '09
234	CONTRACT NRA R.061-078-2009/1 : RESEAL OF NATIONAL ROUTE R61 SECTIONS 7 TO 8 BETWEEN MTHATHA AND LIBODE	SOUTH AFRICAN NATIONAL ROADS AGENCY LIMITED		R 34 500 003.44	OCT '07	MAY '08
233	CONTRACT NRA N001-090-2003/1 - REHABILITATION OF NATIONAL ROUTE N1 SECTIONS 9 BETWEEN THREE SISTERS AND BIESIESPOORT	SOUTH AFRICAN NATIONAL ROADS AGENCY LIMITED		R 127 499 999.25	OCT '07	OCT '09
232	CONTRACT NRA N002-123-2006/9 - RESEAL OF NATIONAL ROUTE N2 SECTIONS 12 TO 13 - NANAGALSOUthern REGION TO KONGHA RIVER	SOUTH AFRICAN NATIONAL ROADS AGENCY LIMITED		R 35 232 086.62	SEPT '07	APR '08
231	CONTRACT N002-040-2006/IF : PERIODIC MAINTENANCE (RESEAL) OF NATIONAL ROUTE 2 SECTIONS 4 TO 5 BETWEEN RIVIERSONDEREND AN SWELLENDAM	SOUTH AFRICAN NATIONAL ROADS AGENCY LIMITED		R 82 491 108.00	AUG '07	MAY '08
230	ROAD OVER ROAD BRIDGE AND ACCESS ROAD BURGUNDY ESTATE	IVISIGRO DEVELOPMENTS		R 43 415 034.08	FEB '08	AUG '08

EQUIPMENT SUMMARY

Item of equipment	PILLING EQUIPMENT	
Equipment Information	1. Name of manufacturer	2. Model B125 Power Rating
	3. Capacity 40 ton	4. Year of Manufacture 2010
	5. Number of Units Owned 1 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title :
Agreements	Details of rental / lease / manufacture agreements specific to the Project	

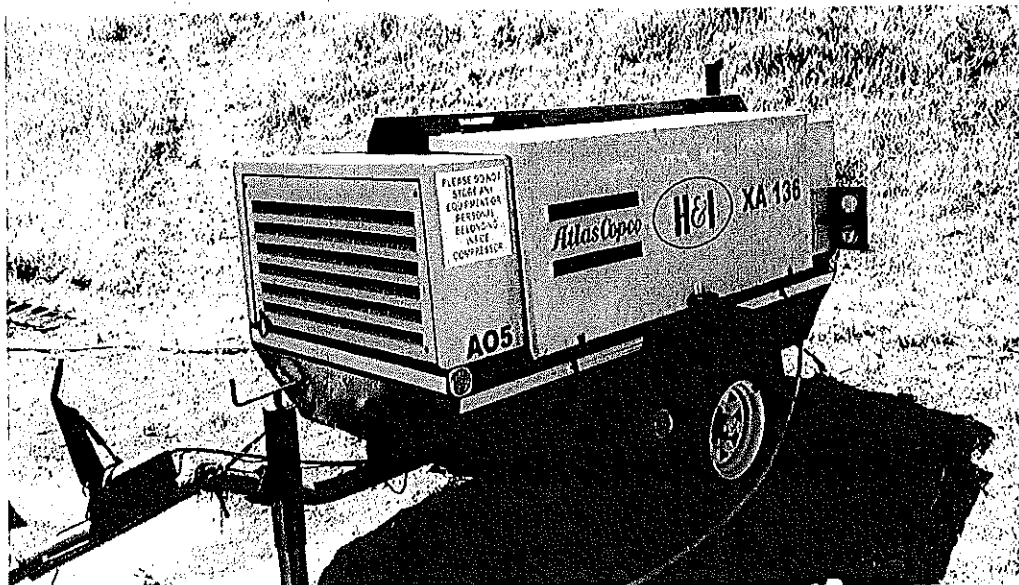


EQUIPMENT SUMMARY

Item of equipment	COMPRESSORS	
Equipment Information	1. Name of manufacturer	2. Model P185, XA136 Power Rating 35-40 kW
	3. Capacity 290 – 390 cfm	4. Year of Manufacture 2004 - 2013
	5. Number of Units Owned 5 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title: PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	



EQUIPMENT SUMMARY

Item of equipment	EXCAVATORS	
Equipment Information	1. Name of manufacturer	2. Model WACKER 50Z3, KOMATSU PC220-8; 300-8 CATERPILLAR 329D Power Rating 28, 125 – 180 / 200 kW
	3. Capacity 5 / 22 – 30 ton	4. Year of Manufacture 2009 - 2016
	5. Number of Units Owned 20 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title : PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	



EQUIPMENT SUMMARY

Item of equipment	BACKHOE LOADERS (TLB'S)	
Equipment Information	1. Name of manufacturer	2. Model 428F Power Rating 70 kW
	3. Capacity 1m³ bucket capacity	4. Year of Manufacture 2015
	5. Number of Units Owned 3 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title: PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	

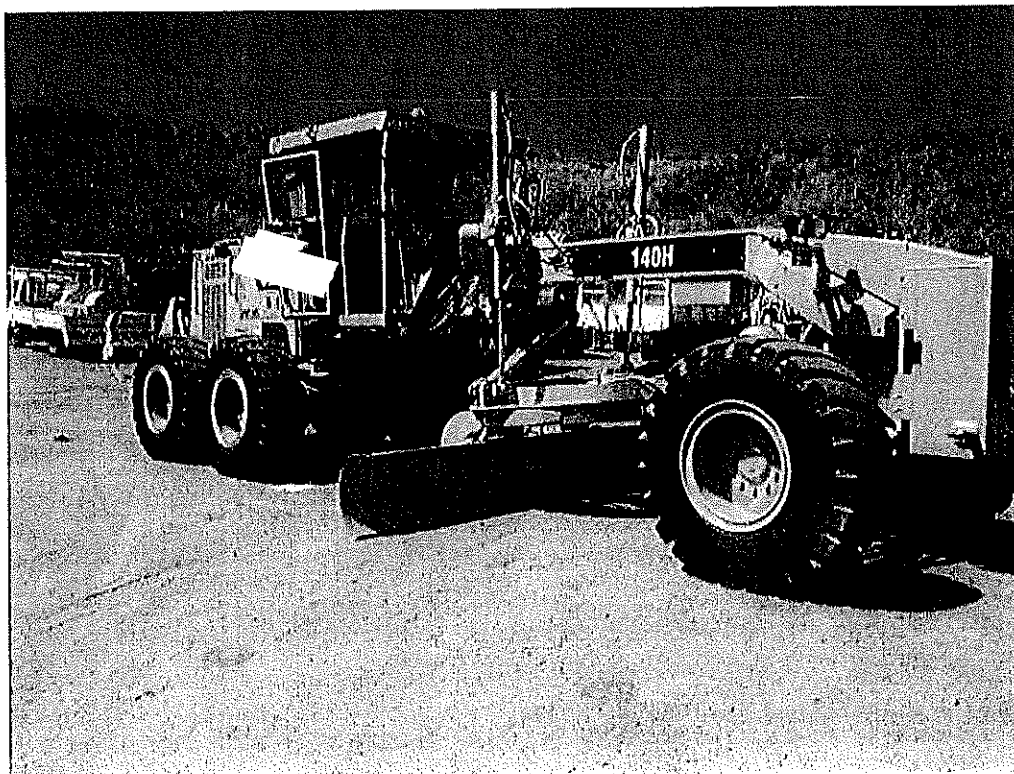


EQUIPMENT SUMMARY

Item of equipment	GRADERS	
Equipment Information	1. Name of manufacturer	2. Model 140H/K Power Rating 185 – 190 kW
	3. Capacity 4,270 m Blade	4. Year of Manufacture 2008 - 2015
	5. Numbers of Units Owned 12 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title: PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	

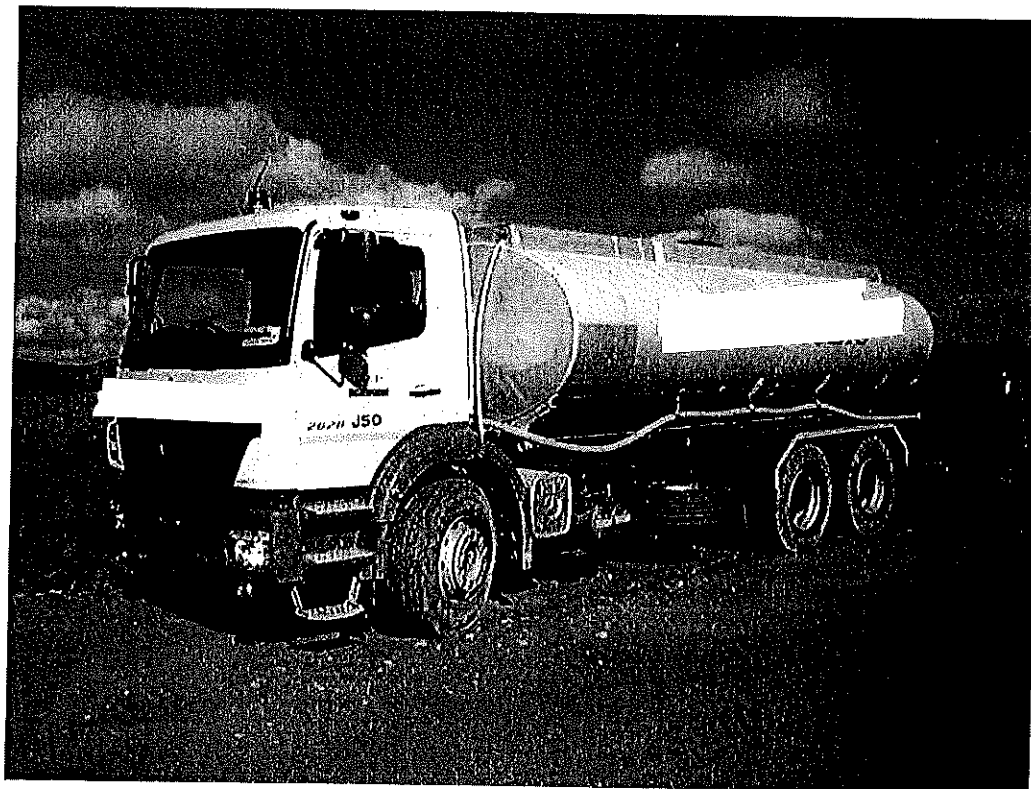


EQUIPMENT SUMMARY

Item of equipment	WATER TRUCKS	
Equipment Information	1. Name of manufacturer	2. Model 2628 AXOR / ATEGO Power Rating 209 kW
	3. Capacity 16,000 – 18,000 litres	4. Year of Manufacture 1992 - 2015
	5. Number of Units Owned 27 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title: PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	

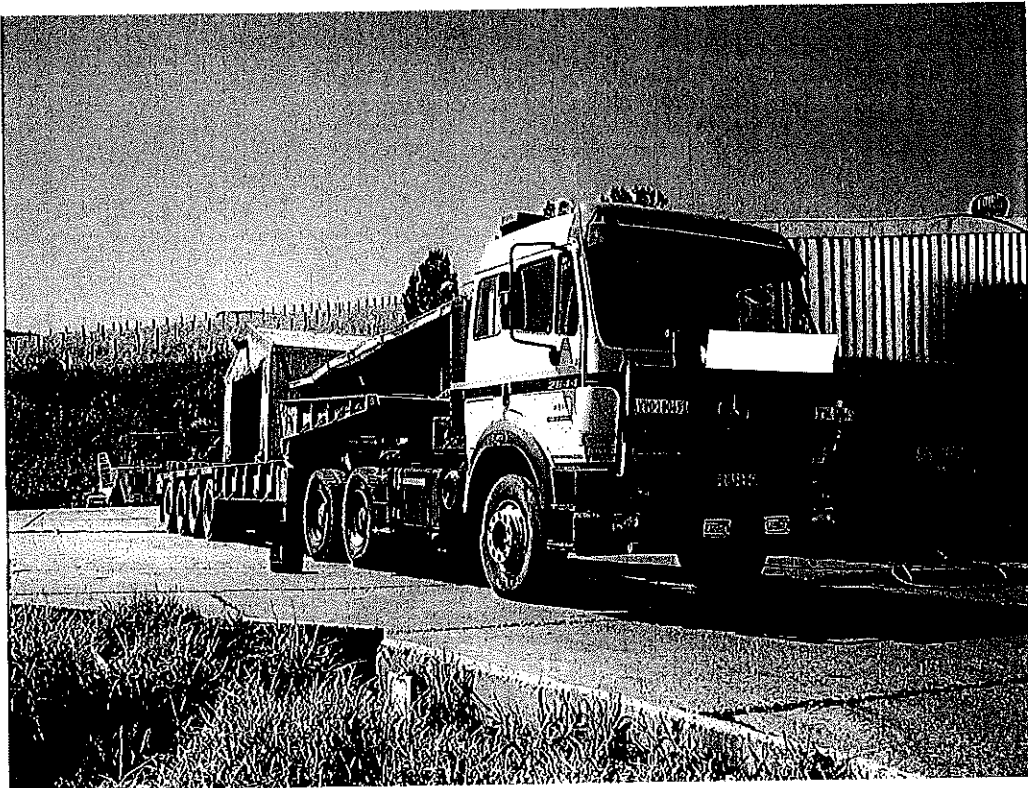


EQUIPMENT SUMMARY

Item of equipment	LOW-BEDS		
Equipment Information	1. Name of manufacturer	2. Model FH 12 460/2644	
	3. Capacity	4. Year of Manufacture 2003-2013	
	5. Number of Units Owned 2 NUMBER		
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured		

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner		
	9. Address of owner		
	Telephone	Contact name and Title	
	Fax	Title: PLANT MANAGER	
Agreements	Details of rental / lease / manufacture agreements specific to the Project		



EQUIPMENT SUMMARY

Item of equipment	10m³ with Trailers	
Equipment Information	1. Name of manufacturer	2. Model 2628 / 3331 ACTROSS Power Rating 209 kW / 230 kW
	3. Capacity 10m³	4. Year of Manufacture 2002 - 2009
	5. Number of Units Owned 7 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title: PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	



EQUIPMENT SUMMARY

Item of equipment	15 m³ TIPPERS with Trailers	
Equipment Information	1. Name of manufacturer	2. Model P410 Power Rating 210 kW
	3. Capacity 15m³	4. Year of Manufacture 2016
	5. Number of Units Owned 8 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title : PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	



EQUIPMENT SUMMARY

Item of equipment	ARTICULATED DUMP TRUCKS (ADT'S)	
Equipment Information	1. Name of manufacturer	2. Model B20D,E/B30D,E Power Rating 160 / 240 kW
	3. Capacity 11 / 16.9 m³ 18 / 27.7 ton	4. Year of Manufacture 2011
	5. Number of Units Owned 13 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title : PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	



EQUIPMENT SUMMARY

Item of equipment	CRANE TRUCKS	
Equipment Information	1. Name of manufacturer	2. Model 1617 / 2628 / 3335 AXOR Power Rating 130 / 209
	3. Capacity	4. Year of Manufacture 2007 - 2016
	5. Number of Units Owned 9 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title: PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	



EQUIPMENT SUMMARY

Item of equipment	LOADERS	
Equipment Information	1. Name of manufacturer	2. Model WA250-5 / 850 Power Rating 45 / 101 kW
	3. Capacity 10,8ton – 2,1m³ Bucket	4. Year of Manufacture 2008 – 2016
	5. Number of Units Owned 15 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title: PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	



EQUIPMENT SUMMARY

Item of equipment	CRANES	
Equipment Information	1. Name of manufacturer	2. Model TR 100 / 200 / 350 Power Rating
	3. Capacity 10 / 25 / 35 TON	4. Year of Manufacture 1993 / 2015
	5. Number of Units Owned 8 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title: PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	

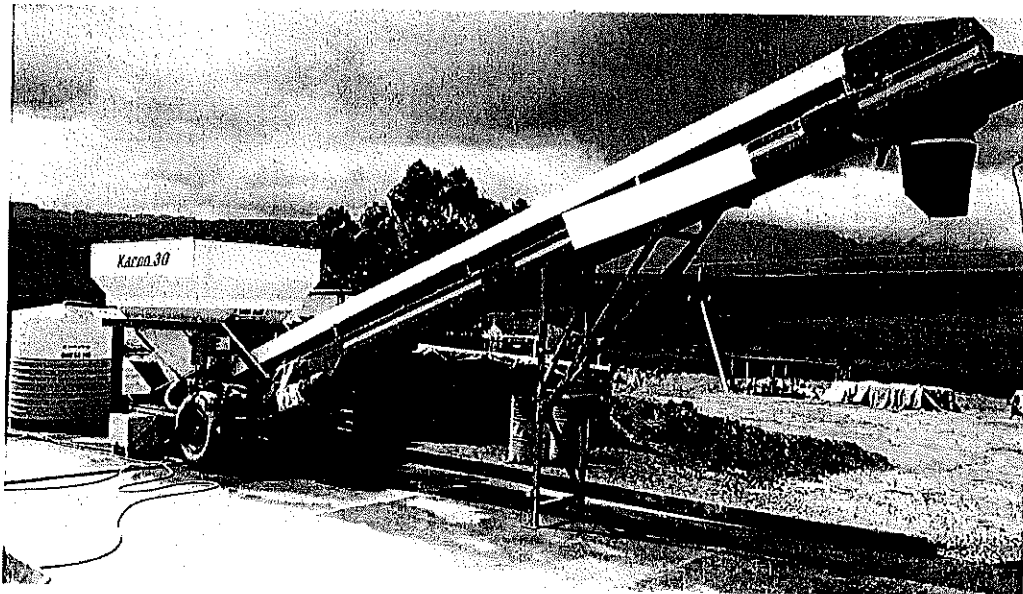


EQUIPMENT SUMMARY

Item of equipment	BATCHING PLANT	
Equipment Information	1. Name of manufacturer	2. Model KAROO 25/35 Power Rating
	3. Capacity 6m³	4. Year of Manufacture 2008 – 2013
	5. Number of Units Owned 6 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title: PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	



EQUIPMENT SUMMARY

Item of equipment	READYMIX TRUCKS	
Equipment Information	1. Name of manufacturer	2. Model 2628/2629 Power Rating 209 kW
	3. Capacity 6m³ TFM	4. Year of Manufacture 1995 – 2017
	5. Number of Units Owned 8 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title : PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	



EQUIPMENT SUMMARY

Item of equipment	SELF LOADING MIXER	
Equipment Information	1. Name of manufacturer	2. Model DB260SL Power Rating 70kW
	3. Capacity 3m³	4. Year of Manufacture 2011
	5. Number of Units Owned 1 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner		
	9. Address of owner		
	Telephone	Contact name and Title	
	Fax	Title: PLANT MANAGER	
Agreements	Details of rental / lease / manufacture agreements specific to the Project		



EQUIPMENT SUMMARY

Item of equipment	PAVERS	
Equipment Information	1. Name of manufacturer	2. Model Super 800/1600 Power Rating 42/96 kW
	3. Capacity 250t/hr - 600 t/hr	4. Year of Manufacture 2007-2008
	5. Number of Units Owned 2 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title: PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	

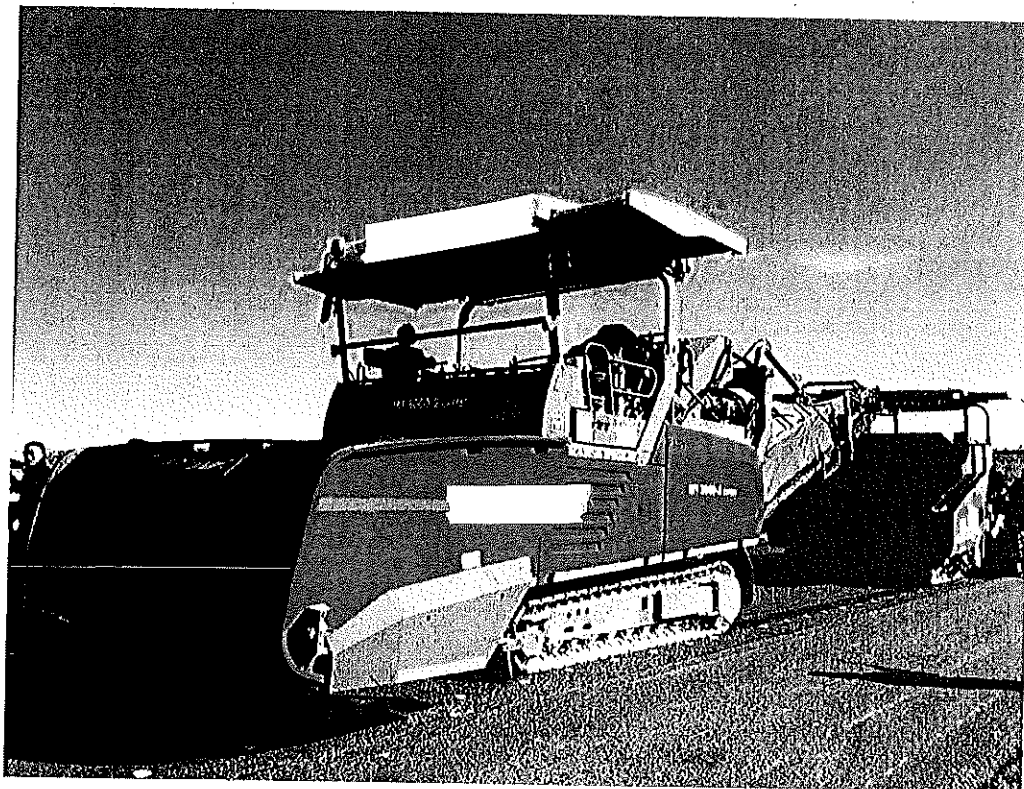


EQUIPMENT SUMMARY

Item of equipment	PREMIX SHUTTLE BUGGY	
Equipment Information	1. Name of manufacturer	2. Model MT 3000-2 Power Rating 147 kW
	3. Capacity 1 600 t/hr	4. Year of Manufacture 2016
	5. Number of Units Owned 1 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title: PLANT MANAGER
Agreements	Details of rental, lease / manufacture agreements specific to the Project	



EQUIPMENT SUMMARY

Item of equipment	MILLING MACHINE		
Equipment Information	1. Name of manufacturer		2. Model PM102
	3. Capacity 1 m DRUM WIDTH		4. Year of Manufacture 2010
	5. Number of Units Owned 1 NUMBER		
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured		

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner		
	9. Address of owner		
	Telephone		Contact name and Title
	Fax		Title: PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project		



EQUIPMENT SUMMARY

Item of equipment	DISTRIBUTORS	
Equipment Information	1. Name of manufacturer	2. Model 3335 Power Rating 124 & 265 kW
	3. Capacity 12000 LTR	4. Year of Manufacture 2010-2013
	5. Number of Units Owned 3 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title: PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	

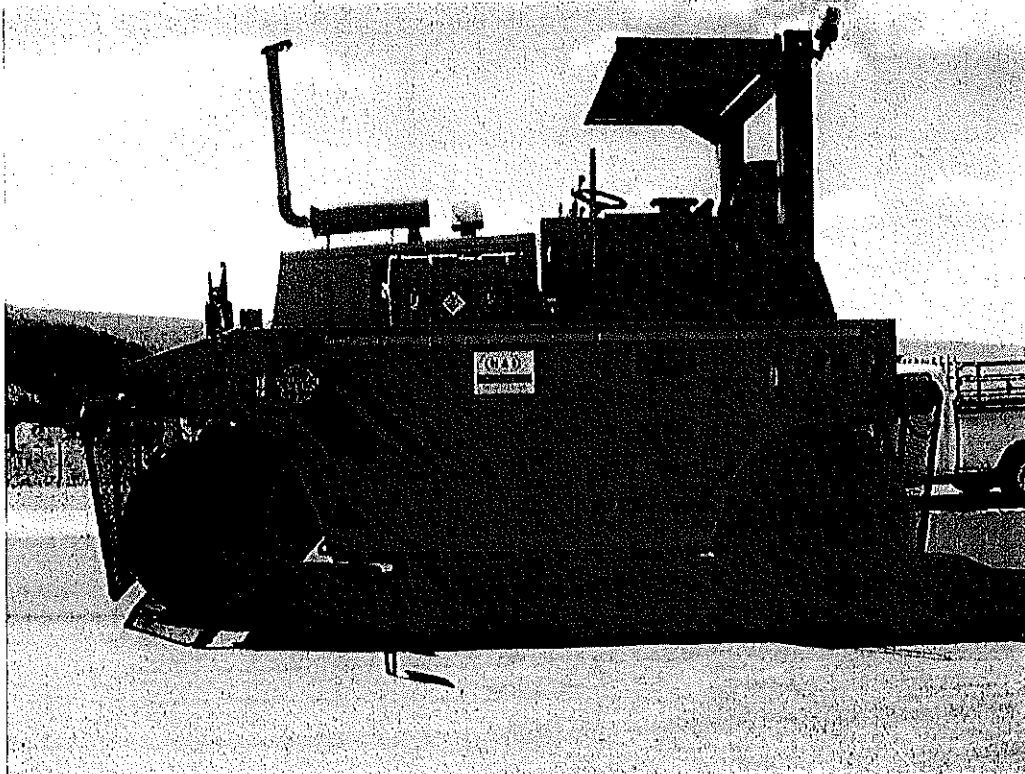


EQUIPMENT SUMMARY

Item of equipment	PNEUMATIC ROLLERS	
Equipment Information	1. Name of manufacturer	2. Model GRW 18 Power Rating 86 kW
	3. Capacity 28 TON	4. Year of Manufacture 2001 – 2012
	5. Number of Units Owned 11 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title : PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	

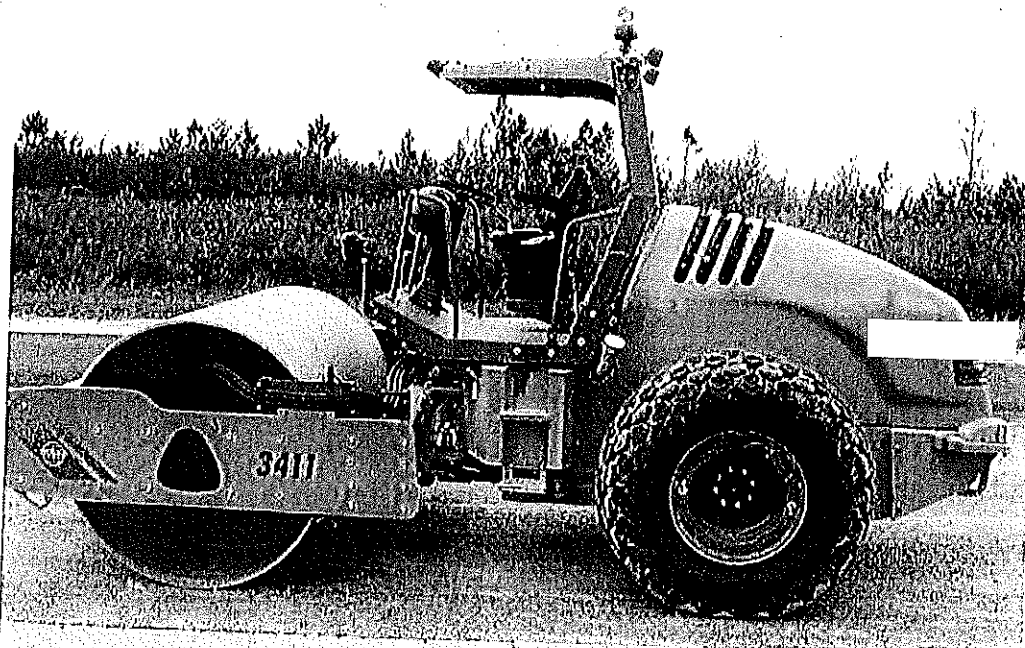


EQUIPMENT SUMMARY

Item of equipment	VIBRATORY ROLLERS		
Equipment Information	1. Name of manufacturer		2. Model HAMM 3411/3520 CAT CS683 BOMAG 212/219 Power Rating 100 Kw / 137 kW
	3. Capacity 11 - 20 ton	4. Year of Manufacture 2005 - 2017	
	5. Number of Units Owned 30 NUMBER		
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured		

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner		
	9. Address of owner		
	Telephone		Contact name and Title
	Fax		Title: PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project		



EQUIPMENT SUMMARY

Item of equipment	OSCILLATING ROLLERS	
Equipment Information	1. Name of manufacturer	2. Model HAMM HD O75 Power Rating 60 kW
	3. Capacity 8 ton	4. Year of Manufacture 2008
	5. Number of Units Owned 1 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and 7
	Fax	Title: PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	

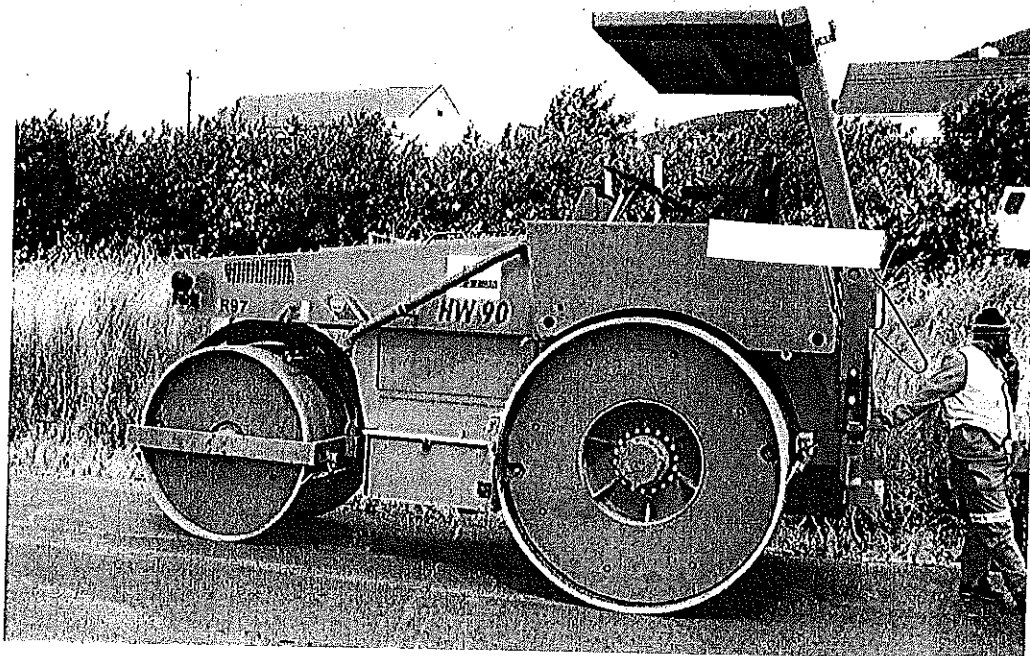


EQUIPMENT SUMMARY

Item of equipment	STATIC ROLLERS	
Equipment Information	1. Name of manufacturer	2. Model HAMM HW 90B Power Rating 56kW
	3. Capacity 12 ton	4. Year of Manufacture 2008 & 2013
	5. Number of Units Owned 2 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title: PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	

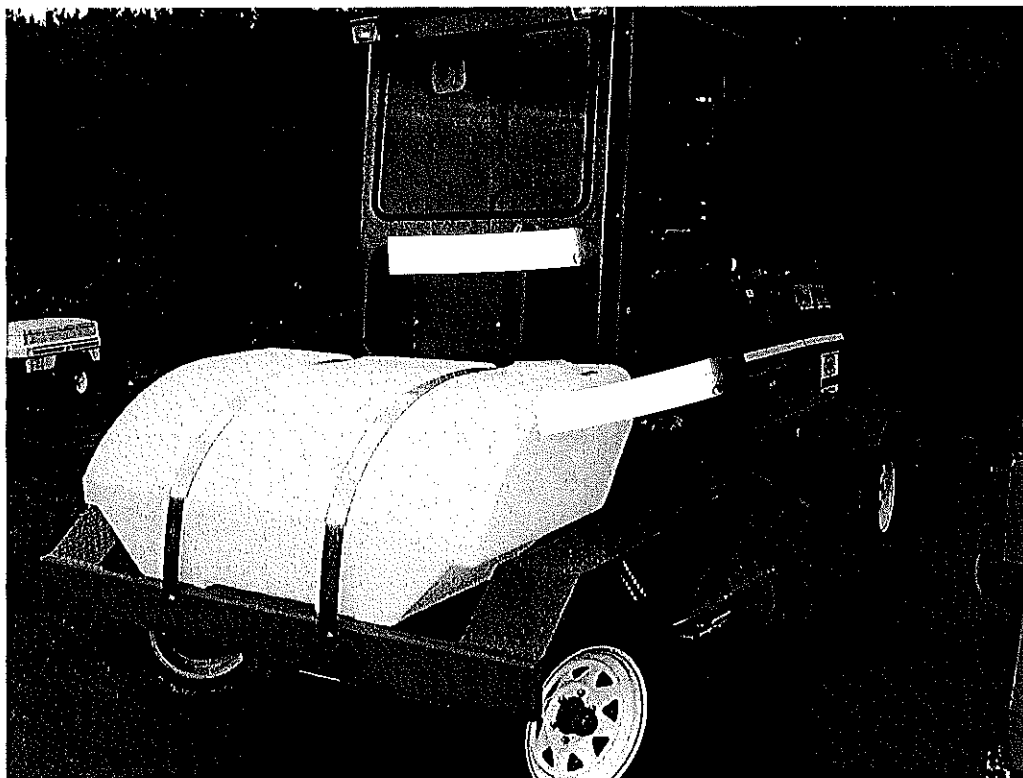


EQUIPMENT SUMMARY

Item of equipment	SELF PROPELLED BROOMS	
Equipment Information	1. Name of manufacturer	2. Model RC350 Power Rating
	3. Capacity	4. Year of Manufacture 2006 - 2015
	5. Number of Units Owned 13 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title: PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	

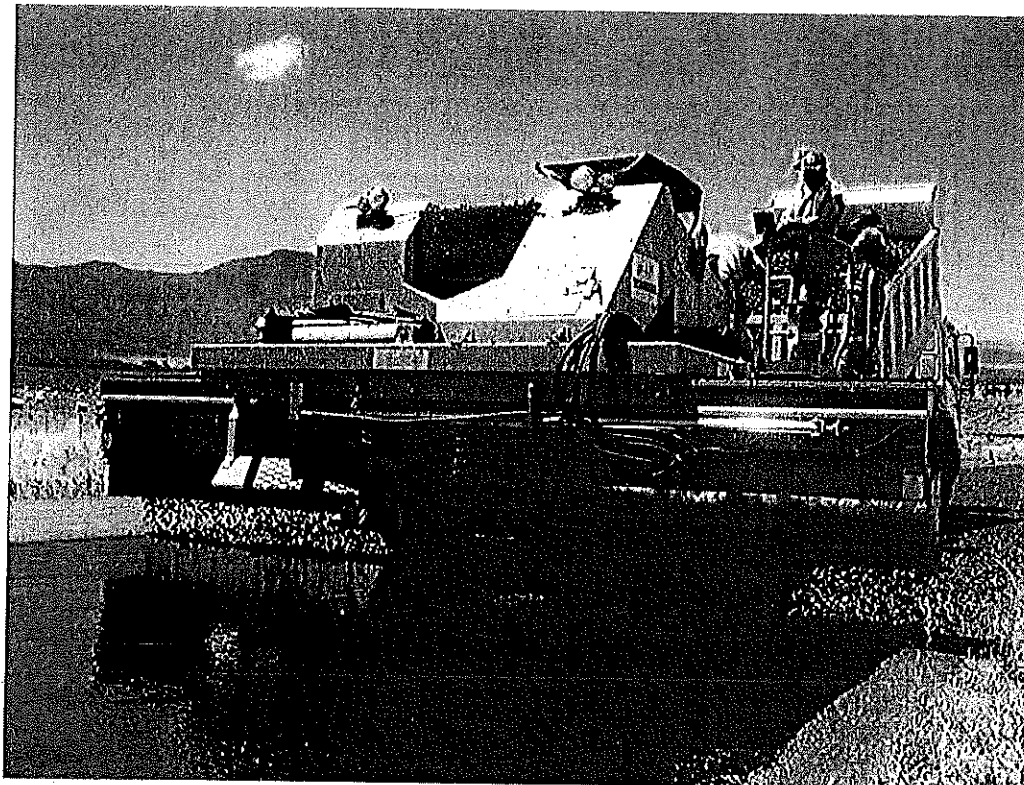


EQUIPMENT SUMMARY

Item of equipment	SELF PROPELLED CHIPSREADER	
Equipment Information	1. Name of manufacturer	2. Model Power Rating 130kW
	3. Capacity 4.2 – 6m BUCKET	4. Year of Manufacture 1995 - 2009
	5. Number of Units Owned 4 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title: PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	



EQUIPMENT SUMMARY

Item of equipment	RECYCLERS	
Equipment Information	1. Name of manufacturer	2. Model WR 240 / WR 240/ RM300
	3. Capacity 2.4 m DRUM WIDTH	4. Year of Manufacture 1998 / 2013
	5. Number of Units Owned 5 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title: PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	



EQUIPMENT SUMMARY

Item of equipment	DOZERS	
Equipment Information	1. Name of manufacturer	2. Model D61EX-15 / CAT D5R D65EX-12 / Cat D6K Power Rating 82 / 116 / 142kW
	3. Capacity 12 / 18 / 22 TON	4. Year of Manufacture 2004 - 2015
	5. Number of Units Owned 12 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title: PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	

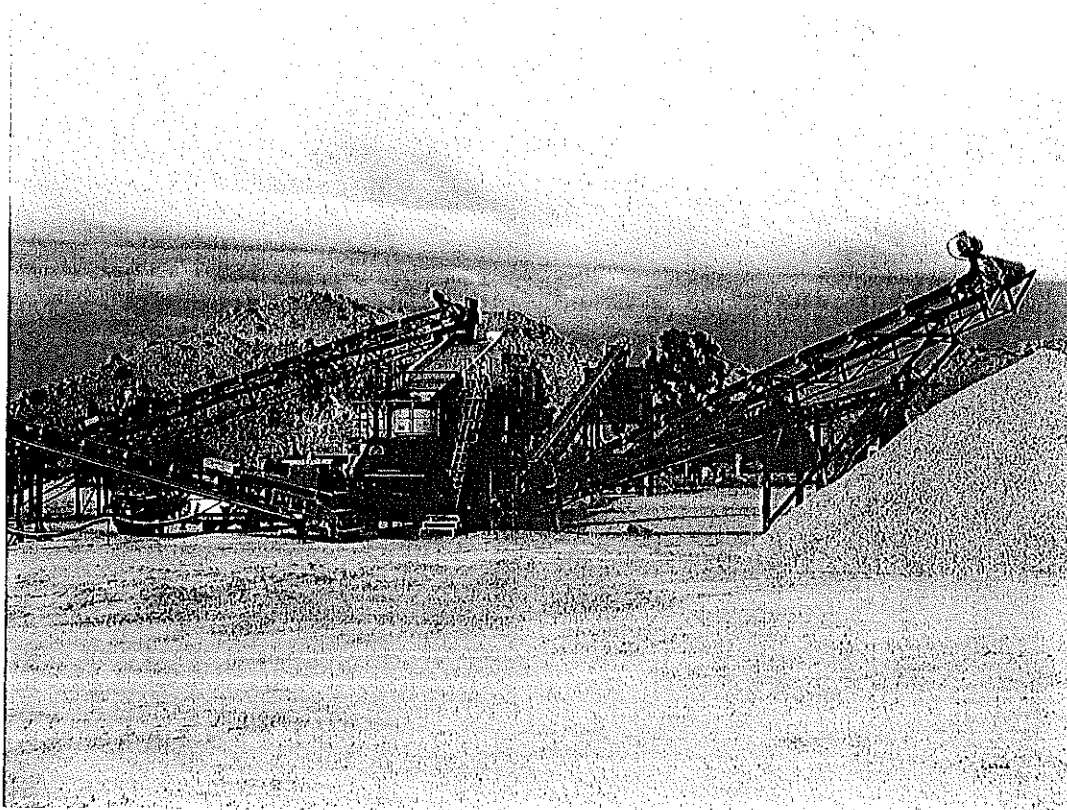


EQUIPMENT SUMMARY

Item of equipment	MULTIPLE STAGE CRUSHING & SCREENING PLANTS		
Equipment Information	1. Name of manufacturer	2. Model	VARIOUS
	3. Capacity 200ton/hr CRUSHING PLANTS	Power rating	VARIOUS
	4. Year of Manufacture		
	5. Number of Units Owned 3 NUMBER		
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured		

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title: DIRECTOR
Agreements	Details of rental / lease / manufacture agreements specific to the Project	

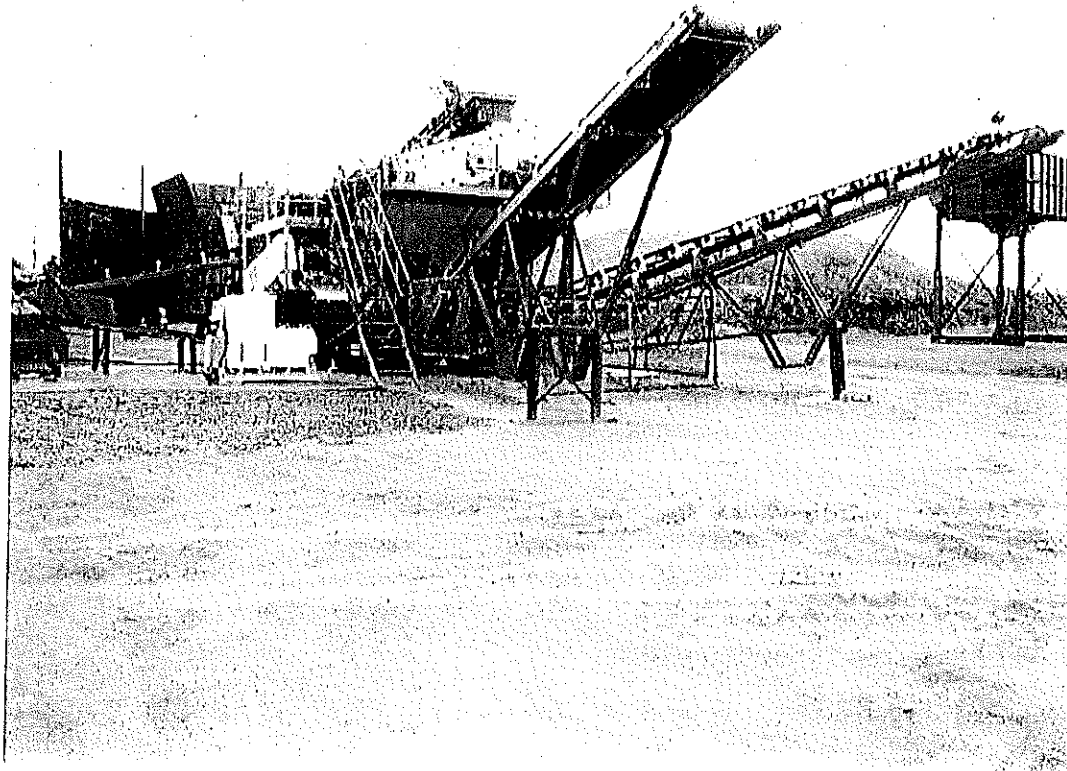


EQUIPMENT SUMMARY

Item of equipment	MULTIPLE STAGE CRUSHING & SCREENING PLANTS	
Equipment Information	1. Name of manufacturer	2. Model VARIOUS Power rating VARIOUS
	3. Capacity 100ton/hr CRUSHING PLANTS	4. Year of Manufacture
	5. Number of Units Owned 3 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner _____	
	9. Address of owner _____	
	Telephone _____	Contact name and title _____
	Fax _____	Title: DIRECTOR
Agreements	Details of rental / lease / manufacture agreements specific to the Project	



EQUIPMENT SUMMARY

Item of equipment	SCREENING PLANTS	
Equipment Information	1. Name of manufacturer	2. Model Fintec 570 / Fintec 542 Power rating 75kw
	3. Capacity 100ton/hr	4. Year of Manufacture 2003 / 2008
	5. Number of Units Owned 2 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title: DIRECTOR
Agreements	Details of rental / lease / manufacture agreements specific to the Project	



EQUIPMENT SUMMARY

Item of equipment	Locotrack Jaw & Cone	
Equipment Information	1. Name of manufacturer : GKC , Flintec	2. Model PE600x900 / Flintec 1080 Power rating VARIOUS
	3. Capacity 100ton/hr CRUSHING PLANTS	4. Year of Manufacture 2011/2005
	5. Number of Units Owned 1 NUMBER	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner
	9. Address of owner
	Telephone
	Fax
	Contact name and Title
	Title : DIRECTOR
Agreements	Details of rental / lease / manufacture agreements specific to the Project



EQUIPMENT SUMMARY

Item of equipment		
Equipment Information	1. Name of manufacturer	2. Model CAT TH414 Power Rating
	3. Capacity 3,5 ton @ 14m	4. Year of Manufacture 2014
	5. Number of Units Owned 2	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title: PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	



EQUIPMENT SUMMARY

Item of equipment		
Equipment Information	1. Name of manufacturer	2. Model HD 32A
	3. Capacity 1 TON @ 30M	4. Year of Manufacture 1995
	5. Number of Units Owned ONE	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title: PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	



EQUIPMENT SUMMARY

Item of equipment		
Equipment Information	1. Name of manufacturer	2. Model HDT 70 Power Rating
	3. Capacity 1.1 TON @ 45M	4. Year of Manufacture 1996
	5. Number of Units Owned ONE	
Source	6. Indicate source of the equipment ☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title: PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	



EQUIPMENT SUMMARY

Item of equipment	PILLING EQUIPMENT	
Equipment Information	1. Name of manufacturer	2. Model C6 Power Rating 125 – 180 / 200 kW
	3. Capacity 12.7 ton	4. Year of Manufacture 2007
	5. Number of Units Owned 2 NUMBER	
Source	6. Indicate source of the equipment	
	☒ Owner ☐ Rented ☐ Leased ☐ Special Manufactured	

Omit the following information for equipment owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and Title
	Fax	Title: PLANT MANAGER
Agreements	Details of rental / lease / manufacture agreements specific to the Project	

