

No. 17 Harrison Street
Marshalltown
P.O. Box 61542
Marshalltown 2107
Tel: (011) 688 1543
Enq: Tshepo Matlapeng
Email: tshepo.matlapeng@jwater.co.za

Supply Chain Management Unit (SCMU)

REQUEST FOR TENDER

NOTE: HARD COPY TENDER DOCUMENTS ARE AVAILABLE AT A COST OF R350 PER SET. DOCUMENTS DOWNLOADED FROM
www.johannesburgwater.co.za

IMPORTANT NOTICE			
N.B. NO TENDER DOCUMENTS TRANSMITTED PER FAX WILL BE ADMISSIBLE			
Pre-qualifying Criteria	The Senior Engineering Geologist / Geo-Technologist must be registered with the Engineering Council of South Africa (ECSA) or South African Council for Natural Scientific Professions (SACNASP)		
Collection of Tenders	Documents may be collected during working hours from Supply Chain Management Unit, Johannesburg Water, 17 Harrison Street, Marshalltown. Johannesburg		
Closing of tenders:	No tenders will be accepted after closing time of 10:30 on the closing date. Please ensure that tenders are submitted in sealed envelopes, clearly marked with the reference number JW 14087 and addressed to the SCMU, Johannesburg Water. Tenders are to be deposited in the Tender Box situated at the entrance to No. 17 Harrison Street, Marshalltown, on or before the closing time and date, being 10:30 on 17 March 2021. Under no circumstances must documents be handed to an employee of Johannesburg Water or Handed in at the Supply Chain Management Unit. Tender documents via courier services must also be deposited in the Tender Box and not handed to an employee of Johannesburg Water. NB: Tender documents which are not in sealed envelopes or which are not placed in the tender box will be rejected. Johannesburg Water will not accept responsibility for tender documents which are not deposited in the Tender Box.		
Point scoring system	The 80/20-point scoring system will be applicable to this tender, i.e. 80 points for Price and 20 points for Preferential procurement (BBBEE).		
Tender Briefing:	Bidders are encouraged to attend a non-compulsory virtual tender briefing session: Click here to join the meeting All general queries must be directed to Mr. Tshepo Matlapeng at 011 688 1543 or email: tshepo.matlapeng@jwater.co.za and all technical enquiries must be directed to Trevor Mbonani on 011 688 6605 or email trevor.mbonani@jwater.co.za		
Late tenders:	Tender documents received after the closing time and date will be late and will not be accepted under any circumstances.		
Opening of Tenders:	There will be no tender public opening.		
Selection Process:	The selection process will be subject to the Supply Chain Management Policy of Johannesburg Water. Johannesburg Water will not necessarily accept the lowest or any proposal and reserves the right to withdraw a tender without furnishing reasons or award in whole or in part and to more than one tenderer		
JOHANNESBURG WATER SOC Ltd SUPPORTS BBBEE			
JW14087 : PANEL OF PROFESSIONALS TO CONDUCT GEOTECHNICAL INVESTIGATION SERVICES ON AS-AND-WHEN BASIS FOR A PERIOD OF 36 MONTHS			
CLOSING DATE: 17 March 2022 at 10:30			
Name of tenderer:		CIDB CRS Number	N/A
Contact person:		CIDB Grading	N/A
Telephone No:		CSD Number	
Fax No:		SARS Tax Compliance Pin (Tenders)	
Cellular telephone no:		Email address:	
Tenderers are encouraged to submit one original hard copy plus a soft copy in a USB/CD. Tenderers who do not submit a soft copy will not be disqualified.			

Johannesburg Water SOC Ltd



CONTRACT NO: JW14087

PANEL OF PROFESSIONALS TO CONDUCT GEOTECHNICAL INVESTIGATION SERVICES ON AS-AND-WHEN BASIS FOR A PERIOD OF 36 MONTHS VOLUME 1

TENDER AND CONTRACT

**Prepared by
CAPEX: Project Management Unit
PO Box 61542
Marshalltown
2107**

**Tel +27 11 688 1400
Fax +27 11 688 1521**

**V1.0
August 2018**

Employer:		Contractor:	
Witness:		Witness:	

CHECK-LIST FOR TENDER SUBMISSION

The Tenderer is to indicate in the check-boxes provided that they have completed the required section of the tender document. Completion of this check-list will assist the Tenderer in ensuring that they have attended to all the required items for submission with this tender. **Additionally, it is an absolute requirement that tenderers comply with National Treasury's CSD registration as well as SARS tax compliance requirements – refer**

T2.2.4 below.

Ref	Description	Completed		For office use		
		Yes	No	Yes	No	Comments
Cover	Name of tenderer					
	Contact person					
	Telephone/Fax number					
T2.1	T2.2.2 Complete the Certificate of Authority					
	Submit Valid SARS Tax Compliance status Pin for Tenders					
	Confirm Proof of CSD Registration - submission of MA ----- Number					
	Certified copy of Valid BBEE certificate (SANAS/CIPC) or Sworn affidavit signed by the EME representative and attested by a Commissioner of oaths.					
	Consortium / JV agreement with all signatories and breakdown of each members contribution / role					
	Complete and sign JW 10 – Preference Points claim form					
T2.2.4	Complete and sign JW 14- Non- Collusion form					
T2.2.4	Complete and sign JW 14.1- Declaration of any potential Conflict of Interest					
T2.2.4	Complete and sign JW 14.2- past Supply Chain Management Practices Form					
T2.2.4	Complete and sign JW MBD 9- Certificate of Independent bid Determination					
	Complete and sign JW6.4 - Acknowledgement of JW Volume 3 OHS Specs					
C2.2	Complete the Schedule of Rates and the Summary. Sign the Summary					
C.1.1	Complete the Form of Offer. Do not complete the Form of Acceptance					
	Sign the Form of Offer with 2 witnesses. Do not sign the Form of Acceptance					
Qualifications	Is your tender subject to any qualifications. If Yes, reference to such qualification/s must be indicated below: _____					

* for tenders with an estimated total value exceeding R10m (VAT included)

** for all tenders regardless of value

Signature: _____ Date _____

Employer:		Contractor:	
Witness:		Witness:	



Contract No JW14087
 PANEL OF PROFESSIONALS TO CONDUCT GEOTECHNICAL INVESTIGATION SERVICES ON AS-AND-WHEN B
 FOR A PERIOD OF 36 MONTHS



CONTENTS:

Volumes	Contents	
Number	Number	Heading
Volume 1	Part 1: Tender Procedures	
	T1.1	Tender Data
	Part 2: Returnable Documents	
	T2.1	List of Returnable Documents
	T2.2	Returnable Schedules
	Part 1: Agreement and Contract Data	
	C1.1	Form of Offer and Acceptance
	C1.2	Contract Data
	C1.3	Forms of Securities
	Part 2: Pricing Data	
	C2.1	Pricing Instructions
	Part 3: Scope of Work	
	C3	Scope of Work

Employer:		Contractor:	
Witness:		Witness:	

Johannesburg Water (SOC) Ltd



CONTRACT JW14087

**PANEL OF PROFESSIONALS TO CONDUCT GEOTECHNICAL INVESTIGATION
SERVICES ON AS-AND-WHEN BASIS FOR A PERIOD OF 36 MONTHS**

VOLUME 1

TENDERING PROCEDURES

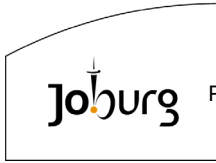


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T1.1 TENDER DATA

T1.1.1 Conditions of Tender

The conditions of tender are the Standard Conditions of Tender as contained in Annex C of the CIDB Standard for Uniformity in Construction Procurement (August 2019). (See www.cidb.org.za).

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.

T1.1.2 Tender Data

The clause numbers in the Tender Data refer to the corresponding clause numbers in the Conditions of Tender.

The additional Conditions of Tender are:

Clause number	Tender Data
C.1.1	The Employer is, Johannesburg Water (SOC) Limited
C.1.2	The tender documents issued by the Employer comprise: Volume 1: Tendering Procedures T1.1 Tender Data T1.2 Annexure: Standard Conditions of Tender Returnable Documents T2.1 List of Returnable Documents T2.2 Returnable Schedules, including the Enterprise Declaration Affidavit which may be bound in a separate volume Part 1: Agreement and Contract Data C1.1 Form of Offer and Acceptance C1.2 Contract Data Part 2: Pricing Data C2.1 Pricing Instructions Part 3: Scope of Work C3.1 Scope of Work
C.1.4	The Employer's Official is: Contact Person: Mr Tawandira Mpandaguta Telephone: 011 688 6682 E-mail address: tawanda.mpandaguta@jwater.co.za
C.2.1	Delete and add the following: Eligibility criteria and requirements

Clause number	Tender Data
	Professional Registration: The Senior Engineering Geologist / Senior Geo-Technologist must be registered with the Engineering Council of South Africa (ECSA) or South African Council for Natural Scientific Professions (SACNASP)
C.2.7	The arrangements for a compulsory clarification meeting are as stated in the Tender Notice and Invitation to Tender. A compulsory clarification and/or briefing session shall not be held..
C.2.8	Replace the contents of the clause with the following: “Request clarification of the tender documents, if necessary, by notifying the Employer’s Official indicated in the Tender Notice and Invitation to Tender in writing at least seven working days before the closing time stated in the foregoing notice and clause C.2.15.”
C.2.9	Add the following to the clause: “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..”
C.2.11	In instances where errors are made during the completion of the tender document, bidders are required to authenticate each and every alteration by the authorized signatory by inserting either his/her initial or signature next to the alteration Where alterations are made in respect of the pricing component (i.e. errors made on the Bill of Quantity), the pricing schedule or the Form of Offer, such alteration must be authenticated by the authorized signatory by inserting either his/her initial or signature next to the alteration.. Corrections may not be made using correction fluid, correction tape or the like.
C.2.12	Replace Contents Alternative offers will not be permitted.
C.2.13.3	Each tender offer shall be submitted as an original. Tenderers are also requested to submit a soft copy in a USB or CD (Tenderers who do not submit a soft copy will not be disqualified)
C.2.13.5	The Employer’s address for delivery of tender offers and identification details to be shown on the Tenderer’s offer package are: Location of tender box: Ground Floor Entrance Physical address: Johannesburg Water (SOC) Ltd 17 Harrison Street Marshalltown

Clause number	Tender Data
	Identification details: Tender reference number, Title of Tender and the closing date and time of the tender, <i>as well as the Tenderer's name, his Authorised Representative's name, postal address and telephonic contact numbers.</i>
C.2.13.6 & C.3.5	A two-envelope procedure will not be followed.
C.2.15.1	The closing time for submission of tender offers is as stated in the Tender Notice and Invitation to Tender.
C.2.16	The tender offer validity period is 90 days.
C.2.16.1	Add the following to the clause : "If the tender validity expires on a Saturday, Sunday or public holiday, the Tender Offer shall remain valid and open for acceptance until the closure of business on the following working day."
C.2.19	The Tenderer must provide access during working hours to his premises for inspections on request.
C.2.23	The Tenderer is required to submit with his tender: 1) Valid SARS Compliance status Pin for Tenders issued by the South African Revenue Services. 2) Proof of CSD registration i.e. MA xxxxxxxx number 3) a Certificate of Contractor Registration issued by the not applicable. 4) where the tendered amount inclusive of VAT exceeds R 10 million: i) audited annual financial statement for 3 years, or for the period since establishment if established during the last 3 years, if required by law to prepare annual financial statements for auditing; ii) a certificate certifying that the tenderer has no undisputed commitments for iii) municipal services towards a municipality or other service provider in respect of which payment is overdue for more than 30 days; iv) 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; v) 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.
C.2.24	Add the following new clause: Canvassing and obtaining of additional information by tenderers Accept that no Tenderer shall make any attempt either directly or indirectly to canvass any of the Employers officials or the Employer's agent in respect of his tender, after the opening of the tenders but prior to the Employer arriving at a decision thereon. No Tenderer shall make any attempt to obtain particulars of any relevant information, other than that disclosed at the opening of tenders."
C.2.25	Add the following new clause:

Clause number	Tender Data
	Prohibitions on awards to persons in service of the state Accept that the Employer is prohibited to award a tender to a person - a) who is in the service of the state; or b) if that person is not a natural person, of which any director, manager, principal shareholder or stakeholder is a person in the service of the state; or c) a person who is an advisor or consultant contracted with the municipality or municipal entity. “In the service of the state” means to be - i) a member of:- • any municipal council; • any provincial legislature; or • the National Assembly or the National Council of Provinces; ii) a member of the board of directors of any municipal entity; iii) an official of any municipality or municipal entity; iv) an employee of any national or provincial department; v) provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999); vi) a member of the accounting authority of any national or provincial public entity; or vii) an employee of Parliament or a provincial legislature.” In order to give effect to the above, the questionnaire for the declaration of interests in the tender of persons in service of state in Section T2.1 must be completed.
C.2.26	Add the following new clause: Awards to close family members of persons in the service of the state “Accept that the notes to the Employer’s annual financial statements must disclose particulars of any award of more than R 2 000 to a person who is a spouse, child or parent of a person in the service of the state (defined in clause F.2.25), or has been in the service of the state in the previous twelve months, including a) the name of that person; b) the capacity in which that person is in the service of the state; and c) the amount of the award. In order to give effect to the above, the questionnaire for the declaration of interests in the tender of persons in service of state in part T2 – Returnable Documents must be completed in full and signed.”
C.2.27	Add the following new clause: Tax Compliance In the case of a Joint Venture/Consortium the tax Compliance status Pin must be submitted for each member of the Joint Venture/Consortium.”
C.2.28	Add the following new clause: Tenderers will be afforded a period of three (3) days to complete the following returnable documents (JW 10 (MBD 6.1), JW 6.4, JW 14, JW 14.1, JW 14.2, JW 14.3, JW MBD 9) in instances where such forms are incomplete.

Clause number	Tender Data						
C.3.1.1	Replace the contents of the clause with the following: “Respond to a request for clarification received up to five calendar days before the tender closing time stated in the tender data and notify all Tenderers who drew procurement documents”						
C.3.4.2	Tenders will not be opened in public due to Covid 19 protocols and restrictions. <i><u>The above is subject to Covid 19 protocols and restrictions. Johannesburg Water will publish all received bids at JW website.</u></i>						
C.3.11	Replace Contents with Returnable Schedule JW10 (MBD 6.1) for evaluation criteria						
	Part A <u>Pre-qualification</u> <table border="1"> <thead> <tr> <th>Description</th><th>Remark (Yes or No)</th></tr> </thead> <tbody> <tr> <td> Registration with professional bodies: The Senior Engineering Geologist / Senior Geo-Technologist must be registered with the Engineering Council of South Africa (ECSA) or South African Council for Natural Scientific Professions (SACNASP) </td><td></td></tr> <tr> <td colspan="2"> Tenderers who do not meet this pre-qualification criteria will not be evaluated further </td></tr> </tbody> </table> Part B <u>Functionality</u> Each evaluation criteria will be assessed in terms of three indicators. Scores of 0, 60 or 100 will be allocated to poor, satisfactory and good respectively. The scores of each of the evaluators will be averaged, weighted and then totalled to obtain the final score for quality.	Description	Remark (Yes or No)	Registration with professional bodies: The Senior Engineering Geologist / Senior Geo-Technologist must be registered with the Engineering Council of South Africa (ECSA) or South African Council for Natural Scientific Professions (SACNASP)		Tenderers who do not meet this pre-qualification criteria will not be evaluated further	
Description	Remark (Yes or No)						
Registration with professional bodies: The Senior Engineering Geologist / Senior Geo-Technologist must be registered with the Engineering Council of South Africa (ECSA) or South African Council for Natural Scientific Professions (SACNASP)							
Tenderers who do not meet this pre-qualification criteria will not be evaluated further							

Clause number	Tender Data					
	The quality criteria minimum and maximum points in respect of each of criteria shall be as follows:					
	Quality criteria	Description	Means of Verification (Documentary Evidence)	Scoring Breakdown	Minimum number of points	Maximum number of points
	Qualifications and Registration Status of the key staff in relation to the scope of work.	Senior Engineering Geologist / Senior Geo-Technologist	Certified Copies of Qualifications and Registration Documents	Scoring breakdowns given below	9	15
		Engineering Geologist / Geo-Technologist			6	10
	Experience of the key staff in relation to the scope of work.	Senior Engineering Geologist/ Senior Geo-Technologist	CVs outlining experience	Scoring breakdowns given below	9	15
		Engineering Geologist / Geo-Technologist			6	10
	Tenderer's Experience with respect to specific aspects of the project	Experience in geotechnical investigations on pipelines, reservoirs, towers and pump stations.	Minimum of Three (3) projects on Geotechnical Investigation for either pipelines (water and sewer); reservoirs; water towers and pump stations in the past five (5) years,	Scoring breakdowns given below	30	50

Clause number	Tender Data																	
			supported with: 1. Contactable references as per format given in T2.1.7															
	Possible score for quality (M_s)				60	100												
Qualifications and Experience of Key Personnel The minimum required key personnel per project is as follows: a) 1 x Senior Engineering Geologist / Senior Geo-Technologist : 4 years and above of experience as a Senior Engineering Geologist / Senior Geo-Technologist b) 1 x Engineering Geologist/Geo-Technologist : 2-3 years of experience as a Engineering Geologist / Geo-Technologist The Qualifications, Registration Status and Experience of Key Personnel will be allocated scores as per schedule below:																		
<table><tr><th>Score</th><th>Qualification and Registration Status of Team Members</th><th>Experience of Team Members</th></tr><tr><td>Poor (Score 0)</td><td>Non-submission of supporting documents or minimum requirements not met.</td><td>Non-submission of supporting documents or minimum requirements not met.</td></tr><tr><td>Satisfactory (score 60)</td><td>Key staff met the minimum required qualifications.</td><td>Key staff met the minimum required experience.</td></tr><tr><td>Good (score 100)</td><td>Key staff has exceeded the minimum required qualifications.</td><td>Key staff has exceeded the minimum required experience.</td></tr></table>							Score	Qualification and Registration Status of Team Members	Experience of Team Members	Poor (Score 0)	Non-submission of supporting documents or minimum requirements not met.	Non-submission of supporting documents or minimum requirements not met.	Satisfactory (score 60)	Key staff met the minimum required qualifications.	Key staff met the minimum required experience.	Good (score 100)	Key staff has exceeded the minimum required qualifications.	Key staff has exceeded the minimum required experience.
Score	Qualification and Registration Status of Team Members	Experience of Team Members																
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Satisfactory (score 60)	Key staff met the minimum required qualifications.	Key staff met the minimum required experience.																
Good (score 100)	Key staff has exceeded the minimum required qualifications.	Key staff has exceeded the minimum required experience.																

Clause number	Tender Data			
	The minimum Qualifications, Registration Status and Experience expected with respect to each Key Personnel are outlined as follows:			
	Designation	Minimum Qualification	Registration	Minimum Experience
	Senior Engineering Geologist/ Senior Geo-Technologist	B-Tech/Bsc in Civil / Mining Engineering or Geology related field.	Professionally registered with the Engineering Council of South Africa (ECSA) or South African Council for Natural Scientific Professions (SACNASP).	4 years and above of experience as a Senior Engineering Geologist/ Senior Geo-Technologist
	Engineering Geologist/Geo-Technologist	B-Tech/Bsc in Civil / Mining Engineering or Geology related field	N/A	2-3 years of experience as an Engineering Geologist/ Geo-Technologist
	*Tenderers must attach certified proof of qualifications and registration certificates for points to be scored			
Tenderer's experience				
The Tenderer's experience will be evaluated based on completion of geotechnical Investigations on the following projects:				
i) Pipelines (Sewer and Water projects);				
ii) Pump stations;				
iii) Reservoirs;				
iv) Water tower projects.				
Tenderers experience will be scored as follows:				
SCORING	TENDERER'S EXPERIENCE			

Clause number	Tender Data								
	<table border="1"> <tr> <td> Poor (Score 0) </td><td> Non-submission of supporting documents or minimum requirements of 3 similar projects in the past five years not met. Supporting Documents Required include: Contactable references as per format given in T2.1.7 </td></tr> <tr> <td> Satisfactory (score 60) </td><td> Tenderer has successfully completed 3 similar projects in the past five years. Supporting Documents Required include: Contactable references as per format given in T2.1.7 </td></tr> <tr> <td> Good (score 100) </td><td> Tenderer has successfully completed 4 or more similar projects in the past five years. Supporting Documents Required include: Contactable references as per format given in T2.1.7 </td></tr> </table>	Poor (Score 0)	Non-submission of supporting documents or minimum requirements of 3 similar projects in the past five years not met. Supporting Documents Required include: Contactable references as per format given in T2.1.7	Satisfactory (score 60)	Tenderer has successfully completed 3 similar projects in the past five years. Supporting Documents Required include: Contactable references as per format given in T2.1.7	Good (score 100)	Tenderer has successfully completed 4 or more similar projects in the past five years. Supporting Documents Required include: Contactable references as per format given in T2.1.7		
Poor (Score 0)	Non-submission of supporting documents or minimum requirements of 3 similar projects in the past five years not met. Supporting Documents Required include: Contactable references as per format given in T2.1.7								
Satisfactory (score 60)	Tenderer has successfully completed 3 similar projects in the past five years. Supporting Documents Required include: Contactable references as per format given in T2.1.7								
Good (score 100)	Tenderer has successfully completed 4 or more similar projects in the past five years. Supporting Documents Required include: Contactable references as per format given in T2.1.7								
C.3.11.2 & C.3.11.3	The procedure for the evaluation of responsive tenders is Method 2 (Financial Offer and Preferences): 1. APPLICATION OF THE PREFERENCE POINTS SCORING SYSTEM <u>The following preference point systems are applicable to all bids:</u> - The 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and - the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included). (a) The value of this bid is estimated not to exceed R50 000 000 (all applicable taxes included) and therefore the 80/20 preference point system shall be applicable. (b) Preference points for this bid shall be awarded for: (a) Price; and (b) B-BBEE Status Level of Contributor. (c) The maximum points for this bid are allocated as follows: <table border="1"> <thead> <tr> <th></th><th>POINTS</th></tr> </thead> <tbody> <tr> <td>PRICE</td><td>80</td></tr> <tr> <td>B-BBEE STATUS LEVEL OF CONTRIBUTOR</td><td>20</td></tr> <tr> <td>Total points for Price and B-BBEE must not exceed</td><td>100</td></tr> </tbody> </table> (d) Failure on the part of a bidder to submit proof of BBBEE status level of contributor Certificate will be interpreted to mean that preference points for BBBEE status level of contribution are not		POINTS	PRICE	80	B-BBEE STATUS LEVEL OF CONTRIBUTOR	20	Total points for Price and B-BBEE must not exceed	100
	POINTS								
PRICE	80								
B-BBEE STATUS LEVEL OF CONTRIBUTOR	20								
Total points for Price and B-BBEE must not exceed	100								

Clause number	Tender Data						
	claimed. (e) The purchaser reserves the right to require of a bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the purchaser. 2. ADJUDICATION USING A POINT SYSTEM POST AWARD (a) The bidder obtaining the highest number of total points will be awarded the contract. (b) Preference points shall be calculated after prices have been brought to a comparative basis taking into account all factors of non-firm prices and all unconditional discounts;. (c) Points scored must be rounded off to the nearest 2 decimal places. (d) In the event that two or more bids have scored equal total points, the successful bid must be the one scoring the highest number of preference points for B-BBEE. (e) However, when functionality is part of the evaluation process and two or more bids have scored equal points including equal preference points for B-BBEE, the successful bid must be the one scoring the highest score for functionality. (f) Should two or more bids be equal in all respects, the award of work package shall be decided by the drawing of lots. 3. POINTS AWARDED FOR PRICE THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS A maximum of 80 or 90 points is allocated for price on the following basis: <table><tr><td>80/20</td><td>or</td><td>90/10</td></tr><tr><td>$P_s = 80 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$</td><td>or</td><td>$P_s = 90 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$</td></tr></table> Where Ps = Points scored for comparative price of bid under consideration Pt = Comparative price of bid under consideration Pmin = Comparative price of lowest acceptable bid PANEL APPOINTMENT STRATEGY	80/20	or	90/10	$P_s = 80 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$	or	$P_s = 90 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$
80/20	or	90/10					
$P_s = 80 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$	or	$P_s = 90 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$					

Clause number	Tender Data
	Bidders will be evaluated on administrative compliance and functionality. Those bidders who are successful on administrative compliance and functionality will be appointed into the panel. WORK ALLOCATION STRATEGY The following work allocation strategy will be adopted for the Geotechnical Investigation Services Framework contract: 1. Only panellists appointed into the panel will be called in to give quotations for work packages, 2. The panellist will be required to submit proof of legislative compliance with respect to CSD, TAX and Good Standing with relevant municipality in order to be considered for specific work package. 3. A comparative bid is calculated from the quotations received from appointed panellists, 4. Bids are ranked from lowest to highest, 5. Scores for price will be calculated as follows: • Out of 80 for work packages equal or less than R50,000,000.00 in value 6. Scores for preference will be determined from the BBBEE score card and allotted in line with schedule JW 10 (MBD) 6.1 The preferential points will be scored as follows: • Out of 20 for work packages equal or less than R50,000,000.00 in value 6.2 Panellists will be requested to submit valid BBBEE Certificate (or Sworn Affidavit where applicable) in order to claim preference points per allocation. Failure to submit will result to zero score on preference points. 7. The points for price and points for preference will be added to give an indication of the total scores, 8. Work Package will be recommended to the highest scoring panellist within the respective category of work. 9. Upon completion of the evaluation process the allocations will be finalised as follows: • Allocations with Quotation value R0.00 to R200,000.00 Inclusive of VAT will be concluded by the General Manager CAPEX

Clause number	Tender Data
	Allocations for Quotation value R200,000.01 to R5,000,000.00 will be presented for appointment by the BAC. Allocations for quotations above R5,000,000.00 will be considered by the BAC for final appointment by the accounting officer.
C.3.13.1	Add to the existing clause: Tender offers will only be accepted if: - the tenderer submits a valid SARS tax Compliance status Pin for tenders issued by the South African Revenue Services or has made arrangements to meet outstanding tax obligations; - Proof of CSD registration ie MA xxxxx number; - the tenderer submits a letter of intent from an approved insurer undertaking to provide the Performance Guarantee to the format included in Part T2.2.22 of this procurement document - the tenderer is registered with the Construction Industry Development Board in an appropriate contractor grading designation; - the tenderer or any of its directors/shareholders is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector; - the tenderer has not: - abused the Employer's Supply Chain Management System; or - failed to perform on any previous contract and has been given a written notice to this effect; - 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 and persons in the employ of the state are permitted to submit tenders or participate in the contract; - the tenderer is registered and in good standing with the compensation fund or with a licensed compensation insurer; - the Employer is reasonably satisfied that the tenderer has in terms of the Construction Regulations, 2014, issued in terms of the Occupational Health and Safety Act, 1993, the necessary competencies and resources to carry out the work safely; and - the tenderer: - has sufficiently substantiated his experience in this type work; - has the required and experienced key personnel; and - Owens the primary equipment to effectively and efficiently execute the work.
C.3.17	The number of paper copies of the signed contract to be provided by the Employer is one.
	There are no additional conditions of tender.

--- END OF PART ---

Johannesburg Water (SOC) Ltd



VOLUME 1

RETURNABLE DOCUMENTS AND SCHEDULES

T2.1 LIST OF RETURNABLE DOCUMENTS

The tenderer must complete the following returnable documents:

<u>Document</u>	<u>Page</u>
1. Returnable Schedules required for tender evaluation purposes	
T2.1.1 Record of addenda to tender documents	RD.4
T2.1.2 Certificate of Authority	RD.5
T2.1.3 Compulsory Enterprise Questionnaire	RD.10
T2.1.4 Preferential Procurement	RD.12
JW10 (MBD 6.1) Preference points claim form in terms of the preferential procurement regulations	RD.13
JW14 Non-collusion Form	RD.18
JW 14.1 Declaration of any potential conflict or interest	RD.19
JW 14.2 Declaration of bidder's past supply chain management practices	RD.22
JW MBD 9 Certificate of independent bid determination	RD.24
T2.1.5 Proposed qualifications	RD.27
T2.1.6 Schedule of the Tenderer's experience	RD.28
T2.1.7 Contactable reference template	RD.30
T2.1.8 Schedule of key personnel	RD.33
T2.1.9 Curriculum vitae of key personnel	RD.34

T2.2 LIST OF RETURNABLE DOCUMENTS

<u>Document</u>	<u>Page</u>
2. Other documents required only for tender evaluation purposes	
T2.2.2 SARS Tax Compliance Status Pin and Proof of CSD registration ie MA xxxxxxxxxxxx number	RD.37

T2.3 LIST OF RETURNABLE SCHEDULES

<u>Document</u>	<u>Page</u>
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T2.4 LIST OF RETURNABLE SCHEDULES

<u>Document</u>	<u>Page</u>
4. Other documents that will be incorporated into the contract	
T2.4.1 Addenda to the tender documents	RD.39
T2.4.2 Minutes of the pre-tender clarification meeting and site inspection	RD.40
T2.4.3 JW6.4 Acknowledgement of JW Volume 3 OHS Specs	RD.41

T2.1 Returnable Documents

NOTE: the Tenderer is required to complete each and every schedule listed above to the best of his ability as the evaluation of tenders and the eventual contract will be based on the information provided by the tenderer.

T2.1 LIST OF RETURNABLE DOCUMENTS

<u>Document</u>	<u>Page</u>
1. Returnable Schedules required only for tender evaluation purposes	
T2.1.1 Record of addenda to tender documents	RD.4
T2.1.2 Certificate of authority	RD.5
T2.1.3 Compulsory Enterprise Questionnaire	RD.10
T2.1.4 Preferential Procurement	RD.12
T2.1.5 Proposed qualifications	RD.27
T2.1.6 Schedule of the Tenderer's experience	RD.28
T2.1.7 Contactable reference template	RD.30
T2.1.8 Schedule of key personnel	RD.33
T2.1.9 Curriculum vitae of key personnel	RD.34

T2.1 Returnable Documents

T2.1.1 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.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		

Attach additional pages if more space is required.

Signed

Date

Name

Position

Tenderer

T2.1 Returnable Documents

T2.1.2 Certificate of Authority

Indicate the status of the Tenderer by ticking the appropriate box hereunder. The Tenderer must complete the certificate set out below for the relevant category.

(I) COMPANY	(II) CLOSE COR- PORATION	(III) PARTNERSHIP	(IV) JOINT VENTURE	(V) SOLE PROPRI- ETOR

(I) *Certificate For Company*

I,, chairperson of the Board of Directors of, hereby confirm that by resolution of the Board (copy attached) taken on, Mr/Ms, acting in the capacity of, was authorized to sign all documents in connection with the tender for Contract No. JW14087 and any contract resulting from it on behalf of the company.

Chairman:

As Witnesses: 1.....

2.....

Date:

(II) Certificate For Close Corporation

We, the undersigned, being the key members in the business trading as
 hereby authorize Mr/Ms , acting in the capacity of
, to sign all documents in connection with the
 tender and any contract resulting from it on our behalf.

NAME	ADDRESS	SIGNATURE	DATE

Note : This certificate is to be completed and signed by all of the key members upon whom rests the direction of the affairs of the Close Corporation as a whole.

T2.1 Returnable Documents

(III) Certificate For Partnership

We, the undersigned, being the key partners in the business trading as,

....., hereby authorize Mr/Ms,

acting in the capacity of, to sign all documents in connection

with the tender and any contract resulting from it on our behalf.

NAME	ADDRESS	SIGNATURE	DATE

Note : This certificate is to be completed and signed by all of the key partners upon whom rests the direction of the affairs of the Partnership as a whole.

(IV) Certificate For Joint Venture

This Returnable Schedule is to be completed by joint ventures.

We, the undersigned, are submitting this tender offer in Joint Venture and hereby authorise Mr/Ms , authorised signatory of the company , acting in the capacity of lead partner, to sign all documents in connection with the tender offer and any contract resulting from it on our behalf.

NAME OF FIRM	ADDRESS	DULY AUTHORISED SIGNATORY
Lead partner		Signature. Name Designation
		Signature. Name Designation
		Signature. Name Designation
		Signature. Name Designation

Note : This certificate is to be completed and signed by all of the key partners upon whom rests the direction of the affairs of the Joint Venture as a whole.



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T2.1 Returnable Documents

(V) Certificate For Sole Proprietor

I,, hereby confirm that I am the sole owner of the Business
trading as

Signature of Sole owner:

As Witnesses:

1.....

2.

Date:

T2.1 Returnable Documents

T2.1.3 Compulsory Enterprise Questionnaire

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

Section 1: Name of enterprise:

Section 2: VAT registration number, if any:

Section 3: CIDB registration number, if any:

Section 4: Particulars of sole proprietors and partners in partnerships

Name*	Identity number*	Personal income tax number*

* 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

Proof of CSD registration ie MA xxxxxxxxx number

SARS Tax Compliance status Pin number

Section 6: Record in the 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 the National Assembly or the National Council of Province | ☐ a member of an accounting authority of any national or provincial public entity |
| ☐ a member of the board of directors of any municipal entity | ☐ an employee of Parliament or a provincial legislature |
| ☐ an official of any municipality or municipal entity | |

If any of the above boxes are marked, disclose the following:

Name of sole proprietor, partner, director, manager, principal shareholder or stakeholder	Name of institution, public office, board or organ of state and position held	Status of service (tick appropriate column)	
		Current	Within last 12 months

T2.1 Returnable Documents

*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	Name of institution, public office, board or organ of state and position held	Status of service (tick appropriate column)	
		Current	Within last 12 months

*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 verify the tax compliance status from the South African Revenue Services that my / our tax matters are in order;
- confirms that the 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; and
- 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 _____

Date _____

Name _____

Position _____

Enterprise name _____



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Contract No 14087

**PANEL OF PROFESSIONALS TO CONDUCT GEOTECHNICAL INVESTIGATION SERVICES ON AS-AND-WHEN BASIS
A PERIOD OF 36 MONTHS**



T2.1 Returnable Documents

T2.1.4 Preferential Procurement

Forms for Completion by the Tenderer included in this section are:

Form No.	Form Title	Description
JW10	Empowerment and Preferential Procurement	Procedures and adjudication criteria for the information of the Tenderer
JW14	Non – collusion Form	Form to be completed by the Tenderer
JW 14.1	Declaration of any potential Conflict or Interest	Form to be completed by the Tenderer
JW14.2	Declaration of bidder's past supply chain management practices	Form to be completed by the Tenderer
JW MBD9	Certificate of Independent Bid Determination	Form to be completed by the Tenderer

Note:

All information supplied must be current and valid. Proposed or imminent changes to a Tenderer's status may be mentioned but the declarations must reflect current circumstances.

**PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL
 PROCUREMENT REGULATIONS (January 2017) JW 10 (MBD 6.1)**

1. GENERAL CONDITIONS

- 1.1 The following preference point systems are applicable to all bids:
- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and
 - the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).
- 1.2 The value of this bid is estimated not to exceed R50 000 000 (all applicable taxes included) and therefore the 80/20 preference point system shall be applicable.
- 1.3 Preference points for this bid shall be awarded for:
- (a) Price; and
 - (b) B-BBEE Status Level of Contributor.
- 1.4 The maximum points for this bid are allocated as follows:

	POINTS
PRICE	80
B-BBEE STATUS LEVEL OF CONTRIBUTOR	20
Total points for Price and B-BBEE must not exceed	100

- 1.5 Failure on the part of a bidder to submit proof of BBBEE status level of contributor Certificate will be interpreted to mean that preference points for BBBEE status level of contribution are not claimed.
- 1.6 The purchaser reserves the right to require of a bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the purchaser.

2. ADJUDICATION USING A POINT SYSTEM

- 2.1 The bidder obtaining the highest number of total points will be awarded the contract.
- 2.2 Preference points shall be calculated after prices have been brought to a comparative basis taking into account all factors of non-firm prices and all unconditional discounts;.
- 2.3 Points scored must be rounded off to the nearest 2 decimal places.
- 2.4 In the event that two or more bids have scored equal total points, the successful bid must be the one scoring the highest number of preference points for B-BBEE.
- ~~2.5 However, when functionality is part of the evaluation process and two or more bids~~

have scored equal points including equal preference points for B-BBEE, the successful bid must be the one scoring the highest score for functionality.

- 2.6 Should two or more bids be equal in all respects, the award shall be decided by the drawing of lots.

3. POINTS AWARDED FOR PRICE

3.1 THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

A maximum of 80 or 90 points is allocated for price on the following basis:
 80/20 or 90/10

$$P_s = 80 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right) \quad \text{or} \quad P_s = 90 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$$

Where

P_s = Points scored for comparative price of bid under consideration
 P_t = Comparative price of bid under consideration
 $P_{\min}$ = Comparative price of lowest acceptable bid

4. POINTS AWARDED FOR B-BBEE STATUS LEVEL OF CONTRIBUTOR

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

BBEE Status Level of Contributor	Number of Points (based on 80/20)	Number of Points (based on 90/10)
1	20	10
2	18	9
3	14	6
4	12	5
5	8	4
6	6	3
7	4	2
8	2	1
Non-compliant contributor	0	0

5. BID DECLARATION

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

**B-BBEE STATUS LEVEL OF CONTRIBUTOR CLAIMED IN TERMS OF PAR-
 AGRAPHS 1.4 AND 5.1**

T2.1 Returnable Documents

- 5.2 B-BBEE Status Level of Contributor: = (maximum of 10 or 20 points)
 (Points claimed in respect of paragraph 6.1 must be in accordance with the table reflected in paragraph 5.1 and must be substantiated by means of a B-BBEE certificate issued by a Verification Agency accredited by relevant proof of BBBEE status level of contributor.

6. DECLARATION WITH REGARD TO COMPANY/FIRM/ BIDDER

- 6.1 Name of company/firm/bidder:.....
- 6.2 VAT registration number:.....
- 6.3 Company registration number:.....
- 6.4 Valid Tax Compliance Status Pin for Tenders.....
- 6.5 Proof of CSD Registration - indicate MA -----(Number)
- 6.6 Postal address
- 6.7 Physical address.....
- 6.8 Contact persontelephone number.....
- 6.9 Facsimile numberCell number.....
- 6.10 Email address.....website address:.....
- 6.11 Was your company registered under another name previously? If yes, provide company registration details.....

- 6.12 TYPE OF COMPANY/ FIRM
- ☐ Partnership/Joint Venture / Consortium*
 - ☐ One person business/sole propriety
 - ☐ Close corporation
 - ☐ Company
 - ☐ (Pty) Limited
- [TICK APPLICABLE BOX]

***NB: In the case of the bidder being a Partnership / Joint Venture / Consortium, this form must be completed in respect of each member of the Joint Venture / Consortium or Partnership and included in the tender submission**

T2.1 Returnable Documents

The Consortium, Partnership or Joint Venture must indicate each member's contribution to the project as well as the percentage of such contribution by completion and submission of the appropriate Consortium, Partnership or Joint Venture agreement with the tender.

6.13 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

.....

COMPANY CLASSIFICATION

- ☐ Manufacturer
- ☐ Supplier
- ☐ Professional service provider
- ☐ Other service providers, e.g. transporter, etc.

[TICK APPLICABLE BOX]

7. OWNERSHIP STRUCTURE OF ENTERPRISE

List below all the proprietors/partners/shareholders/ members of your enterprise: Attach your own list if the space provided below is inadequate:

Initials & Surname	RSA ID number	Citizenship	Race (A/Ch/Co/I/W) ¹	Ownership Effective Date	Gender M/F	Disabled Yes/No	% Owned

¹ A/Ch/Co/I/W: means African, Chinese, Coloured, Indian or White

8. MUNICIPAL INFORMATION

Municipality where business is situated:

Is the property owned ? yes / no

*If yes, Stand / Erf Numberand Registered municipal Account Number:

**Is the property leased? Yes / No

Stand / Erf Number:.....

Nota Bena

T2.1 Returnable Documents

*Copy of latest up to date municipal account (not older than 90 days) or where the account is in arrears, confirmation of suitable arrangements have been made with the respective municipality must be submitted with the bid.

**Alternatively, if the premises are leased, then a copy of a valid lease agreement must be submitted.

- 8.1 Total number of years the company/firm has been in business:.....
- 8.2 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BBE status level of contributor indicated in paragraph 7 of the foregoing certificate, qualifies the company/firm for the preference(s) shown and I / we acknowledge that:
- i) The information furnished is true and correct;
 - ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
 - iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 6.2, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;
 - iv) If the B-BBEE status level of contributor has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have –
 - (a) disqualify the person from the bidding process;
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
 - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
 - (d) restrict the bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
 - (e) forward the matter for criminal prosecution.

WITNESSES (Name and signature)

1.
2.

Name of authorized signatory:

.....
 SIGNATURE(S) OF BIDDERS(S)

DATE:



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Contract No 14087

**PANEL OF PROFESSIONALS TO CONDUCT GEOTECHNICAL INVESTIGATION SERVICES ON AS-AND-WHEN BASIS
A PERIOD OF 36 MONTHS**



T2.1 Returnable Documents

Non-collusion Form

JW 14

I, the undersigned

In my capacity as

(insert Sole Owner, Partner, President, Secretary or other title)

of

(insert name of the Company).

acknowledges that on behalf of the abovementioned Company, I submit to Johannesburg Water [JW], a tender and that all statements of fact in such tender are both true and correct.

That such tender was not made in the interest of or on behalf of any undisclosed Person, Partnership, Company, Association, Organization or Corporation.

That such tender is genuine and not collusive or a sham.

That I have not directly or indirectly by agreement, communication or reference with anyone, attempted to induce action prejudicial to the interest of JW, or any other Bidder or anyone interested in the proposed contract.

That prior to the opening and reading of bids,

- a. I did not, directly or indirectly, induce or solicit anyone else to submit a false or sham tender
- b. I did not, directly or indirectly, collude, conspire, connive or agree with anyone else that the said bidder or anyone else would submit a false or sham tender, or that anyone should refrain from tendering or withdraw his tender
- c. I did not, in any manner, directly or indirectly, seek by agreement, communication, or conference with anyone to raise or fix my tender price or anyone else, or to raise or fix any overhead, profit or cost element of his tendered price of that of anyone else.
- d. I did not directly or indirectly, submit this tender price or any breakdown, thereof, or the contents thereof, or divulge information or data relative thereto, to any Corporation, Partnership, Company, Association, Organization, Tender Depository, or to any member or agent thereof, or to any individual group of individuals, except to the Parent Company holding a controlling interest (above 50%) in my business.

Dated at _____ on this ____ day of _____

Signed on behalf of the tenderer

DECLARATION OF INTEREST

JW 14.1

1. No bid will be accepted from persons in the service of the state¹.
2. Any person, having a kinship with persons in the service of the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid. In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons connected with or related to persons in service of the state, it is required that the bidder or their authorised representative declare their position in relation to the evaluating/adjudicating authority.
- 3 **In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.**
 - 3.1 Full Name of bidder or his or her representative:.....
 - 3.2 Identity Number:
 - 3.3 Position occupied in the Company (director, trustee, hareholder²):.....
 - 3.4 Company Registration Number:
 - 3.5 Tax Reference Number:.....
 - 3.6 VAT Registration Number:
 - 3.7 The name of all directors / trustees / shareholders members, their individual identity numbers and state employee numbers must be indicated in paragraph 4 below.
 - 3.8 Are you presently in the service of the state? **YES / NO**
3.8.1 If yes, furnish particulars.
.....

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

- (a) a member of –
 - (i) any municipal council;
 - (ii) any provincial legislature; or
 - (iii) the national Assembly or the national Council of provinces;
- (b) a member of the board of directors of any municipal entity;
- (c) an official of any municipality or municipal entity;
- (d) an employee of any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999);
- (e) a member of the accounting authority of any national or provincial public entity; or
- (f) an employee of Parliament or a provincial legislature.

T2.1 Returnable Documents

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

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

3.9.1 If yes, furnish particulars.....

.....

3.10 Do you have any relationship (family, friend, other) with persons in the service of the state and who may be involved with the evaluation and or adjudication of this bid? **YES / NO**

3.10.1 If yes, furnish particulars.

.....

3.11 Are you, aware of any relationship (family, friend, other) between any other bidder and any persons in the service of the state who may be involved with the evaluation and or adjudication of this bid? **YES / NO**

3.11.1 If yes, furnish particulars

.....

3.12 Are any of the company’s directors, trustees, managers, principle shareholders or stakeholders in service of the state? **YES / NO**

3.12.1 If yes, furnish particulars.

.....

3.13 Are any spouse, child or parent of the company’s directors trustees, managers, principle shareholders or stakeholders in service of the state? **YES / NO**

3.13.1 If yes, furnish particulars.

.....

3.14 *Do you or any of the directors, trustees, managers, principle shareholders, or stakeholders of this company have any interest in any other related companies or business whether or not they are bidding for this contract. **YES / NO**

3.14.1 If yes, furnish particulars:

.....

T2.1 Returnable Documents

** The intention of this clause is deemed to be the declaration of relationships which may improperly influence or affect the outcome of this bid, in particular relationships with persons involved in the procurement processes in Johannesburg Water. Therefore if the bidder or any of the persons mentioned in this clause or any company or business controlled by any of them have such a relationship, it should be declared.*

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

Full Name	Identity Number	State Employee Number

.....
Signature

.....
Date

.....
Capacity

.....
Name of Bidder

DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES JW 14.2

- 1 The bid of any bidder may be disregarded if that bidder, or any of its directors have-
 - a. abused the institution's supply chain management system;
 - b. committed fraud or any other improper conduct in relation to such system; or
 - c. failed to perform on any previous contract.
- 2 **In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.**

Item	Question	Yes	No
4.1	Is the bidder or any of its directors listed on the National Treasury's database as companies or persons prohibited from doing business with the public sector? (Companies or persons who are listed on this database were informed in writing of this restriction by the National Treasury after the <i>audi alteram partem</i> rule was applied).	Yes ☐	No ☐
4.1.1	If so, furnish particulars:		
4.2	Is the bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)? To access this Register, enter the National Treasury's website, www.treasury.gov.za, click on the icon "Register for Tender Defaulters" or submit your written request for a hard copy of the Register to facsimile number (012) 3265445.	Yes ☐	No ☐
4.2.1	If so, furnish particulars:		
4.3	Was the bidder or any of its directors convicted by a court of law (including a court outside of the Republic of South Africa) for fraud or corruption during the past five years?	Yes ☐	No ☐
4.3.1	If so, furnish particulars:		
4.4	Was any contract between the bidder and any organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes ☐	No ☐
4.4.1	If so, furnish particulars:		



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JW 14.2

CERTIFICATION

I, THE UNDERSIGNED (FULL NAME).....

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

**I ACCEPT THAT, IN ADDITION TO CANCELLATION OF A CONTRACT, AC-
TION MAY BE TAKEN AGAINST ME SHOULD THIS DECLARATION PROVE
TO BE FALSE.**

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

CERTIFICATE OF INDEPENDENT BID DETERMINATION JW MBD 9

1. This Municipal Bidding Document (MBD) must form part of all bids¹ invited.
2. Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).² Collusive bidding is a *pe se* prohibition meaning that it cannot be justified under any grounds.
3. Municipal Supply Regulation 38 (1) prescribes that a supply chain management policy must provide measures for the combating of abuse of the supply chain management system, and must enable the accounting officer, among others, to:
 - a. take all reasonable steps to prevent such abuse;
 - b. reject the bid of any bidder if that bidder or any of its directors has abused the supply chain management system of the municipality or municipal entity or has committed any improper conduct in relation to such system; and
 - c. cancel a contract awarded to a person if the person committed any corrupt or fraudulent act during the bidding process or the execution of the contract.
4. This MBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.
5. In order to give effect to the above, the attached Certificate of Bid Determination (MBD9) must be completed and submitted with the bid:

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

² Bid rigging (or collusive bidding) occurs when businesses, that would otherwise be expected to compete, secretly conspire to raise prices or lower the quality of goods and / or services for purchasers who wish to acquire goods and / or services through a bidding process. Bid rigging is, therefore, an agreement between competitors not to compete.

JW MBD 9

CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

(Bid Number and Description) in response to the invitation for the bid made by:

(Name of Municipality / Municipal Entity) do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of _____ that:
(Name of Bidder)

1. I have read, and I understand the contents of this Certificate;
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder;
5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:
 - (a) has been requested to submit a bid in response to this bid invitation;
 - (b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
 - (c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder
6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium³ will not be construed as collusive bidding.
7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
 - (a) prices;
 - (b) geographical area where product or service will be rendered (market allocation)
 - (c) methods, factors or formulas used to calculate prices;
 - (d) the intention or decision to submit or not to submit, a bid;
 - (e) the submission of a bid which does not meet the specifications and conditions of the bid; or
 - (f) bidding with the intention not to win the bid.

8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.
9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

³ Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

10. I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No. 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No. 12 of 2004 or any other applicable legislation.

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder



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Contract No JW14087

**PANEL OF PROFESSIONALS TO CONDUCT GEOTECHNICAL INVESTIGATION SERVICES ON AS-AND-WHEN BASIS FOR
A PERIOD OF 36 MONTHS**





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Contract No JW14087

PAINT OF PROFESSIONALS TO CONDUCT GEOTECHNICAL INVESTIGATION SERVICES ON AS-AND-WHEN BASIS FOR A PERIOD OF 36 MONTHS



T2.1.5 Proposed Qualifications

The Tenderer should record any deviations or qualifications he may wish to make to the tender documents in this Returnable Schedule. Alternatively, a tenderer may state such qualifications in a covering letter to his tender and reference such letter in this schedule.

The Tenderer's attention is drawn to clause C.3.8 of the Standard Conditions of Tender referenced in the Tender Data regarding the employer's handling of material qualifications.

Page	Clause or item	Proposal

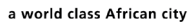
Signed

Date

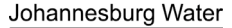
Name

Position

Tenderer



PAID TO PROFESSIONALS TO CONDUCT GEOTECHNICAL INVESTIGATION SERVICES ON AS-AND-WHEN BASIS FOR A PERIOD OF 36 MONTHS



A detailed description of the nature of works must be provided for all projects listed below must be supported by a Completion Certificate and reference letters (T2.1.7).

Each Tenderers project listed in T2.1.6 above must be supported by a completion certificate/final approval certificate and reference letters as per format T2.1.7. Tenderer's to note that work completed as a subcontractor will also require confirmation letter from the client as per schedule T2.1.7.



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Contract No JW14087

**PANEL OF PROFESSIONALS TO CONDUCT GEOTECHNICAL INVESTIGATION SERVICES ON AS-AND-WHEN BASIS FOR
A PERIOD OF 36 MONTHS**



Signed _____ Date _____

Name _____ Position _____

Tenderer _____



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Contract No JW14087

PAANEL OF PROFESSIONALS TO CONDUCT GEOTECHNICAL INVESTIGATION SERVICES ON AS-AND-WHEN BASIS FOR
A PERIOD OF 36 MONTHS



T2.1.7 Contactable reference template

Note : Please see NB at bottom of page.

To Johannesburg Water (SOC) Ltd

I, the undersigned being duly authorized to do so, hereby furnish a reference to Johannesburg Water relative to tender JW..... for

Name of tenderer:_____

Description of goods / service provided_____

Duration / time when the above was provided_____

Approximate value of the goods/ service provided_____

Was their performance satisfactory? Yes / No*

Were the quality / specifications complied with Yes / No*

If No, please furnish details.....

Will you recommend this supplier to anyone without reservations: Yes / No

Rate this supplier out of a possible score of 5 with 5 being excellent and 1 being unacceptable.

Name of authorised person: _____Signature:_____

Telephone: _____e-mail_____date_____

Completed on behalf (name of business)

Official stamp

NB: This document must be completed in full by the referee and included in the tender submission. Alternatively, the client's letterhead may be used for this purpose provided it complies with all the above requirements.. A separate form must be completed for each reference as required in the evaluation criteria. Failure to adhere to this requirement will result in such tender being prejudiced.

Information provided will be verified and if found to be false or misrepresented, punitive measures will be instituted against the respective party including blacklisting and restriction from participating in any future government tender.



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Contract No JW14087

PAANEL OF PROFESSIONALS TO CONDUCT GEOTECHNICAL INVESTIGATION SERVICES ON AS-AND-WHEN BASIS FOR A PERIOD OF 36 MONTHS



T2.1.7 Contactable reference template

Note : Please see NB at bottom of page.

To Johannesburg Water (SOC) Ltd

I, the undersigned being duly authorized to do so, hereby furnish a reference to Johannesburg Water relative to tender JW..... for

Name of tenderer: _____

Description of goods / service provided _____

Duration / time when the above was provided _____

Approximate value of the goods/ service provided _____

Was their performance satisfactory? Yes / No*

Were the quality / specifications complied with Yes / No*

If No, please furnish details.....

Will you recommend this supplier to anyone without reservations: Yes / No

Rate this supplier out of a possible score of 4 with 4 being excellent and 1 being unacceptable.

Name of authorised person: _____ Signature: _____

Telephone: _____ e-mail _____ date _____

Completed on behalf (name of business)

Official stamp

NB: This document must be completed in full by the referee and included in the tender submission. Alternatively, the client's letterhead may be used for this purpose provided it complies with all the above requirements.. A separate form must be completed for each reference as required in the evaluation criteria. Failure to adhere to this requirement will result in such tender being prejudiced.

Information provided will be verified and if found to be false or misrepresented, punitive measures will be instituted against the respective party including blacklisting and restriction from participating in any future government tender.



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Contract No JW14087

PAANEL OF PROFESSIONALS TO CONDUCT GEOTECHNICAL INVESTIGATION SERVICES ON AS-AND-WHEN BASIS FOR A PERIOD OF 36 MONTHS



T2.1.7 Contactable reference template

Note : Please see NB at bottom of page.

To Johannesburg Water (SOC) Ltd

I, the undersigned being duly authorized to do so, hereby furnish a reference to Johannesburg Water relative to tender JW..... for

Name of tenderer: _____

Description of goods / service provided _____

Duration / time when the above was provided _____

Approximate value of the goods/ service provided _____

Was their performance satisfactory? Yes / No*

Were the quality / specifications complied with Yes / No*

If No, please furnish details.....

Will you recommend this supplier to anyone without reservations: Yes / No

Rate this supplier out of a possible score of 4 with 4 being excellent and 1 being unacceptable.

Name of authorised person: _____ Signature: _____

Telephone: _____ e-mail _____ date _____

Completed on behalf (name of business)

Official stamp

NB: This document must be completed in full by the referee and included in the tender submission. Alternatively, the client's letterhead may be used for this purpose provided it complies with all the above requirements.. A separate form must be completed for each reference as required in the evaluation criteria. Failure to adhere to this requirement will result in such tender being prejudiced.

Information provided will be verified and if found to be false or misrepresented, punitive measures will be instituted against the respective party including blacklisting and restriction from participating in any future government tender.

T2.1.8 Schedule of Key Personnel

In terms of the Project Specification and the Conditions of Tender, unskilled workers may only be brought in from outside the local community if such personnel are not available locally.

The Tenderer shall list below the personnel which he intends to utilize on the Works, including key personnel which may have to be brought in from outside if not available locally.

CATEGORY OF EMPLOYEE	NUMBER OF PERSONS					
	KEY PERSONNEL, PART OF THE CONTRACTOR'S ORGANISATION		KEY PERSONNEL TO BE IMPORTED IF NOT AVAILABLE LOCALLY		UNSKILLED PERSONNEL TO BE RECRUITED FROM LOCAL COMMUNITY	
	HDI	NON-HDI	HDI	NON-HDI	HDI	NON-HDI
Technical Project Manager						
Senior Engineering Geologist / Senior Geo-Technologist						
Engineering Geologist / Geo-Technologist						
Others:						

SIGNATURE:.....

DATE:

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



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PANEL OF PROFESSIONALS TO CONDUCT GEOTECHNICAL INVESTIGATION SERVICES ON AS-AND-WHEN BASIS FOR A PERIOD OF 36 MONTHS



T2.1.9 Curriculum Vitae of Key Personnel

Senior Engineering Geologist / Senior Geo-Technologist

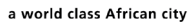
Name:	Date of birth:
Profession:	Nationality:
Qualifications:	
Professional Registration Number:	
Name of Employer (firm):	
Current position:	Years with firm:
<u>Employment Record:</u>	
<u>Experience Record Pertinent to Required service:</u>	

Certification:

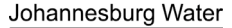
I, the undersigned, certify that, to the best of my knowledge and belief, this data correctly describes me, my qualifications and my experience.

.....
Signature of person named in the schedule

.....
Date



**GEOTECHNICAL INVESTIGATION SERVICES ON AS-AND-WHEN BASIS FOR
A PERIOD OF 36 MONTHS**



Engineering Geologist / Geo-Technologist

[illegible]**Certification:**

I, the undersigned, certify that, to the best of my knowledge and belief, this data correctly describes me, my qualifications and my experience.

Signature of person named in the schedule

Date



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Contract No JW14087

PANEL OF PROFESSIONALS TO CONDUCT GEOTECHNICAL INVESTIGATION SERVICES ON AS-AND-WHEN BASIS FOR
A PERIOD OF 36 MONTHS



T2.2 LIST OF RETURNABLE DOCUMENTS

Document

Page

2. Other documents required only for tender evaluation purposes

T2.2.2	SARS Tax Compliance Status Pin and Proof of CSD registration ie MA xxxxxxxxxxxx number	RD.37
--------	---	-------



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Contract No JW14087

PANEL OF PROFESSIONALS TO CONDUCT GEOTECHNICAL INVESTIGATION SERVICES ON AS-AND-WHEN BASIS FOR
A PERIOD OF 36 MONTHS



T2.2.2 SARS Tax Compliance Status Pin and Proof of CSD registration

The Tenderer must attach hereto a copy SARS Tax Compliance Status Pin and Proof of CSD registration ie MA xxxxxxxxxxx number.



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Contract No JW14087

PANEL OF PROFESSIONALS TO CONDUCT GEOTECHNICAL INVESTIGATION SERVICES ON AS-AND-WHEN BASIS FOR
A PERIOD OF 36 MONTHS



T2.4 LIST OF RETURNABLE SCHEDULES

Document

Page

4. Other documents that will be incorporated into the contract

T2.4.1	Addenda to the tender documents	RD.40
T2.4.2	Minutes of the pre-tender clarification meeting and site inspection	RD.41
T2.4.3	JW6.4 Acknowledgement of JW Volume 3 OHS Specs	RD.42



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PANEL OF PROFESSIONALS TO CONDUCT GEOTECHNICAL INVESTIGATION SERVICES ON AS-AND-WHEN BASIS FOR
A PERIOD OF 36 MONTHS



T2.4.1 Addenda to the Tender Documents

Copies of all Addenda to the tender documents which have been issued by the Employer will be inserted here by the Employer.



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PANEL OF PROFESSIONALS TO CONDUCT GEOTECHNICAL INVESTIGATION SERVICES ON AS-AND-WHEN BASIS FOR
A PERIOD OF 36 MONTHS



T2.4.2 Minutes of the Pre-Tender Clarification Meeting and Site Inspection

The will be no meeting or inspection to be conducted.

T2.4.3

JW 6.4

Returnable Annexure A: Acknowledgement of SHE Specification & Annexures

DECLARATION BY CONTRACTOR

I, the undersigned, and representing the tenderer as indicated hereby acknowledge that I have obtained copies of the following listed documentation and confirm that I fully understand the contents thereof and confirm compliance thereto in the event of being successful:

- OHS Specification (Volume 2)
- Annexure 1: Baseline Risk Assessment
- Annexure 2: Medical Screening Policy
- Annexure 3: Contractor Competency Evaluation
- Annexure 4: Sign off form
- Annexure 5: Environmental Management Plan
- Annexure 6: Waste Management Plan

We furthermore commit to:

- Comply with all applicable SHE related legal and other requirements.
- Inform all staff of their role in managing environmental impacts and safety hazards on site.

Signed at on this Day of 20.....

Name of tenderer	
Name of Authorized person	
Authorized Signature*	

*Signature must be as per form JW 3.3 as applicable

Johannesburg Water (SOC) Ltd



CONTRACT JW14087

GEOTECHNICAL INVESTIGATION SERVICES FRAMEWORK CONTRACT

VOLUME 1

AGREEMENT AND CONTRACT DATA

SCOPE OF WORK

Prepared By:
Programme Management Unit
PO Box 61542
Marshalltown 2107

Tel. +27 11 688 6682

Vol. 2.0

Fax +27 11 688 6604

March 2020

Employer:		Contractor:	
Witness:		Witness:	

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Employer:		Contractor:	
Witness:		Witness:	

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Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
Part	C1	C2	C3	A

C1 AGREEMENTS AND CONTRACT DATA

C1.1 Form of Offer and Acceptance

C1.1.1 Offer

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

Geotechnical investigation consultancy services to ensure that all construction projects the Employer executes during Contract Period of Performance complies with the requirements of all acts. The assignment will be for a period of thirty-six (36) months.

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

By the representative of the Tenderer, deemed to be duly authorised, signing this part of this Form of Offer and Acceptance, the Tenderer offers to perform all of the obligations and liabilities of the Service Provider under the Contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the Conditions of Contract identified in the Contract Data.

This Offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document to the Tenderer before the end of the period of validity stated in the Tender Data, whereupon the Tenderer becomes the party named as the Service Provider in the Conditions of Contract identified in the Contract Data.

Signature

Name

Capacity

for the Tenderer

.....

(Name and address of organization)

Name and signature

of witness NameSignature

Date

**NB: FAILURE TO COMPLETE AND SIGN THIS FORM AS REQUIRED WILL RESULT IN
ELIMINATION**

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
Part	C1	C2	C3	A

**Geotechnical Investigation Services
Framework Contract**

Agreement and Contract Data

C1.1.2 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 Service Provider 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.

and drawings and documents or parts thereof, which may be incorporated by reference into Parts 1 to 3 above.

Deviations from and amendments to the documents listed in the Tender Data and any Addenda thereto as listed in the tender schedules as well as any changes to the terms of the offer agreed by the Tenderer and the Employer during this process of offer and acceptance, are contained in the schedule of deviations attached to and forming part of this Agreement. No amendments to or deviations from said documents are valid unless contained in this schedule, which must be signed by the authorised representative(s) of both parties.

The Tenderer shall within two weeks after receiving a completed unsigned 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 proof of insurance and any other documentation to be provided in terms of the Conditions of Contract identified in the Contract Data. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this Agreement.

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

Signature Name

Capacity

for the Employer

(Name and address of organisation)

Witness NameSignature.....

Date

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
Part	C1	C2	C3	A

**Geotechnical Investigation Services
Framework Contract
Agreement and Contract Data**

C1.1.3 Schedule of Deviations

1. Subject: _____
Details: _____
2. Subject: _____
Details: _____
3. Subject: _____
Details: _____
4. Subject: _____
Details: _____

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

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

For the Tenderer:

Signature

Name

Capacity

.....

Organization.....

Witnesses

Name	Signature
.....	
.....	

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
Part	C1	C2	C3	A

**Geotechnical Investigation Services
Framework Contract
Agreement and Contract Data**

For the Employer

Signature Name

Capacity

Organization.....

Witnesses

Name

Signature

.....

.....

.....

.....

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
Part	C1	C2	C3	A

C1.2 Contract Data

C1.2.1 General Conditions of Contract

The Conditions of Contract are the *Standard Professional Services Contract (July 2009)* published by the Construction Industry Development Board (CIDB). A copy of this document may be obtained from the CIDB's website www.cidb.org.za

The followings parts are contained in this document:

Part 1: Definitions

Part 2: Interpretation

Part 3: General

Governing law

Change in legislation

Language

Notices

Location

Publicity and publication

Confidentiality

Variations

Sole agreement

Indemnification

Penalty

Equipment and materials furnished by the Employer

Illegal and impossible requirement

Programme

Part 4: Employer's Obligations

Information

Decisions

Assistance

Services of Others

Notice of change by Employer

Issue of instructions

Payment of Service Provider

Part 5: Service Provider's Obligations

General

Exercise of authority

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
Part	C1	C2	C3	A

**Geotechnical Investigation Services
Framework Contract
Agreement and Contract Data**

Designated representative

Insurances to be taken out by the Service Provider

Service Provider's actions requiring Employer's prior approval

Co-operation with Others

Notice of change by Service Provider

Part 6: Conflicts of Interest

Service Provider not to benefit from commissions, discounts, etc.

Royalties and the like

Independence

Part 7: Service Provider's Personnel

Provision of Personnel

Staff equipment

Working hours, overtime and leave

Part 8: Commencement, Completion, Modification, Suspension and Termination of the Contract

Commencement

Completion

Force Majeure

Termination

Suspension

Rights and liabilities of the Parties

Part 9: Ownership of Documents and Copyright

Part 10: Assignment

Part 11: Subcontracting

Part 12: Resolution of Disputes

Settlement

Mediation

Adjudication

Arbitration

Part 13: Liability

Liability of the Service Provider

Liability of the Employer

Compensation

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
Part	C1	C2	C3	A

**Geotechnical Investigation Services
Framework Contract
Agreement and Contract Data**

Duration of Liability

Limit of Compensation

Indemnity by the Employer

Exceptions

Part 14: Remuneration and Reimbursement of Service Provider

Part 15: Amounts Due to The Employer

Part 1: Contract Data completed by the Employer:

3.4 The Employer is Johannesburg Water (SOC) Ltd.

4.3.2 The authorized and designated representative of the Employer is:

Name and Surname: **William Chitsa**

Physical Address: 17 Harrison Street, Marshalltown, Johannesburg

Telephone: **011 688 1671**

Facsimile: 011 688 1521

Email: william.chitsa@jwater.co.za

1 The Service is to offer the Employer Geotechnical Investigation services as and when required by the Employer to enable the proper design of particular projects including for as-built drawings on completion of the projects.

1 The Period of Performance is for thirty-six (36) months. During this period, the Employer will issue out work packages by means of "Works Orders". The completion date of each works order will be indicated on the works order.

3.5 The location for the performance of the Contract shall be within the area of jurisdiction of the Employer. For Contract project specific locations refer to the Scope of Works Section.

3.12 The penalty shall be R1,500.00 per day for non-performance subject to a maximum amount of R15,000.00 **for a duration of each work package allocated**, after which the Employer reserves the right to terminate the Agreement with the Service Provider.

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
Part	C1	C2	C3	A

**Geotechnical Investigation Services
Framework Contract**

Agreement and Contract Data

3.15.1 Submission of Contract programme shall be within 5 days of the instruction to carry work on each project/assignment.

5.4.1 The Service Provider is required to provide Professional Indemnity Insurance to a minimum of R1 000 000.00 payable for each and every claim. In the event of a Joint Venture or Consortium, the Lead Consultant shall be responsible to provide the Professional Indemnity Insurance for the entire Contract or Contracts tendered on.

7.2 The Service Provider is required to provide the following personnel:

- a) 1 x Technical Project Manager – 4-5 Years experience as a Technical Project Manager
- b) 1 x Senior Engineering Geologist/Senior Geo-Technologist – 3-4 years experience as a Senior Engineering Geologist/Senior Geo-Technologist
- c) 1 x Engineering Geologist/Geo-Technologist – 2-3 years Experience as a Engineering Geologist/Geo-Technologist

9.1 Copyright of the documents prepared shall be invested with the Employer.

12.1 Interim settlement of disputes is to be by Mediation.

12.2/12.3 Final settlement is by Arbitration.

12.2.1 In the event that the parties fail to agree on a mediator, the mediator is nominated by SAICE

3.15.2 Variations to the General Conditions of Contract

Penalty (Clause 3.12)

Add to clause 3.12, sub-clause 3.12.3:

“Performance Criteria

The Service Provider shall note that his service provision forms an integral part of the total service delivery scope of the Employer, and that any delay or non-provision or negligent provision thereof may seriously affect the provision of the other related-services. Additionally this Contract also constitutes either a near-long-term or long-term contract in terms of the

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
Part	C1	C2	C3	A

**Geotechnical Investigation Services
Framework Contract**

Agreement and Contract Data

Supply Chain Management Regulations. Both these factors require that the Employer establish important performance criteria to ultimately ensure full service delivery to his customers. The following performance criteria have been established by the Employer and any failure to meet any of these criteria shall result in the application of a performance penalty, per offence, as per sub-clause 3.11.2.

- a) Failure to complete the requested Geotechnical Investigations timeously.
- b) Failure to submit correct, adequate geotechnical data (as highlighted in section 3.4), evaluations and recommendations report/s timeously.
- c) Failure to submit the geotechnical data and evaluation and recommendation report/s and any other relevant information in the required format.

3.15.4 Additions to the General Conditions of Contract

The additional Conditions of Contract are that senior key personnel must be professionally registered with a recognized South African statutory body, for the relevant industry in which the Service Provider practices i.e. Engineering Council of South Africa or South African Council for Natural Scientific Professions, (SACNASP) for Professional and Technical Engineers/Geologists/Geo-technologists or SACPCMP.

Transfer of Contracts

The Service Provider shall not abandon, transfer, cede assign or sublet the Contract or part thereof without the written permission of the Employer.

Amendment of Contract

No agreement to amend or vary the Contract or order or the conditions, stipulations or provisions thereof shall be valid and of any force unless such agreement to amend or vary is entered into in writing and signed by the contracting parties. Any waiver of the requirement that the agreement to amend or vary shall be in writing, shall also be in writing.

Contract Scope

The Contract scope shall be limited to the:

- a) type of work as defined in the Scope of Work section of this Contract and made-up of various projects; and
- b) projects issued during the Period of Performance.

Projects that have been issued for implementation by the Employer before the Contract conclusion date, but not completed before the Contract conclusion date shall be completed by the Service Provider, based on the agreed programme.

Employer:		Contractor:	
Witness:		Witness:	

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Contract Expectations

The Service Provider acknowledges that the list of projects provided, during the procurement stage, by the Employer is in good faith to be used as a guide of potential projects to be undertaken during the period of this Contract, to allow for better pricing and resource allocation. However, no claims shall be entertained from the Service Provider should these projects not be implemented or only partially implemented by the Employer.

Process of Work Issue

The Service Provider acknowledges that at the commencement date of the Contract that no work exists. However, as work as per Scope of Works and in the allocated area of this Contract becomes available for implementation during the Period of Performance, the Employer undertakes to issue such work to the Service Provider for implementation.

a) Project Issue

Once appointed the Employer may issue numerous projects for implementation by the Service Provider, during the Period of Performance at the tender appointed and agreed fee prices and rates, by means of a Work Order. The Service Provider shall thus only commence with a project on receipt and formal acceptance of such Work Order.

b) Acceptance of Work Order Issue

The Service Provider shall formally acknowledge acceptance of a Work Order, by providing the Employer with a project cost implication based on the tender appointed or agreed fee prices or rates, project programme, resource schedule, resource organogram and project manager. Additionally the Service Provider shall provide an updated consolidated (all active projects) Contract report on financial, resource, organogram and programme.

c) No Work Order Issued

If the Service Provider commences with a project without an official Work Order from the Employer, the Employer shall not be responsible for any payment to the Service Provider for such work carried-out.

d) Non-acceptance of Work Order Issued

Where the Service Provider refuses to accept a Work Order, for what ever reason, the Employer reserves the right to either or in combination:

- i) issue such work to another appointed Service Provider;
- ii) cancel part of the Contract, related to the non-accepted Work Order;

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
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- iii) cancel the entire Contract; or
- iv) appoint another Service Provider to execute the all service related to the non-accepted Work Order.

Reporting

Geotechnical investigations for proposed sites should be generally divided into three separate phases to minimize costs and for developing the necessary data at each stage of the approval, design, and construction of a project:

- Preliminary Investigation Report: Provide adequate information to justify site selection and preliminary cost estimates as applicable.
- Initial Design Investigations Report: Provide information necessary to obtain regulatory approvals, refine cost estimates, and develop engineering and environmental data.
- Final Design Investigations Report: Provide information necessary for developing plans and specifications, obtaining bids, and constructing the project.

The Service Provider shall be required to also complete monthly progress reports per project by means of the internet before he will be allowed to complete the payment certificate required. Reporting will include technical and financial matters related to each project issued under this Contract. To this end, the Service Provider shall make himself available for a progress reporting training session to be facilitated by the Employer, within five days of Contract appointment conclusion.

Payment

Payment for the Contract shall be electronic, thus the Service Provider shall ensure the Employer always has the most updated banking information of the Service Provider. The Employer:

- a) shall provide a payment certificate completion and submission training at the same session as for the progress reporting training session; and
- b) requires that the Service Provider invoice per individual active Contract project.

Service Completion Certificate

Service Completion shall be either the stage when the service provider has successfully completed a work package and formally accepted by the employer.

Record Information

The Service Provider shall be responsible for maintaining all Record Information (site investigations, geotechnical data, photographic records, laboratory results, geotechnical evaluation and recommendation report, variations, payments, etc) during the Period of Performance, in hard and electronic (in the software version) copy. Such Record Information

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
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shall be finally and formally submitted to the Employer of project or Contract Implementation Completion.

Performance Fee

No Performance fee will be charged as the full invoice will only be processed upon submission of complete and final geotechnical report.

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
Part	C1	C2	C3	A

Part 2: Data provided by the Service Provider

The Service Provider is:

Physical Address:

Postal Address:

Telephone:

Facsimile:

The authorized and designated representative of the
Service Provider is:

Physical Address:

Postal Address:

Telephone:

Facsimile:

The period of performance is:

The Key persons and their jobs/functions in relation to the services are:

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
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Name	Specific duties

----END OF PART ----

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
Part	C1	C2	C3	A

C2 PRICING DATA

C2.1 Pricing Instructions

C2.1.1 General

Fees for the services required shall be priced on a **Unit Rate** basis. The quantities shall vary from project to project during implementation. The following shall be noted:

- The Service Provider shall be required to submit quotations for specific work packages on an as and when basis.
- The quotation totals for each work order shall cover all material, labour, equipment, transportation, overheads and expertise required to undertake the work.
- The Service Provider shall pay all taxes, duties, fees, levies and other impositions without separate reimbursement by the Employer.
- VAT on fees payable to the South African Revenue Services shall be indicated separately on each invoice submitted by the Service Provider.
- All activities or tasks shall be invoiced on a monthly basis, based on work successfully completed and accepted by the Employer.

C2.1.2 Contract Price Adjustment

Contract Price Adjustment shall not be applicable.

C2.1.3 Disbursement Costs

The Service Provider shall recover the cost of all actual incurred expenses plus the percentage mark up, in the process of successfully executing the project, taking into account the following;

- All disbursement costs not included in the tendered Rates shall be included in the item covering Disbursement Costs.
- All claimed expenses must be pre-approved by the Employer.
- Mark-up on actual expenses shall not exceed **10%** of the cost of the actual expense.
- Proof of all actual expenses, original receipt of payments, shall be made available to the Employer, for all disbursements.

C2.1.4 Establishment Costs (P&Gs)

All establishment costs are deemed to have been included in the other rates. There are no separate costs for Establishment.

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
Part	C1	C2	C3	A

Pricing Data

**Geotechnical Investigation Services
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C2.1.5 OHS Costs

The Service Provider shall be required to submit a Health and Safety File to Johannesburg Water for approval before commencement of Contract. The Service Provider will also be required to comply with OHS Act 1993 during implementation. A lump sum amount will be paid once off for each Work Package.

--- END OF PART ---

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
Part	C1	C2	C3	A

C3 SCOPE OF WORK

C3.1 Employer's Objectives

The objective of the Employer is to appoint an experienced Service Provider to provide geotechnical investigation in either greenfield areas or where there are existing water and sewer projects. The project shall cover the entire City of Johannesburg where Johannesburg Water supplies services. The geotechnical investigation report shall provide clear guidance to the Engineer, enabling him to select the most appropriate solutions for pipeline designs and foundation types for pump stations as applicable. This will enable the contractor to tender a realistic price for the construction of the work and to select the most appropriate equipment and techniques therefore.

The emplacement of this contract is intended for a period of **36 Months**. Johannesburg Water SOC (Ltd) reserves the right to award the contract in whole or in part and to more than one contractor.

C3.2 Description of the Services

The Service Provider shall be required to carry out the services as governed by the Engineering Council of South Africa, (ECSA, Act No. 46 of 2000) or South African Council for Natural Scientific Professions, (SACNASP Act No. 27 of 2003) as applicable and thus the geotechnical recommendations provided should be sound and adequate to enable the Engineer to produce designs and execute and construction projects properly during the Contract Period of Performance.

Geotechnical services, evaluations and recommendations related to design of pump stations, reservoirs and pipelines, shall be conducted by a qualified, experienced Geotechnical Engineer or Geologist with current professional registration with the relevant professional body as Engineering Council of South Africa, (ECSA) or South African Council for Natural Scientific Professions, (SACNASP) respectively. The Geotechnical professional shall have experience on previous pump station, reservoirs and pipelines projects including large diameter pipelines, previous local experience and knowledge of local soil and geological conditions and construction practices.

C3.4 Extent of the Services

The Service Provider's shall be required to provide the summarised minimum services, among others:

- a) Way leave application
- b) Site reconnaissance investigation
- c) Geophysical investigations
- d) Detailed investigations – trial pits or soil boring as applicable.
- e) Logging and profiling.
- f) Soil corrosion potential

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
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- g) Laboratory testing
- h) Compliance to environmental, health and safety acts
- i) Geotechnical data report
- j) Geotechnical evaluation and recommendations report
- k) Monitoring services during construction phase in Dolomitic conditions

The above services shall only be required for the stated Contract Period of Performance.

C3.5 Brief

C3.5 Scope

This Specification describes in general terms the requirements for the geotechnical investigation, evaluation, recommendation and reporting.

Generally the scope of the Works is as follows.

C3.5.1 Reservoirs and Pump Stations

The Geotechnical Professional shall be responsible for providing an evaluation of the site to determine the minimum number and the depth of exploratory borings required for the design of a pump station or reservoir structure.

The Geotechnical Professional shall obtain samples for material classification and conduct laboratory testing. Laboratory testing shall include pH, sulphates, total salts, chloride, and moisture content determinations on selected samples. Single point soil resistivity tests will also be performed on these samples at in-situ and saturated conditions.

C3.5.1.1 Design Parameters

The following are minimum design parameters to be addressed:

- Active and passive soil pressure
- At rest soil pressure
- Total and differential settlement
- Design bearing capacity and recommended foundation system.
- Minimum footing embedment
- Temporary and permanent fill and cut slope
- Groundwater
- Corrosive soils
- Expansive soils

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
Part	C1	C2	C3	A

Scope of Work

- Observed hazardous materials requiring further action
- Borings or test pit excavations plotted on a suitable map in the report.
- Provide X, Y, Z locations for all boring or test pits
- Collapsible soils

C3.5.2 Pipelines

For new and existing pipeline routes, the objectives of the investigation shall include but not limited to the following:

- Identify site geology and surface and sub-surface features along the alignment that may affect construction of the pipeline
- Categorise the excavation conditions along the pipeline route (including shallow bedrock, boulders etc.
- Identify problem soils (expansive, collapsible, and subsidence) with recommendations and remedial measures.
- Assessment of suitability of trench materials as bedding and selected backfill.
- Delineate areas of high water table and establish de-water needs.
- Assess the potential corrosiveness of buried steel and concrete pipes.
- Dolomite stability assessment and information where necessary.

The following is a descriptive guide to the activities that may be done in various stages of the investigation:

C3.5.3 Way Leave Application

As some of the work will be done in built up areas with above and underground services, the Service Provider will therefore be required to obtain permits and way leaves from all the applicable service providers within the jurisdiction of the CoJ, thus including but not limited to the following services: roads and storm water (JRA), bulk water supply (Rand Water), electricity (Eskom and City Power), gas (Egoli Gas), telecommunications (Telkom).

The Employer will assist the service provider to obtain clearance from the various departments with services that are likely to be affected by the contract. It is, however, the service provider's responsibility to obtain final permit and wayleave approval according to applicable procedures and specifications. In the case of JRA, this will be as per the CoJ COP. Further, a processing fee per wayleave will be payable to cover the cost of processing and approval of the JRA wayleave applications.

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
Part	C1	C2	C3	A

C3.5.4 Site Reconnaissance Investigation

- Data review of published geologic reports/information, geologic maps, studies, ground water and soil maps, regional seismic and geological data and other available subsurface information in the project vicinity.
- Identification of geologic hazards along the pipelines route.
- Evaluation of potential construction constraints and development of possible mitigation.
- Engineering observation of the following items shall be included as part of the examination:
 - Vegetation.
 - Existing improvements.
 - Adjacent structures and facilities.
 - Surface features (including drainage ways).
 - Unusual conditions (landslides, subsidence, rock outcroppings).
 - Nearby construction (observe slopes, excavations, exposed soils).

C3.5.5 Geophysical Investigations

Where practicable, a geophysical investigation shall be undertaken and shall comprise a seismic or resistivity or gravimetric or electromagnet evaluation of the subsurface conditions of sufficient extent and depth in order to assist in the selection of the most economic detailed investigation as well as in the siting of foundations.

C3.5.6 Detailed Investigations – Trial pits

The purpose of exploratory holes is to permit visual examination, testing of the in situ material and for the recovery of samples.

Generally hand or machine (back actor) excavated test pits should be put down first, followed by large diameter auger holes and finally small diameter cored holes.

For pipelines, it is preferred, that the trial pits be excavated to approximately the base of the pipeline trench or a maximum depth of 5m (subject to refusal depth of the equipment), at intervals of 150m. This will reduce the possibility of having to excavate additional trial pits if the pipe elevation is later changed during design. However due to the varying site conditions, the proposal shall be made by the geotechnical professional for the following:

- The interval of the trial pits,
- The ultimate number of trial pits
- The maximum excavation depth of the trial pit (subject to refusal of the equipment).

Note: For each project, no works shall be done by the geotechnical professional before approval by the Engineer of the proposed methodology/recommendation prior to investigation.

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Witness:		Witness:	

Volume	1	2		
Part	C1	C2	C3	A

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The service provider shall adequately support the sides of pits and trenches at all times to protect anyone entering and working in the hole. The supports shall be placed so as to minimize interference with the taking of samples or inspection of the faces. The service provider shall take all necessary safety checks, including checking for noxious or toxic gases or materials, or radioactive materials.

After sampling, the service provider, should ensure that the trial pits and exposed services are reinstated to conditions existing prior and in accordance with the respective service provider specifications. In road reserves, JRA Specifications will apply for Backfilling and Reinstatement of Roads. Where applicable, the material intersected in the trial pits should be assessed for use as bedding and selected fill material. Where the material is not suitable for use as bedding and or selected fill, the service provider should make arrangements to ensure that material is imported from commercial sources.

C3.5.7 Logging and Profiling.

This work shall be carried out in accordance to applicable and acceptable standards such as:

- A guide to soil profiling for Civil Engineering purposes.
- A guide to core logging for Civil Engineering purposes.
- A guide to percussion bore hole logging.

Produced by SAIEG, SAICE Geotechnical Division and AEG, latest edition, edited by ABA Brink and RM Bruin.

C3.5.8 Corrosion Analysis and Evaluation

The data related to the soil corrosivity study should be collected during or as part of the geotechnical investigation. It will be important that the service provider coordinate the geotechnical investigation and the corrosivity investigation.

The need for corrosion control shall be determined through field investigations and laboratory analyses to assess the corrosion potential of the environment toward pump station facilities and site piping materials. Field investigations shall be conducted at all proposed pipe routes, pump station facilities and coordinated with geotechnical studies for efficiency in retrieving samples.

The corrosion potential of the soil is dependant on soil resistivity. Generally, as the soil resistivity decreases, corrosion increases. Also, as the soil moisture increases, resistivity decreases.

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
Part	C1	C2	C3	A

C3.5.9 Stray Currents:

The evaluation of stray current may require the use of specialty Geotechnologists with expertise in this area. It is the service providers responsibility to provide the necessary expertise to meet these requirements.

Field investigations shall include interviews with knowledgeable sources and measurements to determine the potential for stray current from both AC and DC sources. Possible sources of stray current include cathodic protection systems operated by other utilities or companies; electric transit systems, if any; overhead and buried power lines and industrial sources such as metal processors and welding shops.

Evaluations shall also consider the possible effects of cathodic protection systems on other buried utilities in the vicinity. It is the service provider's responsibility to contact the utility companies to determine the extent, if any, of a cathodic protection system in use.

C3.5.10 Laboratory Testing

The soil testing should be done by an accredited soils testing laboratory, approved by the Employer.

Laboratory tests required to be determined by the service provider. The minimum Laboratory test to include:

Civil Laboratory Tests

- Grading and Atterburg limits
- Chemical Testing
- Shear Box Testing
- MOD AASHTO Density

Chemical and corrosivity analysis.

Soil samples shall be collected for laboratory analysis of corrosive properties. Tests shall be conducted for the following parameters Chemical test and corrosivity analysis shall include the following:

- Test for pH, chlorides and sulphates.
- Electrical resistivity.
- Corrosion potential for buried pipelines.
- Cement type recommendations

The laboratory testing program should be prescribed by the service provider and reviewed and approved by the Engineer.

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
Part	C1	C2	C3	A

Scope of Work

The service provider should also note that, the results of field investigations and interviews coupled with laboratory tests shall be evaluated to determine also the needs for cathodic protection. The results shall be interpreted by persons experienced with corrosion control systems.

C3.5.11 Compliance to Environmental, Health and Safety Acts

It should be noted that all the activities associated with the investigation including, excavation of trial pits should be done with due diligence and care for the safety of the public and the environment. Compliance to the relevant specifications of the Occupational, Health and Safety Act and Environmental Acts should be adhered to.

C3.5.12 Geotechnical Data Evaluation Report

This should include geotechnical information accumulated in the field reconnaissance, data review if any, field explorations, field resistivity testing, laboratory testing, etc

As highlighted above, geotechnical evaluations and recommendations shall be conducted by a qualified geotechnical professional who is a Geotechnical Engineer or Geologist with current professional registration with Engineering Council of South Africa, (ECSA) or South African Council for Natural Scientific Professions, (SACNASP).

The geotechnical professional shall be qualified by the following:

- Experience on previous pump stations, reservoirs and pipelines including large diameter pipes projects
- Previous local experience
- Knowledge of local soil and geological conditions and construction practices.

The geotechnical professional shall be able to present examples of previous reports and shall provide references for previous local work.

C3.5.13 Geotechnical Data Report

Shall include but not limited to the following:

C3.5.13.1 Test pits data report

Detailed test pit logs shall be prepared for inclusion in the data report.

The minimum information to be presented on the test pit log is:

- Test pit number, location, elevation.
- Excavation contractor (company and operator name, office location).
- Equipment used (kind of equipment, approximate horsepower rating, bucket width, use of rippers).
- Water level, date and time measured.

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
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- Soil description.
- Comments (observations of excavation difficulty, stability of pit walls including the duration of observation, debris encountered, water seepage and infiltration rate, results of in situ tests, operator comments, etc.).
- Map on location of test pits.
- If cobbles and boulders are encountered in a test pit, the number and size of cobbles and boulders excavated from the test pit shall be noted; the relative amount of cobbles/boulders per volume excavation can then be calculated and presented in the Interpretation of Data section of the data report.
- If cemented materials are encountered along the pipeline alignment, their thickness and lateral extent should be estimated and their difficulty of excavation evaluated and presented in the Data section.

C3.5.13.2 Soil Borings

Shall be excavated to supplement or substitute for the soil test pits where permitted by the site features and where appropriate.

The minimum information to be provided on the **soil boring logs** is:

- Boring number, location, elevation.
- Drilling contractor (company name, office location),
- Drilling method, and equipment used.
- Water level, date and time measured.
- Soil description (see below).
- Comments (observations of drilling difficulty, driller's observations of material changes or boulders, addition or loss of drilling fluid, etc.).
- Map identifying boring locations.

C3.5.13.3 Soil descriptions.

Shall be in accordance with the relevant acceptable Standards or similar used in South African Industry and approved by the Engineer to provide soil information for engineering purposes. Geologic formations that are weathered to soil shall be described in accordance with their engineering properties; the geologic description may be presented following the engineering description. Geologic formation names should not be provided on the boring logs but may be described in the Interpretation of Data portion of the Geotechnical Data Report.

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
Part	C1	C2	C3	A

Scope of Work

The format and order for soil descriptions shall be presented in the boring logs

as follows:

- Soil name
- Group symbol.
- Color.
- Moisture content.
- Relative density or consistency.
- Other descriptors as appropriate (soil structure, mineralogy, particle size, shape, angularity, maximum particle size, plasticity of fines, dilatancy, cementation, etc.).

a) Bedrock

A surface evaluation of any encountered bedrock shall be performed. The evaluation shall describe discontinuities (type, orientation, roughness, planarity, infilling material and thickness, surface staining, and tightness) and lithology (rock type, color, mineralogy, hardness, and rock mass characteristics).

- b) **Lithology descriptions** must rely on professional judgment and experience, and local practice and terminology shall be used. For engineering purposes, general rock names are preferred over petrologically specific names (for example, sandstone and basalt are preferable rock names to arkose and tholeiite). Specific formation names may be provided in the

C3.5.13.4 Interpretation of Data Section of the data report.

C3.5.14 Geotechnical Recommendations Report.

The Geotechnical Recommendations Report will generally follow the Geotechnical Data Report as a companion volume; information already presented in the Data Report should generally not be repeated in the Recommendations Report. The Recommendations Report is intended for use by the Engineer; however this information may also be made available to prospective bidders. Provide recommendations on:

- Existing Conditions
- Hydrological conditions
- Dewatering needs
- Flooding and erosion potential
- Excavation characteristics/diggability

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
Part	C1	C2	C3	A

Scope of Work

- Suitability of trench soils for backfill and or processing requirements
- Trench stability, shoring requirements.
- Slope stability
- Shrink/swell potential/ expansive and collapsible soils
- Dolomite stability / ground subsidence
- Earthworks and stability next to existing pipeline and other structures.
- E values (and other parameters) for pipe thickness design and other design requirements.
- Corrosive soils.
- Possible construction constraints,
- Construction sequences
- Precautionary measures
- Dump sites.
- Borrow pits
- Crossings/trenchless crossings etc
- Traffic ability along the route for trucks carrying pipes.
- Mitigation alternatives to reduce potential impacts to proposed pipelines.
- Expected bearing capacity and settlement for the respective materials on which founding could be considered.
- Borings or test pit excavations plotted on a suitable map in the report.
- Provide X, Y, Z locations for all boring or test pits

It should be noted that a combined data and recommendations report (one that contains all of the elements of both reports) may be developed for small projects as agreed upon by the Geotechnical Professional and Engineer. Separation of the factual data (background, technical data, and data interpretation) from design recommendations provides a separation of factual and subjective information for the construction bidders and allows the design criteria to be modified as the project changes during the various design phases. Three (3) copies should be provided of each report per stage as discussed in C1.2.4.7.

C6 Use of Reasonable Skill and Care

The Service Provider shall exercise reasonable skill and care in respect of the services required as per the Extent of the Services section.

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
Part	C1	C2	C3	A

C7 Co-operation with other Service Providers and Contractors

The Service Provider shall be required, for the successful execution of his service provision, to interact with other service providers and principal contractors appointed by the Employer.

C8 Reference Data

The Employer shall provide the Service Provider with all reference data and locality maps of the areas to be investigated at the issue of each Work order.

C9 Particular Specifications

For the purpose of this Contract:

- a) Where gender terms are used, it shall be applicable to both male and female.

C10 Applicable National and International Standards

The following International standards (or similar used in the South African Industry and approved by the Engineer) shall be read in conjunction with these specifications as applicable to the service provision under this Contract:

BS 1377-1:1990	Soils for Civil Engineering Purposes – General Requirements and Sample Preparation
BS 1377-2:1990	Soils for Civil Engineering Purposes – Classification Tests
BS 1377-3:1990	Soils for Civil Engineering Purposes – Chemical and Electro-chemical Tests
BS 1377-5:1990	Soils for Civil Engineering Purposes – Compressibility, Permeability and Durability Tests
BS 1377-7:1990	Soils for Civil Engineering Purposes – Shear Strength Tests (Total Stress)
BS 5930:1990	Code of Practice for Site Investigation
BS EN 1997-2:2007	Geotechnical Design – Ground Investigation and Testing
ASTM D7012:2010	Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures
BS EN ISO 22475-1	Geotechnical Investigation and Testing – Sampling Methods and Groundwater Measurements: Technical Principles for Execution
BS EN ISO 22476-2	Geotechnical Investigation and Testing – Field Testing: Standards Penetration Test.

C11 Approvals

The Service Provider shall obtain approval from the Employer's representative with regard to the:

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
Part	C1	C2	C3	A

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- a) authorisation;
- b) stopping sections of the works or complete works, unless the reason for stopping section of the works or the complete works is required to ensure the safety of the public, employees or sub-contractors of the principle contractor.

C12 Procurement

The Service Provider will take account of the Employer's Preferential Procurement Policy and broad-based black economic empowerment ownership participation requirements for this Contract and note that:

- a) The Employer reserves the right to conduct broad-based black economic empowerment ownership participation audits during the Contract Period of Performance to ensure that the appointed broad-based black economic empowerment ownership is either maintained or improved during such period. Thus the Employer reserves the right to verify or re-verify the Service Provider's or any sub-contractor appointed by the Service Provider's Broad-based black economic empowerment status should he deem it necessary, without having to specify any reason. Such verification may be extended to include other preferential procurement criteria, should the Employer deem it necessary.
- b) where broad-based black economic empowerment ownership participation is altered during the Contract Period of Performance, the Service Provide shall formally notify the Employer and indicate *how and when* such 'lost' broad-based black economic empowerment ownership participation shall be re-established.

C13 Access to land / buildings / sites/Wayleaves

The Service Provider shall report to the principal contractor before entering the construction works site. The Service Provider shall be responsible for obtaining different wayleaves from Service Providers.

C14 Planning and Programming

C14.1 Planning

The Service Provider shall ensure that he:

- a) is well informed with regard to the Employer's overall implementation programme for projects and make available resources as required to efficiently complete required services on time to avoid delays to the implementation plan.

Employer:		Contractor:	
Witness:		Witness:	

Volume	1	2		
Part	C1	C2	C3	A

C14.2 Programming

The Service Provider shall, prior to commencement of any work, provide an activity schedule showing the total duration required to complete the geotechnical investigation required on each project.

The programme shall at minimum contain:

- a) Time Scale (minimum):
Days: Where the project period does not exceed three months.
Weeks: Where the project period exceeds three months.
- b) Tasks: Tasks shall be allocated timeframes. Where phases or stages are anticipated, all tasks related to the successful accomplishment of that phase of the project shall be grouped. Resources allocation and task dependency shall be indicated.
- c) Multiple Project Programming: Where multiple projects are part of the same Contract, the Service Provider shall provide a programme per project. However, where interdependency exists the programmes shall be integrated, but divided on the highest level per project followed subsequently by further divisions per phase or stage.
- d) Start and Finish Dates: All tasks shall have specific start and finish dates.
- e) Critical Path: All tasks forming the programme line that will establish any delays in the overall project period shall be clearly indicated and an indication of their sensitivity characteristics shall be provided.
- f) Progress Tracking: The Service Provider shall be required to periodically indicate the project progress per task graphically and on a percentage basis.
- g) Non-working Time: All South African public holidays, weekends and the local traditional annual builder's break shall be incorporated in the programme.

C15 Software Application for Programming

Only Windows Microsoft Project programming software package will be accepted.

C16 Format of Communications

All Contract communication shall be in English and in writing (letters, faxes and electronic mail).

C17 Key Personnel

To obtain the greatest benefit from the investigation, it is essential that there be adequate direction and supervision of the work by competent personnel who have appropriate knowledge and experience and the authority to decide on variations to the investigation when required. The Service Provider shall be required to allocate sufficiently experienced key personnel, who are also professionally registered with regard to the Engineering Council of South Africa, (ECSA, Act No. 46 of 2000) or South African Council

Employer:		Contractor:	
Witness:		Witness:	

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**Geotechnical Investigation Services
Framework Contract**

Scope of Work

for Natural Scientific Professions, (SACNASP Act No. 27 of 2003) requirements as applicable and the actual implementation thereof, to execute the Contract successfully. The following shall be the minimum key personnel required for each project executed:

- a) 1 X Senior Engineering Geologist/Senior Geo-Technologist
- b) 1 x Engineering Geologist/Geo-Technologist

C18 Management Meetings

The Service Provider:

- a) shall be required to attend monthly progress meetings with the Employer, at dates and venues to be agreed where technical and performance issues shall be discussed.

C19 Electronic Payments

The Service Provider shall provide all necessary information to facilitate effective electronic payment, as require by the Financial Department of the Employer.

C20 Professional Indemnity Insurances

The Service Provider shall provide two hard copies of the details of existing insurances with the returnable documents that form part of the Tender data. In the event of a Joint Venture or Consortium, the Lead Consultant shall be responsible to provide the Professional Indemnity Insurance for the entire Contract or Contracts tendered on.

C21 Daily Records

Where the Employer requires the Service Provider's to perform work on a time-and-cost basis, such work shall be remunerated on actual time and cost incurred by the Service Provider, who will be required to submit proof.

C22 Payment Certificates

The Service Provider shall be required to complete progress report before he will be allowed to complete the standard payment certificate required to be submitted with his tax invoice. If required by the Employer, the Service Provider shall make himself available for a progress reporting training session to be facilitated by the Employer.

C23 Use of Documents by the Employer

All information (communications, documents or reports, including specialists reports) compiled by the Service Provider in the course of performing the service required for this Contract are the property of

Employer:		Contractor:	
Witness:		Witness:	

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Scope of Work

the Employer and may not be used by the Service Provider for any other duties other than those relating to this Contract without prior approval by the Employer.

C24 Property provided for the Service Provider's use

The Service Provider shall provide all physical resources, including properties, for the successful execution of the Contract.

C25 Occupational Health and Safety File

The Service Provider shall be required to submit a Health and Safety File to Johannesburg Water for approval before commencement of any Work Package.

--- END OF PART ---

Employer:		Contractor:	
Witness:		Witness:	

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ANNEXURES

Johannesburg water extents – regional map

Employer:		Contractor:	
Witness:		Witness:	

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	PROJECT LOCATION:	VARIOUS LOCATIONS WITHIN COJ
	PROJECT DESCR:	GEOTECHNICAL INVESTIGATION SERVICES

VOLUME 3

Occupational Health & Safety Specification

JW 14087

GEOTECHNICAL INVESTIGATION SERVICES

Prepared by: OHS Department PO Box 61542 Marshalltown 2107 Tel: +27 11 688 1476	PRINCIPAL CONTRACTOR:	
	CEO (16.1 APPOINTEE):	
	TELEPHONE NUMBER:	
	FAX NUMBER	
	E-MAIL ADDRESS:	
	SIGNATURE:	

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General Notification

This document forms an integral part of the Contract Specification and, in particular, shall constitute the Client's (Johannesburg Water SOC Ltd.) Occupational Health, Safety & Environmental (SHE) Specification, as required by the Construction Regulations, 2014, as promulgated under the Occupational Health and Safety Act (Act no. 85 of 1993). The Specification shall furthermore be applied for the management of Mandatories performing activities for or on behalf of Johannesburg Water SOC Ltd, irrespective whether the contract work constitutes construction work or not.

The Contract Specification is contained in Volume 1 of the contract documents in Part 3: Scope of Work.

Acknowledgements

This Occupational Health, Safety & Environmental (SHE) Specification was developed by the internal OHS Department for the sole use by Johannesburg Water SOC Ltd. The issue date of this SHE Specification is September 2016.

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ABBREVIATIONS

Abbreviation	Description
CR	Construction Regulations
COID	Compensation for Occupational Injuries and Diseases
DoL	Department of Labour
GAR	General Administrative Regulations
GMR	General Machinery Regulations
GSR	General Safety Regulations
HCS	Hazardous Chemical Substances
HIRA	Hazard Identification and Risk Assessment
JW	Johannesburg Water (SOC) Ltd
MSDS	Material Safety Data Sheet
OHS	Occupational Health and Safety
PPE	Personal Protective Equipment
PER	Pressure Equipment Regulations
SANS	South African National Standards
SABS	South African Bureau Standard
SHE	Safety, Health & Environment
SOC	State Owned Company

DEFINITIONS

Word / Phrase	Definition
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“WCL 1”, “WCL 2” and “WCL 22”	Means the prescribed forms for reporting of incidents and occupational diseases referred to in the Compensation for Occupational Injuries and Diseases Act.
Competent Person	A person who has in respect of the work or task to be performed the required knowledge, training, experience and, where applicable, qualifications specific to that work or task: provided that where appropriate, qualifications and training are registered in terms of the provisions of the National Qualification Framework Act, 2000 (Act 67 of 2000).
Construction work	Any work in connection with: a) The construction, erection, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure b) the construction, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system or any similar civil engineering structure; or the moving of earth, clearing of land, the making of an excavation, piling, or any similar type of work
Contractor (inclusive of Principal Contractor)	Any organization, person, entity performing activities for or on behalf of Johannesburg Water SOC Ltd.
Corrective Action	Action to eliminate the cause of a detected nonconformity or other undesirable situation.
Employee	Any person who is employed by or works for an employer and who receives or is entitled to receive any remuneration or who works under the direction or supervision of an employer or any other person
Employer	Any person who employs or provides work for any person and remunerates that person or expressly or tacitly undertakes to remunerate him, but excludes a labour broker as defined in section 1 (1) of the Labour Relations Act, 1956 (Act No. 28 of 1956)
Hazard	Means a source of or exposure to danger.
Hazard identification	The identification and documenting of existing or expected hazards to the health and safety of persons, which are normally associated with the type of construction work being executed or to be executed.
Incident	Means an incident as contemplated in section 24 (1) of the OHS Act 85 of 1993.
Machinery	means any article or combination of articles assembled, arranged or connected and which is used or intended to be used for converting any form of energy to performing work, or which is used or intended to be used, whether incidental thereto or not, for developing, receiving, storing, containing, confining, transforming, transmitting, transferring or controlling any form of energy
Mandatory	Includes an agent, a contractor or a subcontractor for work, but without derogating from his status in his own right as an employer or a user
Medical surveillance	Means a planned programme or periodic examination (which may include clinical examinations, biological monitoring or medical tests) of employees by an occupational health practitioner or, in prescribed cases, by an occupational medicine practitioner.
Method Statement	A document detailing the key activities to be performed in order to reduce as reasonably as practicable the hazards identified in any risk assessment.
Principal Contractor	Any employer who performs work and is appointed by the Client to be in overall control and management of the contract work (inclusive of Mandatories).
SHE File	A file or other record in permanent form, containing the information required as contemplated in the S.H.E Specification Document and legal requirements applicable to work activities.
SHE Plan	A documented plan which seeks to address all hazards identified means and ways to control and eliminate such to ensure compliance to the S.H.E Specification.
Workplace	Any physical location in which work related activities are performed under the control of the organization.

1. Introduction

In terms of Section 37 of the Occupational Health and Safety Act (Act no. 85 of 1993), Johannesburg Water SOC Ltd is required to control persons/organizations conducting activities for or on their behalf (Mandatories) and the Construction Regulations promulgated under the Occupational Health and Safety Act (Act no. 85 of 1993), is requiring

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Johannesburg Water SOC) Ltd. to compile an occupational health and safety specification for any intended project classified as construction work and to provide the specification to prospective tenderers / Mandatories.

The dual objective of this specification is to ensure that the Mandatories and Principal Contractors (herein after called Principal Contractor (including Mandatories)) entering into a contractual agreement/relationship with Johannesburg Water SOC Ltd. achieves and maintains an acceptable level of occupational health, safety and environmental performance whilst conducting activities to perform the contract work.

This document forms an integral part of the Contract Specification and, in particular, shall be the OCCUPATIONAL HEALTH, SAFETY AND ENVIRONMENTAL (SHE) SPECIFICATION FOR CONSTRUCTION WORK. The Contract Specification is contained in Volume 1 of the contract documents. The principal and other contractors shall ensure that this specification is included with any contract/s that they may have with other contractors and/or suppliers that are engaged for the provision of labour, goods or services for this project. The Principal Contractor and its Contractors shall furthermore implement any reasonable practicable means to ensure compliance to this Occupational Health, Safety and Environmental (SHE) Specification and any other applicable legislation on their organization and/or activities performed by or for them. This SHE Specification will be read in conjunction, where issued and applicable, with the Environmental Specification issued for listed activities requiring environmental authorization by a relevant authority.

Compliance with this SHE specification does not absolve the Principal Contractor from complying with any other applicable minimum legal requirement and the Principal Contractor remains responsible for the sustainable integrity of the environment and the health and safety of its employees, mandatories as well as any persons affected by activities conducted for or on behalf of Johannesburg Water SOC Ltd (SOC) Ltd..

1.1 Johannesburg Water SOC Ltd's commitment to Occupational Health, Safety & Environmental (SHE) Management

Johannesburg Water SOC Ltd is committed to responsible occupational health, safety and environmental management. This commitment is essential to protect the environment, employees, Mandatories, visitors and provide a work environment conducive to health and safety. Principal Contractors and their Contractors shall demonstrate their commitment and concern by:

- Ensuring that decisions and practices affecting occupational health, safety and environmental performance are consistent with the issued SHE specification;
- Ensuring adequate resources are made available for the effective implementation of occupational health, safety and environmental control and mitigation measures;
- Participating in hazard identification and risk assessments and design safety reviews;
- Communicating occupational health, safety and environmental management processes, strategies and control measures with all levels of employees, contractor and/or visitors;
- Ensuring visible leadership at all sites;
- Promoting and enforcing the use of correct types of Personal Protective Equipment (PPE);
- Reporting and investigation of incidents and accidents and ensuring actions are identified and implemented to prevent similar types of incidents reoccurring;
- Participating in Client audits and meetings and ensuring required actions are implemented within reasonable time frames on the site/project;
- Recognizing and commending safe work practices and coaching employees who require guidance;
- Applying and enforcing consequence management from deviations and transgressions of/from compliance to this SHE Specification noted and/or observed, where applicable;
- Carrying out safety observations, implement corrective and preventative actions and giving immediate feedback;
- Encouraging employee participation in the formulation of work instructions and safety rules.

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1.2 Scope of Occupational Health, Safety and Environmental (SHE) Specification

The scope of this Occupational Health, Safety and Environmental (SHE) Specification is to address the reasonable and foreseeable aspects of occupational health, safety and environmental management, which will be affected by the contract work.

The specification will provide the requirements that the Principal Contractor and other Contractors shall comply with in order to reduce the risks associated with the contract work, and that may lead to incidents causing injury and/or ill health or degradation of the environment, to a level as low as reasonably practicable and possible.

In particular, Johannesburg Water SOC Ltd will ensure that it shall not appoint any Principal Contractor unless it is reasonably satisfied that the contractor which it intends to appoint has the necessary competencies and resources to carry out the work safely.

1.3 Omissions from SHE Specification

Where any omission from the SHE Specification is identified, applicable legal requirements will constitute the minimum standard for compliance to the relevant omission. The responsibility will be on the Principal Contractor to provide assurance to Johannesburg Water SOC Ltd on compliance to the applicable legal requirements related to the activity / task / process.

1.4 Change management

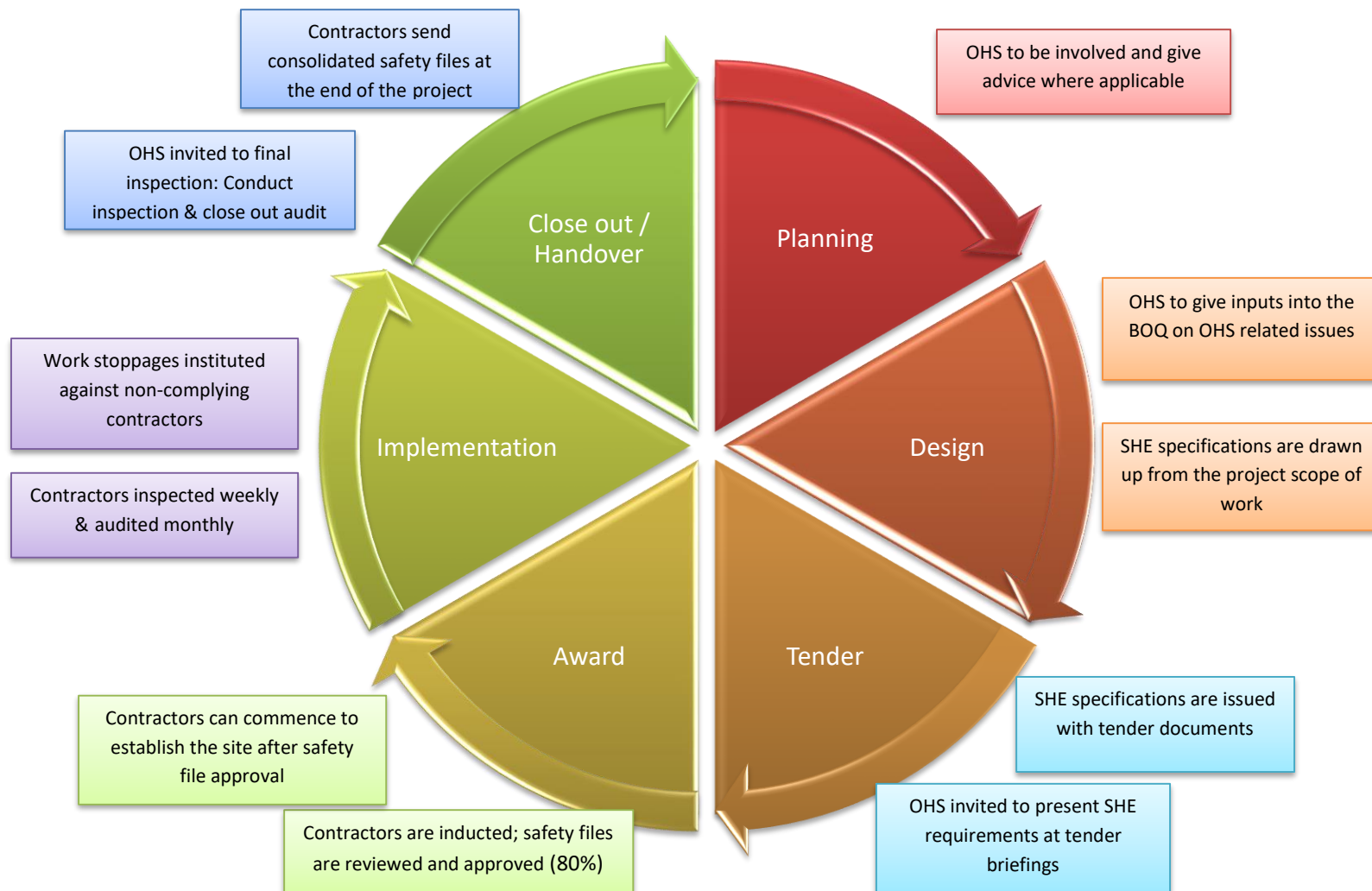
Whenever Johannesburg Water SOC Ltd identifies the need to change or review the SHE Specification, approved changes and revisions will be communicated to the Principal Contractor. A cost analysis on the implementation of the proposed changes / revisions will be calculated through a collaborative processes between Johannesburg Water SOC Ltd and the Principal Contractor – where the approved changes and/or revisions has no cost implication for the Principal Contractor the Principal Contractor will be required to accept the approved changes / revisions and ensure implementation within the SHE Plan / File framework.

2 Overview of contractor management process

The contractor management process consists of the following phases:

- Tender briefing and tender documentation;
- Competency evaluation of Principal Contractors (integrated into Supply Chain Management processes);
- Appointed contractor to attend SHE system induction;
- Preparation of SHE File by Principal Contractor;
- Evaluation of SHE File;
- Principal Contractor engagement phase;
- Project close-out and submission of consolidated Health & Safety File.

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2. SHE DOCUMENTATION

2.1 Safety file

The Principal Contractor will prepare a SHE File containing the processes / procedures and templates to be applied during the project period for the scope of work. The Principal Contractor will be evaluated during the contract period against the submitted SHE File.

At a minimum the SHE File will contain the following documentation:

- Notification of construction work to the relevant Department of Labour (stamped on each page / no faxed copies);
- Scope of work to be performed;
- Personnel list (Principal Contractor employees);
- OH&S / SHE Policy and other Policies;
- Updated copy of the Occupational Health and Safety Act (Act no. 85 of 1993) and its Regulations; COIDA Act.
- Proof of valid registration and good standing with the Compensation Commissioner or another licensed Insurer;
- SHE Plan agreed with Johannesburg Water SOC Ltd.
- Approved risk assessments, review and monitoring plans and safe work procedures (method statements);
- A list of contractors (sub-contractors) including copies of the agreements between the parties and the type of work being done by each contractor;
- All written designations and appointments for project scope of work (CV and competency copies);
- Management structure (inclusive of OH&S responsibility & meeting structure);
- Induction training and site SHE rules;
- Occupational health and safety training matrix / plan;
- Arrangements with contractors and/or mandatories;
- Description of security measures;
- The following registers (as applicable to contract scope of work):
 - Accident and/or incident notifications, investigation & control register;
 - Occupational health and safety representatives inspection register;
 - Template for entry into confined space;
 - Toolbox talks pro-forma;
 - Fall protection inspections template;
 - First-aid box content template;
 - Record of first-aid treatment template;
 - Fire equipment inspection and maintenance template;
 - Ladder inspection template;
 - Machine safety inspections template (including machine guards, lock-outs etcetera);
 - Inspection templates for lifting machines and –tackle (including daily inspections by drivers/operators);
 - Inspection templates of scaffolding;
 - Inspections templates of structures;
 - Templates of issuing of Personal Protective Equipment;
 - Monthly reporting and recording of statistics templates;
 - Keeping of any other record in terms of applicable legislation falling within the scope of SHE Legislation applicable to the project and the Principal Contractor / Contractor's activities and organization.
- Emergency preparedness and response programmes;
- Medical examination tests
- Vaccination records

2.2 Principal contractor appointment

- The principal contractor will be appointed in terms of Construction Regulations 2014, Reg 5(1) k
- All responsibilities imposed on the contractor by the Regulations will be applicable

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- The duties will include:
 - a) Prepare a site specific SHE file based on client SHE specification and project scope.
 - b) Have an updated Letter of Good standing.
 - c) Ensure the necessary legal appointment letters are compiled and signed by affected parties.
 - d) Ensure SHE file submitted before work commences to Johannesburg Water for evaluation and approval.
 - e) Must ensure an organizational medical programme for its employees is in place. This must address pre-employment, periodic examination, and exit examinations.
 - f) Ensure all employees undergo medical examination and are declared fit for the job they are employed for by a Medical Practitioner.
 - g) All employees undergo his control undergo company specific induction and Johannesburg water induction.
 - h) Ensure before work commences employees are trained on the health and safety risks associated with the work they are conducting.
 - i) Ensure employees are trained on company procedures, policies, method statements and informed of the Johannesburg Water SHE requirements as per the specification.
 - j) Ensure legislative requirements are complied with during the duration of the contract and ensure that their employees comply also.
 - k) Sign the 37 (2) Agreement between Johannesburg Water and themselves before any work commences and kept on their SHE file.
 - l) Ensure that 37(2) Agreement(s) are signed between themselves and their sub-contractors.
 - m) Ensure that sub-contractors have valid Compensation Commissioner Letter of Good Standing.
 - n) Have a disciplinary procedure to address those found to be transgressing requirements of SHE specification, SHE plan, site rules or any other OHS act and its Regulation requirement.
 - o) Prevent any employee or visitor who is under the influence of any alcohol or drugs (in state of intoxication) from being allowed to site.
 - p) Ensure the safety of employees who are taking legal medication.
 - q) Must hand over a consolidated SHE file at the end of the contract.
 - r) Stop his/her employees who are doing unsafe acts or who are creating an unsafe environment.
 - s) Investigate all incidents and report to Johannesburg water and ensure all reportable incidents as per the legislative requirement are complied with.
 - t) Ensure work is supervised by competent personnel and that work is done by competent employees.
 - u) Ensure pre-task risk assessment is done by a competent person and that employees are informed of the pre-task risks and the risk control measures.
 - v) Ensure tool box talks are conducted to communicate SHE issues in connection to the work being done and any other aspects.
 - w) Ensure that appointed personnel as per the SHE file are executing their duties as per the legal appointment.
 - x) Ensure first aid kit is made available in case of any emergency.
 - y) Ensure that housekeeping is maintained in good condition and that materials are store/stacked properly in designated areas.
 - z) Have sufficient waste receptacles and ensure the correct disposal of the different wastes.
 - aa) Proof of hazardous waste disposal to be requested from disposal site and to be kept inside SHE file.
 - bb) Take reasonable steps to ensure that each appointed sub-contractor health and safety plan is implemented and maintained on the site and SHE File documentation is up to date.
 - cc) Stop any work from being executed which is not in accordance with the client's health and safety specification and the principal contractor's health and safety plan for the site or which poses a threat to the health and safety of persons.
 - dd) Must maintain an up to date list of all the sub-contractors on site accountable to the principal contractor, the agreements between the parties and the type of work being done; and
 - ee) Ensure that all his or her employees have a valid medical certificate of fitness.

2.3 37.2 Agreement

- Johannesburg Water will enter into a 37(2) Agreement with all the appointed contractors
- A copy of the 37(2) Agreement must be kept in the SHE file of the contractor at all times.

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- It is the responsibility of the contractor to ensure that there are 37(2) agreements between themselves and all their appointed sub-contractors.

2.4 SHE Plan

- The contractor shall prepare a SHE plan to address and manage all applicable sources of risk that are identified during the execution of the project. The SHE plan shall incorporate the requirements as listed in the SHE specification.
- A copy of the SHE plan shall be submitted together with SHE file for review and approval.
- It is the contractor responsibility to ensure they sub-contractor compiles a SHE plan that in line with the SHE specification requirement of Johannesburg Water.

2.5 Legislative framework

All contractors shall comply with legislation pertaining to this contract, including but not limited to:

- Constitution of the Republic of South Africa
- Occupational Health and Safety Act and its associated Regulations
- National Environmental Management Framework Legislation
- National Road Traffic Act
- Applicable South African National Standards (SANS)
- Compensation of Occupational Injuries and Diseases Act (COID)
- Local by-laws and provincial ordinances

2.6 SHE Policy

A SHE policy is a statement of intent and a commitment by the organization Chief Executive or Managing Director (OHS Act 16(1) appointee) in relation to requirements applicable to their Safety, Health and Environmental legal obligation, relevant SHE roles and responsibilities, and contractual obligations to the Client.

The contractor and their sub-contractor companies shall each have a documented SHE Policy authorized by their Chief Executive/Managing Director (OHS Act Section 16 (1) Appointee). The SHE Policy must meet the following minimum requirements;

- Organizational Mission and Goal.
- State the overall SHE objectives within the project.
- Show commitment to the prevention of injuries and ill-health.
- Show commitment to the protection of environment and the conservation of natural resources.
- Must be reviewed at predetermined intervals, or when there is change in work process, serious incident occurs.
- The SHE Policy must be in line with OHSAS 18001 and ISO 14001 requirements and guidance documentation.
- Must be authorized by contractor CEO.

2.7 Appointments and competencies

- The contractor and its appointed sub-contractor must make the relevant legislative and non-statutory appointments, which must be maintained valid for the entire contract duration.
- All appointees shall be suitably trained and certified competent for the responsibilities they are assigned for.
- Copies of all relevant appointments and the relevant competence certificates must be kept in the relevant SHE file.

2.8 Supervision of construction work

- The principal contractor shall ensure that the construction manager and construction health and safety officer are appointed for a **single site** on a full time basis.
- JW should be informed in writing of the absence of the above-mentioned on site.

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Appointment index

Appointment	Legislative Ref	Competency requirements (Min)
Alternate Construction Manager	CR 8.1	N.Dip Eng + 4yrs exp
Assistant Construction Manager	CR 8.2	N.Dip Eng + 4yrs exp
Assistant Construction Supervisor	CR 8.8	-
Bulk mixing plant	CR 20	Certificate
Confined Space Supervisor	GSR 5	Certificate + Proven experience
Construction Manager	CR 8.1	N.Dip Eng + 4yrs exp Full time on site
Construction Health , Safety & Environmental Officer	CR 8.5 & JW Requirement	N.Dip Safety + 2yrs exp; OR N.Dip Enviro + 3yrs exp; OR NEBOSH / SAMTRAC + 4yrs exp Register with SACPCMP Full time on site Experience in enviro / certificate
Construction supervisor	CR 8.7	3 yrs experience
Construction vehicle & mobile plant supervisor	CR 23.1	Certificate
Electrical installation and appliances inspector	CR 24	
Emergency, security and fire coordinator	CR 29	Certificate
Excavation supervisor (including piling)	CR 13	3yrs exp / N.Dip building
Fall protection supervisor	CR 10.1	Certificate
First-aiders	GSR 3	Certificate
Fire fighting equipment inspector	CR 29	Certificate
General Machinery Supervisor	GMR 2.1/7	GCC (GMR 2.1)/ 3yrs exp (GMR 2.7)
Temporary work supervisor (Formwork)	CR 12.2	N.Dip building + 4yrs exp
Hazardous chemical substances supervisor	HCS Regs	Certificate
Incident investigator	GAR 9.2	Certificate
Ladder inspector	GSR 13A	-
Lifting machines and equipment inspector	DMR 18.5	Certificate + 3yrs experience
Materials hoist inspector	CR 19.8	Certificate
Occupational health and safety committee	OHS Act 19	-
Occupational health and safety representatives	OHS Act 17	Certificate
Risk assessor	CR 9.1	Certificate
Stacking and storage supervisor	CR 28	Certificate
Structures supervisor	CR 11.2	N.Dip building + 4yrs exp
Suspended platform supervisor	CR 17.1	Certificate
Welding supervisor	GSR 9	Certificate

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2.9 Insurances

- The principal contractor and all his appointed contractors shall be registered with an appropriate compensation commissioner and have available a valid letter of good standing at all times.
- The obligation lies with the contractor to ensure that the Letter of Good Standing remains valid throughout the entire duration of the project.
- A copy of the said letter must be filed in all SHE files and made available during inspections and audits.

2.10 Costing for SHE

The contractor is responsible for ensuring that SHE costing is taken into consideration for the entire project/contract as this will ensure they comply with the SHE legislative requirements.

2.11 Sub-contractors

- Whenever the Principal Contractor appoints contractors or sub-contractors, it is a requirement that an Occupational Health and Safety Act (Act no. 85 of 1993) Section 37(2) agreement (i.e. Agreement with Mandatory) is entered into between the Principal Contractor and Contractors.
- The Principal Contractor will ensure that all appointed contractors comply with the Johannesburg Water SOC Ltd SHE Specification requirements.
- The Principal Contractor will establish a procedure on sub-contractor management and assurance on compliance to the established procedure will be provided to Johannesburg Water SOC Ltd on a monthly basis.
- Principal Contractors are required to formally notify Johannesburg Water SOC Ltd before appointing subcontractors.
- Johannesburg Water SOC Ltd shall approve all specialist subcontractors to be appointed and/or engaged by the Principal Contractor.

The Principal Contractor shall:

- Ensure prior to work commencing on the site that every contractor is registered and in good standing with the compensation fund or with a licensed compensation insurer as contemplated in the Compensation for Occupational Injuries and Diseases Act, 1993;
- Appoint each contractor in writing for the part of the project on the construction site;
- Take reasonable steps to ensure that each contractor's health and safety plan is implemented and maintained on the construction site;
- Ensure that the periodic site audits and document verification are conducted at intervals mutually agreed upon between the principal contractor and any contractor, but at least once every 30 days;
- Stop any contractor from executing construction work which is not in accordance with the client's health and safety specifications and the principal contractor's health and safety plan for the site or which poses a threat to the health and safety of persons;
- Include and make available a comprehensive and updated list of all the contractors on site accountable to the principal contractor, the agreements between the parties and the type of work being done; and
- Ensure that all his or her employees have a valid medical certificate of fitness specific to the construction work to be performed and issued by an occupational health practitioner in the form of Annexure 3.

2.12 Notification of construction work

- The Principal Contractor shall, before carrying out any work, notify the relevant Department of Labour of the intention to carry out construction work and use the form (*Annexure 2 in the Construction Regulations 2014*) for this purpose.
- Only a certified copy stamped (each page) by the Department of Labour will be acceptable. No faxed or emailed notifications will be accepted.
- No work shall commence before the Principal Contractor has submitted notification of construction work to the relevant Department of Labour.
- Johannesburg Water SOC Ltd will not approve the SHE File if no original stamped / certified copy of the notification of construction work has been done.

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2.13 Construction work permit

- There will not be a requirement for a construction work permit for this based on the number of days on site.

3. ORGANISATIONAL STRUCTURE

- The contractor shall develop and submit together with SHE file an organizational organogram related to the contractor, listing all the levels of responsibility from the Chief Executive down to the supervisor(s) responsible for the project.
- The organogram diagram must list all relevant positions, names of appointees and legal appointments.
- The contractor is responsible for updating the organogram timeously when there are changes to the appointments.
- All appointed sub-contractors are also required to compile their own organograms.

4. COMMITMENT TO SHE

- Visible commitment is essential to providing a safe working environment.
- Managers, supervisors and employees at all levels must demonstrate their commitment by being proactively involved in the day to day SHE operations.
- Legislation requires that each employee takes reasonable care of themselves and their fellow workers

5. HIRA

Annexure 1: List of possible hazards emanating from projects and activities conducted for or on behalf of Johannesburg Water SOC Ltd includes an assessment of site specific health and safety hazards and risks and environmental aspects and impacts that have been identified by Johannesburg Water SOC Ltd as possibly applicable to the contract work for this project. It is by no means exhaustive and is offered as assistance to the tenderers and contractors.

Development of risk assessments

Every Contractor performing construction work shall, before the commencement of any construction work or work associated with the construction work, and during construction work, ensure that a risk assessment is undertaken by a competent person, appointed in writing, and the risk assessment shall form part of the SHE plan to be applied on the site. Risk assessments shall identify occupational health and safety hazards and risks and environmental aspects and impacts emanating from the activity to be performed by the Principal Contractor / Contractor.

The risk assessment (inclusive of impact assessment) shall include (at a minimum):

- Identification of the relevant Johannesburg Water SOC Ltd Project with regard to JW Number, Project name and area;
- Date on which risk assessments were conducted / reviewed;
- The identification of the risks / hazards and aspects / impacts to which persons may be exposed to per activity;
- The analysis and evaluation of the risks / hazards and aspects / impacts identified;
- Existing control measures and proposed corrective measures;
- A plan to review the risk assessments as the work progresses and changes are introduced;
- Identification of significant risks (e.g. high; exceeding 75%);
- A documented plan of Safe Working Procedures (SWP), and its relevance to the risk assessment, inclusive of method statements, to mitigate, reduce or control the risks and hazards that have been identified;
- A plan to monitor the application of the Safe Working Procedures (SWP);
- Signature of appointed competent person conducting risk assessment; and
- Signature of approval by Principal Contractor management and employees involved in risk assessment.

Based on the risk assessments, the Principal Contractor must develop a set of site-specific occupational SHE rules that will be applied to regulate the health, safety and environmental hazards/aspects of the construction work.

The risk assessments, together with the site-specific occupational health and safety rules, must be submitted to Johannesburg Water SOC Ltd before mobilisation on site commences. These will be included in the SHE plan. The

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Contractor shall ensure through his risk management process the hierarchy of controls stipulated as follows, are implemented:

- **Eliminate** - The complete elimination of the hazard.
- **Substitute** - Replacing the material or process with a less hazardous one.
- **Redesign** - Redesign the equipment or work process.
- **Separate** - Isolating the hazard by guarding or enclosing it.
- **Administrate** - Providing control such as training, procedures etc.
- **Personal Protective Equipment (PPE)** - Use of appropriate and properly fitted PPE where other controls are not practical. (PPE as the last resort)

The Principal Contractor will be required to carry out the following three forms of risk assessment:

- Baseline risk assessment;
- Issue based risk assessment;
- Continuous risk assessments.

Baseline risk assessments

The Principal Contractor is required to develop a baseline risk assessment taking the resources, competency levels, nature and scale of their organization into consideration for submission during SHE File evaluation phase. The hazards and risks to which persons, plant, vehicles and facilities may be exposed during the construction should be identified and evaluated. The aspects and impacts resulting in environmental pollution or degradation should also be identified and evaluated. Measures to reduce or control these risks or hazards should be defined during this assessment. The effectiveness of the measures defined and the baseline risk assessment prepared shall be monitored and reviewed from time to time to ensure that it remains relevant and accurate.

Issue based risk assessments

The Contractor will be required to carry out separate risk assessments during construction of the project when methods and procedures are varied, for example when:

- Designs are amended;
- New machines are introduced;
- Plant is periodically cleaned and maintained;
- Plant is started-up or shut-down;
- Systems of work change or operations alter;
- Indents or near-misses occur; or
- Technological developments invalidate prior risk assessments.

Continuous risk assessments

The Occupational Health and Safety Act (Act no. 85 of 1993) specifically requires that employers shall provide and maintain working environments that are safe and without risk to health. The general awareness of hazards needs to be raised as work ethic to maintain a safe and risk free environment on an on-going basis. This is achieved by continuous risk assessments, a form of risk assessment that takes place as an integral part of day-to-day management. Examples of continuous risk assessments include:

- Maintaining general hazard awareness, and
- Pre-work risk assessments / Daily Safety Task Instructions.

Occupational health and safety risks or environmental impacts that are identified during the risk assessment process shall be communicated before the commencement of the said activity to every employee whose work is associated with the risk. Each employee shall sign to confirm understanding of the safety, health or environmental risks in the tasks.

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Review of risk assessments

The Principal Contractor is required to review the hazards identified, the risk assessments and the Safe Work Procedures as the contract work develops and progresses and each time changes are made to the designs, plans and construction methods and/or processes. Revisions to the approved risk assessments and Safe Work Procedures will be presented at each production planning and progress meeting.

Risk assessments are to be reviewed whenever there is change on the scope of work, process, and accidents or when required by Johannesburg Water SOC Ltd

The Principal Contractor must provide Johannesburg Water SOC Ltd, other contractors and all other concerned or affected parties with copies of any changes, alterations or amendments to risk assessments and Safe Work Procedures within 14 days of such changes.

6. SAFE WORK PROCEDURES / METHOD STATEMENTS

Method statements or written safe work procedures shall be documented for all high risk activities:

- Design change or scope change/addition
- Change in job or task
- Introduction of new machinery, equipment or substance.

Method statements or written safe work procedures shall identify following:

- Tasks that are to be undertaken
- The hazards and associated risks of the task(s)
- The control measures for the task(s)
- The equipment and substances that are associated with task(s)
- Any training or qualification needed to do the task
- Personal protective equipment to be worn.

7. INCIDENT MANAGEMENT

7.1 Reporting of accidents and incidents

The Principal Contractor must report all incidents where an employee is injured on duty to the extent that he:

- Dies
- Becomes unconscious
- Loses a limb or part of a limb
- Is injured or becomes ill to such a degree that he is likely either to die or to suffer a permanent physical defect or likely to be unable for a period of at least 14 days either to work or continue with the activity for which he was usually employed

Or where -

- A major incident occurred
- The health or safety of any person was endangered
- Where a dangerous substance was spilled
- The uncontrolled release of any substance under pressure took place
- Machinery or any part of machinery fractured or failed resulting in flying, falling or uncontrolled moving objects
- Machinery ran out of control

to Johannesburg Water SOC Ltd within two days and to the Provincial Director of the Department of Labour within seven days from date of incident (Section 24 of the Occupational Health and Safety Act (Act no. 85 of 1993) and General Administrative Regulations), except that, where a person has died, has become unconscious for any reason or has lost a limb or part of a limb or may die or suffer a permanent physical defect, the incident must be reported to both Johannesburg Water SOC Ltd and the Provincial Director of the Department of Labour forthwith by telephone, telefax or e-mail.

- All other reports required by this specification must also be completed. Reporting of accidents / incidents to Johannesburg Water SOC Ltd will be on the prescribed format.

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- The Principal Contractor is required to provide Johannesburg Water SOC Ltd with copies of all statutory reports required in terms of the Occupational Health and Safety Act (Act no. 85 of 1993) within 7 days of the incident occurring.
- The Principal Contractor is required to provide Johannesburg Water SOC Ltd with copies of all internal and external accident/incident investigation reports, within 7 days of the incident occurring.

7.2 Accident and incident investigation

- The Principal Contractor is responsible for the investigation of all accidents and/or incidents where employees and non-employees were injured to the extent that they had to receive medical treatment other than first aid.
- The results of the investigation are to be entered into the accident and/or incident register. The Principal Contractor is responsible for the investigation of all incidents, including those described in Section 24 (1) (b) and (c) of the Occupational Health and Safety Act (Act no. 85 of 1993) and for keeping a record of the results of the investigations including the steps taken to prevent similar accidents in future.
- The Principal Contractor is responsible for the investigation of all road traffic accidents, related to the construction activities, and for keeping a record of the results of the investigations including the steps taken to prevent similar accidents in future.
- Johannesburg Water SOC Ltd reserves the right to hold its own investigation into an incident or call for an independent external investigation.

7.3 Close out

- All incident investigation reports will be closed out once all the recommendations to prevent further incidents have been implemented.
- A copy of the investigation report must be handed to JW Safety Officer conducting the investigation.

8. MEDICAL SCREENING REQUIREMENTS

- The Principal Contractor shall ensure that a medical surveillance programme is implemented for all employees.
- An initial health evaluation shall be carried out by an occupational health practitioner immediately, before after a person commences employment, where any exposure exists or may exist, which comprises:
 - an evaluation of the employees medical and occupational history;
 - a physical examination; and
 - any other essential examination which in the opinion of the occupational health practitioner is desirable in order to enable the practitioner to do a proper evaluation.
- Medical surveillance and immunisation shall be done accredited at / by institutions or occupational health personnel, including, but not limited to:
 - Audiograms.
 - A cardio-respiratory examination / Lung function test;
 - Chest X-rays
 - Eye/ sight tests.
 - A general physical examination;
 - A review of previous medical history.
 - Glucose levels
 - Blood pressure
- An entry medical certificate shall be obtained for all workers prior to commencing with site activities from approved medical institution. Copies of all medical certificates shall be retained in the SHE File prior to site establishment and before an employee is allowed to come onto site.
- Specific attention shall be given to the physical and psychological fitness of people who will be required to work in elevated positions and operators of mobile machinery.

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- An exit medical certificate shall be obtained for all workers at the end of the contract and for all workers who leave the employment of the Contractor before the end of the Project. Copies of all exit medical certificates shall be submitted to the Johannesburg Water SOC Ltd Project Specialist or Appointed OHS Agent.

9 EMERGENCY MANAGEMENT

The Principal Contractor must appoint a competent person to act as emergency controller and/or coordinator.

The Principal Contractor must conduct an emergency identification exercise and establish what emergencies could possibly develop. He must then develop detailed contingency plans and emergency procedures, taking into account any emergency plan that Johannesburg Water SOC Ltd may have in place.

In the event where a contractor incorporates the services of a 3rd party service provider for the provision of Emergency Response Services, the following criteria must be met:

- Identification of 3rd party emergency response services (organization & contact details);
- Notification of contractor to 3rd party emergency response service of incorporation of services into contractor's emergency response plan (written agreement / signed letter).

The Principal Contractor and the other contractors must hold regular practice drills of contingency plans and emergency procedures to test them and familiarise employees with them.

First-aid

The Principal Contractor must provide first-aid equipment (including a stretcher) and have qualified first-aiders(s) on site as required by General Safety Regulations promulgated in terms of the Occupational Health and Safety Act (Act no. 85 of 1993).

The contingency plan of the Principal Contractor must include arrangements for the speedy and timeous transporting of injured and/or ill person(s) to a medical facility or of getting emergency medical aid to person(s) who may require it.

The Principal Contractor must have written arrangements in place with his other contractors regarding the responsibility of the other contractors towards their own injured and/or ill employees.

10 SHE TRAINING

All employees in jobs requiring training in terms of the Occupational Health and Safety Act (Act no 85 of 1993) and any other applicable legislative requirements are to be in possession of valid proof of training. Other occupational health, safety and environmental training requirements of the Occupational Health and Safety Act (Act no 85 of 1993) and Construction Regulations can include:

- General induction;
- Site and job specific induction, including visitors;
- Occupational health and safety representatives;
- Training of the legal and nominated appointees;
- Operators and drivers of construction vehicles and mobile plant;
- Basic fire prevention and protection;
- Basic first-aid;
- Storekeeping methods and safe stacking; and
- Emergency planning and coordination
- Incident investigation
- Risk Assessment
- Planned job observations (supervisors)

All operators, drivers and users of construction vehicles, mobile plant and other equipment are to be in possession of valid proof of training and, where applicable, valid licenses.

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12.1 General Job training

The contractor is required to ensure that before an employee commences work their direct supervisor or line manager who is responsible for the employee has informed the employees of his scope of authority, hazards and risks associated with the work to be performed as well as the safety control measure(s). This will involve discussion in connection with any work standard, job description or company policy or procedure.

12.2 Awareness and promotion

The Principal Contractor is required to have a promotion and awareness programme in place to create an occupational health and safety culture within employees. The following are some of the methods that may be used:

- Toolbox talks;
- Posters;
- Videos;
- Competitions;
- Suggestion schemes;
- Participative employee activities such as “occupational health and safety circles”.

The Principal Contractor is, at a minimum, required to provide awareness programmes to employees on the following:

- General Health and Safety Awareness
- Environmental Awareness;
- HIV / AIDS awareness.

12.3 General competence requirement

The Principal Contractor shall ensure that his personnel and other contractors' personnel are trained and competent to carry out work safely and without risk to health has been completed before work commences. The Principal Contractor shall ensure that follow-up and refresher training is conducted as the work progresses and whenever the scope or nature of the work changes.

A “**competent person**” in relation to construction work, means any person having the knowledge, training and experience specific to the work or task being performed: Provided that where appropriate qualifications and training are registered in terms of the provisions of the South African Qualifications Authority Act, 1995 (Act No. 58 of 1995), these qualifications and training shall be deemed to be the required qualifications and training. It is the responsibility of the Contractor to determine whether any appropriate qualifications and training are registered in terms of the provisions of the South African Qualifications Authority Act.

Records of all training must be kept in the SHE File. The contents of the file will be audited from time to time.

At a minimum, the Principal Contractor will provide training on Safe Work Procedures / Safe Operating Standards to personnel responsible for performing the related task. Records of training on Safe Work Procedures / Safe Operating Standards will be retained. Competence and skill levels by the employees responsible for performing the task on the implementation of the Safe Work Procedures / Safe Operating Standards will be measured through Planned Job Observations.

12.4 Site-specific induction training

The Principal Contractor will be required to develop a project specific induction-training course based on the baseline risk assessment for the contract work. He will ensure that all his employees and other contractors and their employees have received training on the submitted induction-training programme.

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All employees of the principal and other contractors are to be in possession of proof (on person) that they have attended a site-specific occupational health and safety induction-training course.

No contractor shall allow or permit any employee, visitor or any other person to enter the site, unless such employee or person has undergone health, safety and environmental induction training pertaining to the hazards prevalent on the site at the time of entry.

Where the Principal Contractor is required to operate within Johannesburg Water SOC Ltd Depot's the Principal Contractor will ensure that all employees undergo the Johannesburg Water SOC Ltd induction.

11 PPE REQUIREMENTS

- The Principal Contractor is required to continuously identify the hazards in the workplace and deal with them. He must either remove them or, where impracticable take steps to protect workers and make it possible for them to work safely and without risk to health under the hazardous conditions.
- The Principal Contractor will establish a Personal Protective Equipment Policy and a Personal Protective Equipment study will be conducted to determine the types of Personal Protective Equipment (PPE) to be supplied related to the hazards and risks emanating from the tasks.
- Cognisance shall be given to the gender of individuals required to where PPE; size required by the employee and size issued.
- Personal protective equipment should, however, be the last resort and there should always first be an attempt to apply engineering and other solutions to mitigating hazardous situations before the issuing of personal protective equipment is considered.
- Where it is not possible to create an absolutely safe and healthy workplace the Principal Contractor is required to inform employees regarding this and issue, free of charge, suitable equipment to protect them from any hazards being present and that allows them to work safely and without risk to health in the hazardous environment.
- It is a further requirement that the Principal Contractor maintains the equipment, instructs and trains the employees in the use of the equipment and ensures that the employees use the prescribed equipment.
- Employees do not have the right to refuse to use and/or wear the equipment prescribed by the employer and, if it is impossible for an employee to use or wear the prescribed protective equipment through health or any other reason, the employee cannot be allowed to continue working under the hazardous condition(s) for which the equipment was prescribed. An alternative solution has to be found that may include relocating the employee.
- The Principal Contractor may not charge any fee for protective equipment prescribed by him but may charge for equipment under the following conditions:
 - Where the employee requests additional issue in excess of what is prescribed;
 - Where the employee has patently abused or neglected the equipment leading to early failure; and
 - Where the employee has lost the equipment.

All employees shall, as a minimum, be required to wear the following personal protective equipment on any of Johannesburg Water SOC Ltd's projects:

- Protective overalls;
- Protective footwear;
- Protective headwear; and
- Eye, face and ear protection.
- NO SHORTS OR DRESSES WILL BE ALLOWED ON SITE!!!

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All Personal Protective Equipment will clearly display the branding components of the Principal Contractor's organization (e.g. Name of Organization, logo).

12 DISCIPLINARY PROCESSES

- The contractor is required to implement disciplinary process in order to enforce compliance with requirements.
- All sub-contractors are required to have the same.

13 SITE RULES

- The Principal Contractor must develop a set of site-specific OH&S rules that will be applied to regulate the Health and Safety Plan and associated aspects of the construction.
- When required for a site by law, visitors and non-employees upon entering the site shall be issued with the proper Personal Protective Equipment (PPE) as and when necessary.

14 PUBLIC HEALTH AND SAFETY

The Principal Contractor is responsible for ensuring that non-employees affected by the construction work are made aware of the dangers likely to arise from the construction work as well as the precautionary measures to be observed to avoid or minimise those dangers. This includes:

- Non- employees entering the site for whatever reason;
- The surrounding community; and
- Passers-by the site.
- The Principal Contractor shall organize the site in such a manner that pedestrians and vehicles can move safely and without risks to health, including sufficient and suitable traffic routes and safe walkways with relevant signage.
- Appropriate signage must be posted to this effect and all employees on site must be instructed to ensure that non-employees are protected at all times.
- All non-employees entering the site must receive induction into the hazards and risks of the site and the control measures to be observed.
- The Principal Contractor shall recognize that the Community Liaison Officer (CLO) is the link between Johannesburg Water SOC Ltd and the community and provide all reasonable support to the Community Liaison Officer to ensure relevant responsibilities are fulfilled and positive relationships with the community are maintained.
- Where activities are performed close to public routes, the Principal Contractor will establish a traffic management plan incorporating the requirements of relevant by-laws. At a minimum, barricading, warning signage and flagmen will be provided to ensure the protection of workers from vehicles in transit. Where required, the Principal Contractor will interact with the local traffic department to establish minimum requirements to be implemented on public routes.

15 REFUSAL TO WORK

- Section 14 of the OHS Act states that employees shall carry out any lawful orders given to them, suggesting that they have the right to refuse to obey any unlawful order or work instruction.
- In terms of legal and JW requirements, if an employee has reasonable belief that the work to be carried out is likely to endanger themselves or other persons in any way, he/she has the right to refuse to work.
- An employee may also refuse to work in term of Section 29 of NEMA, if the work would result in imminent and serious threat to the environment.
- All contractors shall ensure that their employees are conversant with hazards associated with their work and work environment, and be aware of the precautionary measures to take.
- The contractor must ensure that all refusals to work are investigated promptly and resolved timeously.

16 SECURITY

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The Principal Contractor must establish site access rules and implement and maintain these throughout the construction period. Access control must, amongst other, include the rule that non-employees will not be allowed on site unaccompanied.

The Principal Contractor must develop a set of security rules and procedures and maintain these throughout the construction period.

The Principal Contractor shall:

- Provide a guardhouse for security personnel. The guardhouse should be in good condition and at-least meet minimum requirements as per Environmental Regulations for Workplaces as promulgated under the Occupational Health and Safety Act (Act no. 85 of 1993).
- Supply an access card containing the name, surname, employee number and photograph for all appointed employees (full or part time) for the site.
- Ensure that no person enters the construction site without wearing the necessary Personal Protective Equipment (PPE).
- Ensure that no children are allowed on the construction site.
- Ensure that no family members are sleeping over on the construction site.
- Ensure that no pets are allowed on the construction site.

17 ACCOMMODATION ON SITE

No employees shall be accommodated on site.

18 WELFARE FACILITIES

The provision of toilets for each sex is required in terms of the National Building Regulations and Construction Regulation 28. Chemical toilets are allowed instead of the water borne sewerage type. Toilets have to be provided at a ratio of 1 toilet per 30 workers. The Principal Contractor shall provide flushing toilets on the construction premises.

- At least cold-water showers for each sex have to be provided at a ratio of 1 shower per 15 workers.
- Some form of screened off changing facility must be provided separately for each sex.
- Some form of eating facility sheltered from the sun, wind and rain must be provided.

The employer needs to provide his employees with the following:

- Potable water for drinking;
- Water and soap for hand washing
- Toilet paper

19 COMPLIANCE MONITORING

20.1 Inspections

- Contractors will be inspected at least once per week by the JW Project Inspectors.
- Feedback of the inspections will be issued immediately on work instructions, and a formal report sent within 7 days of conducting the inspection to all relevant stakeholders.
- Johannesburg Water SOC Ltd. reserves the right to conduct other ad-hoc assessments and inspections as deemed necessary.
- This may include, amongst other measures, site safety walks. Corrective actions will be identified by Johannesburg Water SOC Ltd. and the Principal Contractor's representative and implemented by the Principal Contractor (at no cost to Johannesburg Water SOC Ltd.) to ensure SHE Performance improvement.

20.2 Monthly audits

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- Monthly audits will be conducted within periods not exceeding 30 days.
- The Principal Contractor is to conduct his own monthly internal audits and inspections to verify compliance with his own occupational health and safety plan and management system as well as compliance with the requirements of the Johannesburg Water SOC Ltd. SHE Specification.
- The Principal Contractor will also assess and inspect the compliance of other contractors under its control. Management members of the Principal Contractor will be involved in the internal assessments and inspections.

20.2.1 Monthly compliance rating

A monthly compliance rating will be calculated for each Principal Contractor as per a formula determined by Johannesburg Water SOC Ltd focussing on or incorporating outcomes of assurance (e.g. monthly audit), operational (e.g. behavioural based safety inspection) assessments and other requirements, as necessary. Johannesburg Water SOC Ltd reserves the right to adjust the monthly compliance calculation formula as and when required – each revision of the monthly compliance calculation formula will be communicated to the Principal Contractor before implementation.

Each Principal Contractor is required to maintain a minimum compliance rating of 93% (Ninety Three Percent).

Scoring	Classification	Classification description
93% -100%	Good	Substantial compliance
80% -92%	Average	Compliance status needs to be improved
60% - 79%	Poor	Methods to ensure compliance require substantial improvement - operations with substantial non-compliance risks
<60%	Very poor	Methods to ensure compliance failed completely - troubled operation with severe non-compliance risks

20.3 Work stoppages

Work stoppages will be identified for 2 (two) types of work stoppages to be implemented:

- Overall work stoppage – the Principal Contractor and its Contractors are not allowed to continue with any type of construction / site work up until the work stoppage has been closed-out;
- Activity work stoppage – The Principal Contractor and its Contractors are not allowed to continue with the specific activity / task / job up until the work stoppage has been closed-out.

Overall work stoppages will be issued where non-conformances are identified against the criteria in the following table.

NR	DESCRIPTION OF AUDIT NON-CONFORMANCE / NON-COMPLIANCE
1	NOTIFICATION OF CONSTRUCTION WORK
1.1	Local Department of Labour not notified of construction work before commencement of construction activities
1.2	Notification of construction work not stamped by local Department of Labour (no faxed copies)
1.3	Copy of notification of construction work not available on site
2	PROOF OF REGISTRATION WITH COMPENSATION COMMISSIONER

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NR	DESCRIPTION OF AUDIT NON-CONFORMANCE / NON-COMPLIANCE
2.1	Proof of registration with Compensation Commissioner or other insurer not available
2.2	Registration with Compensation Commissioner or other insurer not valid and up-to-date
3	POLICY COMMITMENT & SHE SPECIFICATION
3.1	SHE Plan not compiled, approved by contractor management and available on site
4	SECTION 37(2) AGREEMENT
4.1	Signed section 37(2) Agreement not signed and available on site
5	RISK ASSESSMENTS
5.1	Risk assessments not developed/ not applicable to scope of work issued by Client
6	CONSTRUCTION MANAGER
6.1	No construction manager appointed / available on site
6.2	Appointed construction manager does not meet requirements
6.3	Proof of competency not available on-site
7	SITE SAFETY OFFICER
7.1	No safety officer appointed/ available on site
7.2	Safety officer does not meet requirements
8	SHE FILE
8.1	No file on site

Activity work stoppages will be issued where non-conformance are identified per activity where the health and safety of employees or the public is compromised.

20.4 Non-compliance management process

The following actions will be instituted where non-conformances are identified in terms of compliance to relevant legislative requirements and the Johannesburg Water SOC Ltd SHE Specification.

CRITERIA	ACTION TO BE INSTITUTED	RESPONSIBLE PARTY
Compliance rating: 93-100%	Non-conformance closure	Principal Contractor / Contractor
Compliance rating: 80-92%	Letter of compliance improvement to Principal Contractor	Johannesburg Water SOC Ltd
	Non-conformance closure	Principal Contractor / Contractor
Compliance rating: 60-79%	Non-compliance hearing	Johannesburg Water SOC Ltd

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CRITERIA	ACTION TO BE INSTITUTED	RESPONSIBLE PARTY
Compliance rating: <60%	Letter of commitment for performance improvement	Principal Contractor / Contractor
	Non-conformance closure	Principal Contractor / Contractor
	Non-compliance hearing	Johannesburg Water SOC Ltd
	Letter of commitment for performance improvement	Principal Contractor / Contractor
	Non-conformance closure	Principal Contractor / Contractor
3 x Work stoppages	Supply Chain Management to be informed of non-compliance standing	Johannesburg Water SOC Ltd
	Non-compliance hearing	Johannesburg Water SOC Ltd
	Letter of commitment for performance improvement	Principal Contractor / Contractor
	Non-conformance closure	Principal Contractor / Contractor
	Supply Chain Management to be informed of non-compliance standing	Johannesburg Water SOC Ltd
3 x Non-conformance to <93% monthly compliance rating	Non-compliance hearing	Johannesburg Water SOC Ltd
	Letter of commitment for performance improvement	Principal Contractor / Contractor
	Non-conformance closure	Principal Contractor / Contractor
	Supply Chain Management to be informed of non-compliance standing	Johannesburg Water SOC Ltd
	Non-compliance hearing	Johannesburg Water SOC Ltd
3 x consecutive repeat findings	Letter of commitment for performance improvement	Principal Contractor / Contractor
	Non-conformance closure	Principal Contractor / Contractor
	Escalation to SCMU & CAPEX	Johannesburg Water SOC Ltd
	Non-compliance hearing	Johannesburg Water SOC Ltd
	Letter of commitment for performance improvement	Principal Contractor / Contractor

21 OPERATIONAL REQUIREMENTS

21.1 EXCAVATIONS

- Where excavations will exceed 1.5 m in depth the contractor will be required to submit a method statement to Johannesburg Water SOC Ltd for approval before commencing with the excavation and Johannesburg Water SOC Ltd will issue a permit to proceed once the risk assessment and method statement is approved.
- Excavations must be limited to 100m per day, or equated to the amount of work to be done for the day.
- All open excavations shall be closed within 3 days of excavation. No excavation will remain open beyond 3 days or during holidays.
- Excavation work must be carried out under the supervision of a competent person, who has been appointed in writing, with at least two years' experience in excavation work. Before excavation work begins the stability of the ground must be evaluated.
- Whilst excavation work is being performed, the contractor must take suitable and sufficient steps to prevent any person from being buried or trapped by a fall or dislodgement of material.

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- No person may be required or permitted to work in an excavation that has not been adequately shored or braced.
- Where the excavation is in stable material and where the sides of the excavation are sloped back to at least the angle of repose of the excavated material, shoring or bracing may be left out but only after written permission has been obtained from the appointed competent person.
- Shoring and bracing must be designed and constructed to safely support the sides of the excavation.
- Where uncertainty exists regarding the stability of the soil the opinion of a competent professional engineer or professional technologist must be obtained whose opinion will be decisive. The opinion must be in writing and signed by the engineer or technologist as well as the appointed competent person.
- No load or material may be placed near the edge of an excavation unless suitable shoring has been installed to be able to carry the additional load.
- Neighbouring/adjoining buildings, structures or roads that may be affected or endangered by the excavation must be suitably protected.
- Every excavation must be provided with means of access that must be within 6 metres of any worker within the excavation.
- The location and nature of any existing services such as water, electricity, gas etc. must be established before any excavation is commenced with and any service that may be affected by the excavation must be protected and made safe for workers in the excavation.
- The appointed competent person must inspect every excavation, including the shoring and bracing or any other method to prevent collapse, as follows:
 - Daily before work commences
 - After every blasting operation
 - After an unexpected collapse of the excavation
 - After substantial damage to any supports
 - After rain
- The results of any inspections must be recorded in a register kept on site and in the safety file.
- Every excavation accessible to the public or that is adjacent to a public road or thoroughfare or that threatens the safety of persons, must be adequately barricaded or fenced to at least one meter high and as close to the excavation as practicable, regardless of the depth of the excavation.
- Every excavation must be provided with warning lights or visible boundary indicators after dark or when visibility is poor.
- Upon entering an excavation the requirements of General Safety Regulation 5, work in confined spaces, must be observed:
- Any confined space may only be entered after the air quality has been tested to ensure that it is safe to breathe and does not contain any flammable or noxious air mixture.
- The confined space must be purged and ventilated of any hazardous or flammable gas, vapour, dust or fumes.
- The safe atmosphere must be maintained and, where necessary.
- Employees are to be provided with breathing apparatus and must wear a safety harness with a rope with the free end of the rope being continuously attended to by a person outside the confined space.
- Furthermore, an additional person, trained in resuscitation, to be in full-time attendance immediately outside the confined space.
- Additional serviceable breathing and rescue apparatus is kept immediately outside the confined space for rescue purposes.
- All pipes, ducts etc. that may leak into the confined space to be blanked off sufficiently to prevent any leakage or seepage.
- The employer must ensure that all employees have left the confined space after the completion of work.

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- Where flammable gas is present in a confined space no work may be performed in close proximity to the flammable atmosphere.
- Excavations and other openings must be provided with sufficient barriers to prevent construction vehicles and mobile plant from falling into them.
- Excavations left open for extended periods of time (exceeding 48 hours) must be approved the relevant Engineer / Construction Supervisor.

21.2 CONFINED SPACE ENTRY

- Enclosed space work necessitates a Confined Space Permit. This may only be obtained from the authorized person nominated in writing.
- The responsibility for safe procedure, both at the time of entry and during the entire operation of entering and working in confined spaces, rests with the Contractor.
- The Contractor shall be sure that adequate steps have been taken to eliminate or control hazards.
- Before working in an area that contains dust, the area is to be ventilated and hosed down to settle and dampen the dust.
- The Contractor shall provide all necessary equipment to manage confined spaces, including all necessary monitoring and rescue equipment (such as tripods, breathing equipment and the like).
- The Contractor shall ensure all persons working in a confined space or managing entry to a confined space are appropriately trained.
- Compulsory - Continuous monitoring, trained rescue teams, radio communication & adequate ventilation.

Pump sumps & valve chambers

Ventilation

- All available manholes or ventilation covers must be removed and the compartment ventilated for 10 (ten) to 15 (fifteen) minutes, using compressed air or a portable blower.
- Such ventilation must be continued while personnel are in the compartment.
- Ensure that exhaust fumes from blower do not enter the confined space.
- Before entering any sump or compartment, the atmosphere must be tested by the Principal Contractor's competent person (trained by the supplier of the gas monitoring equipment) by lowering the gas monitoring equipment to the bottom of the sump or compartment by means of a rope.
- A register must be kept indicating that the atmosphere has been tested and that the sump or compartment is fit to work in.
- The Principal Contractor's construction supervisor must check and co-sign this register each time he visits a site to ensure that the atmosphere is continuously being monitored.

Entering sump

- When entering a sump the person entering the sump must wear the safety harness, gas detector as well as a self-rescuer.
- A lifeline must be attached to the safety harness and a person on the surface must be in continuous contact with the person in the sump.
- At least one person on the surface must be trained in basic first aid and CPR and a first aid kit with resuscitation equipment must be available outside the entrance of the confined space for emergencies.
- Should the alarm sound when a person is in the confined space, the area must be evacuated immediately and the atmosphere re-tested and certified safe before re-entry into the confined space.
- In no circumstance shall any person remain within a sump for a period of more than one hour at a time.
- A five-minute rest on the surface must be taken after this period before re-entering.
- No naked lights, smoking or unprotected electrical apparatus which may cause sparks, shall be permitted in any sump or in their vicinity.

Confined spaces & water chambers

General

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- All employees working in confined spaces or sewer manholes must be issued with gas monitoring equipment and safety harnesses and self- rescuers where applicable.
- All these employees must be trained in their use.
- Where over pumping between manholes is involved, only leakage free pumping machines and conveyance tubes will be allowed.
- Under no circumstances may any confined space be entered unless it has been certified safe to work in.
- Safety harnesses and attachments must be checked for damage to webbing, metal fittings and ropes on a monthly basis and the findings recorded in a register.
- Should a harness be damaged, it must be reported to the construction supervisor immediately.

The following records shall be taken and maintained by the Principal Contractor:

- Confined space entry permits
- Confined space entry registers
- Safety harness registers

Ventilation

- All available manholes or ventilation covers must be removed and the chamber ventilated for 10 (ten) to 15 (fifteen) minutes, using compressed air or a portable blower.
- Such ventilation must be continued while personnel are in the chamber.
- Ensure that exhaust fumes from blower do not enter the confined space.
- Before entering any chamber, the atmosphere must be tested by the Principal Contractor's competent person (trained by the supplier of the gas monitoring equipment) by lowering the gas monitoring equipment to the bottom of the chamber by means of a rope.
- A register must be kept indicating that the atmosphere has been tested and that the area is fit to work in.
- The Principal Contractor's construction supervisor must check and co-sign this register every time he visits the site to ensure that the atmosphere is continuously being monitored.
- Fumes must be extracted from the chamber while welding.

Entering chamber

- When entering a chamber the person entering the chamber must wear a safety harness as well as the gas detector.
- A lifeline must be attached to the safety harness and a person on the surface must be in continuous contact with the person in the manhole.
- At least one person on the surface must be trained in basic first aid and CPR and a first aid kit with resuscitation equipment must be available outside the entrance of the confined space for emergencies.
- In no circumstances shall any person remain within a chamber for a period of more than one hour at a time. A five-minute rest on the surface must be taken after this period before re-entering.
- Should the alarm sound when a person is in the confined space, the area must be evacuated immediately and the atmosphere re-tested and certified safe before re-entry into the confined space.
- When the activity to undertake inside the pipeline includes the use of any hazardous chemical substances or substances, which might cause hazardous fumes or gasses the contractor, must comply with 5.24 Hazardous Chemical Substances.

Safety equipment

- All teams must be issued with gas monitoring equipment and safety harnesses and self-rescuers where applicable.
- All employees must be trained in the use thereof.

21.3 BARRICADING

- Barricading plans are to be presented by the Principal Contractor for any major operations involving site works for approval by Johannesburg Water SOC Ltd. Where areas are unsafe, they should be enclosed with barricading. Examples are people working overhead, welding splatter etc.

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- Where there is a risk of injury, the area should be barricaded off with secure solid barricades.
- Barricading for the prevention of access into areas with a potential risk of injury shall as a minimum be constructed of a handrail, knee-rail and appropriately supported as to prevent any person from falling into the restricted/risk area.
- Appropriate signage shall be affixed to the barricade indicating the risk associated (i.e. deep excavation, lifting operations etc.) and the responsible Supervisor and contact details shall be displayed. All barricading shall have a "No Entry" signs on all sides and at each change of direction. Signage shall be placed at 20 m intervals where lengths exceed. All signage shall be a minimum size of 290 mm x 290 mm.
- Danger tape shall not be utilised to prevent personnel from entering into areas.
- Where no risk exists of injury to personnel such as stacking and storage areas, the use of wire for hand and knee rails netting shall be acceptable to demarcate the area.
- All barricades will have a dedicated entrance where it is required that personnel enter the areas.
- Appropriate signage shall be placed at the entrance indicating which Contractor has right of entry.
- It is the Contractor's responsibility to remove all redundant barricades directly after use. The Contractor's Safety Officers will maintain a marked-up site plan indicating where barricades are erected.
- It will be a requirement that the contractor protects employees against contact with exposed rebar and poles by the installation of rebar-caps on all exposed areas where there is a potential that an employee could be injured.

21.4 SYMBOLIC SIGNGAGE

Contractors shall use mandatory and prescribed symbolic safety signs at their lay down and site areas. The display of the following signs is mandatory:

- "Radio-Active Material" symbolic signs at radioactive storage areas.
- "Eye Protection" symbolic signs shall be displayed at all grinding machines and at any area where it is mandatory to wear eye protection or where there is danger of an eye injury being sustained.
- "Ear Protection" symbolic signs shall be displayed at all areas where there is a danger of noise induced hearing loss being sustained.
- Every separate room of a workplace shall be consecutively numbered.
- All toilets or urinals shall be marked in a conspicuous place with painted or stencilled letters to indicate the sex for which they are intended.
- The location of every first aid box is to be clearly indicated by means of a sign.
- In any room, cabinet or enclosure where flammable substances are used or stored shall be fixed a suitable and conspicuous sign prohibiting smoking or the use of naked flames in the area.
- At the entrance to premises where machinery is used
- Restricted access on "Authorised Person Only" signs on entry. "No person shall enter the workplace or premises without the permission of the employer or user of the machinery".
- At every place where machinery is used a notice (English & Pictograms) shall be posted.
- Explosive Power Tool shall have a sign warning people when it is in use.
- Electrical Control Gear. A notice shall be posted so as to warn against the re-closing of a switch of control gear whilst a person is working on such equipment.
- Emergency contact telephone numbers.
- Adequate scaffolding signs. (When applicable).
- Adequate fire fighting equipment signs.
- Speed limit signs.
- Warning notices at openings through which people may fall.
- Risk based signage depending on the task being performed e.g.:
 - "Men working above", "Men working below", "Road closed – detour", "Excavation in progress", "No walkway" etc.;
- No-entry signs to incomplete platforms

The Principal Contractor shall install a notification board indicating the following information at the site entrance:

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- Johannesburg Water SOC Ltd project number;
- Principal Contractor identification details (name, telephone number)
- Name and contact details of Construction Supervisor;
- Name and contact details of site safety officer;
- Monthly compliance rating;
- Lost Time Injury Rate;

The Principal Contractor will ensure that information on the notification board is kept up-to-date.

21.5 USE AND STORAGE OF FLAMMABLES

The Principal Contractor to ensure that:

- No person is required or permitted to work in a place where there is the danger of fire or an explosion due to flammable vapours being present unless adequate precautions are taken;
- No flammable material is used or applied e.g. in spray painting, unless in a room or cabinet or other enclosure specially designed and constructed for the purpose unless there is no danger of fire or explosion due to the application of adequate ventilation;
- The workplace is effectively ventilated. Where this cannot be achieved:
 - Employees must wear suitable respiratory equipment
 - No smoking or other source of ignition is allowed in the area
 - The area is conspicuously demarcated as “flammable”
- Flammables stored on a construction site are stored in a well-ventilated, reasonably fire-resistant container, cage or room that is kept locked with access control measures in place. Sufficient fire fighting equipment is installed and fire prevention methods practiced. Proper housekeeping may achieve this;
- Flammables stored in a permanent flammable store are stored so that no fire or explosion is caused.
- Stored in a locked and well-ventilated reasonably fire resistant container, cage or room conspicuously demarcated as “Flammable Store – No Smoking or Naked Lights”
- The flammables store to be constructed of two-hour fire retardant walls and roof and separated from adjoining rooms or workplaces by means of a two-hour fire retardant fire wall
- Adequate and suitable fire fighting equipment installed around the flammables store and marked with the prescribed signs
- All electrical switches and fittings to be of a flameproof design
- Any work done with tools in a flammable store or work areas to be of a non-sparking nature
- No Class A combustibles such as paper, cardboard, wood, plastic, straw and the like to be stored together with flammables
- The flammable store to be designed and constructed such that in the event of spillage of liquids the store is able to contain the full quantity + 10% of the liquids stored
- A sign indicating the capacity of the store to be displayed on the door
- Only one day’s quantity of flammable is to be kept in the workplace;
- Containers (including empty containers) to be kept closed to prevent fumes/vapours from escaping and accumulating in low lying areas;
- Metal containers to be bonded to earth whilst decanting to prevent build-up of static forces; and
- Welding and other flammable gases to be stored segregated according to the type of gas and empty and full cylinders.

21.6 HAZARDOUS CHEMICAL SUBSTANCES

The Principal Contractor must ensure that:

- Employees receive the necessary information and training to be able to use and store hazardous chemical substances safely;
- Employees obey lawful instructions regarding:
 - The wearing and use of protective equipment
 - The use and storage of hazardous chemical substances
 - The prevention of the release of hazardous chemical substances

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- The wearing of exposure monitoring and measuring equipment
- The cleaning up and disposal of materials containing hazardous chemical substances
- Housekeeping, personal hygiene and the protection of the environment
- The risk assessments required in terms of Construction Regulation include employee exposure to hazardous chemical substances and that the necessary measures be taken to protect persons from being detrimentally affected by hazardous chemical substances present or used in the workplace;
- Suppliers provide the necessary information in the form of a material safety data sheet regarding a hazardous chemical substances required to ensure the safe use and storage of that substances;
- An up-to-date list is kept on site of hazardous chemical substances stored and used together with the material safety data sheet of the hazardous chemical substances;
- Hazardous chemical substances containers be clearly marked with the contents and main hazardous category e.g. "Flammable" or "Corrosive" and the reference number of the hazardous chemical substances on the list indicated above;
- Hazardous chemical substances, for example asbestos dust, are not cleared by using compressed air but should be vacuumed;
- No person eats or drinks in a hazardous chemical substances workplace; and
- Hazardous chemical substances waste is disposed of safely in terms of hazardous waste disposal requirements.
- MSDS's to be in 16 point format- available on site

21.7 FIRE PREVENTION AND PROTECTION

The Principal Contractor must ensure that:

- The risk of fire is avoided;
- Sufficient and suitable storage for flammables is provided;
- Sources of ignition are removed wherever flammable or highly combustible material is present in the workplace, for example:
 - Notices prohibiting smoking are displayed and enforced
 - Welding and flame cutting is only allowed under controlled conditions that includes written hot work permits
 - Only spark-free hand and power tools are used
 - No grinding, cutting and shaping of ferrous metals is allowed using electrically driven power tools that produce sparks
 - Flameproof switches and fittings are to be used in the flammable atmosphere
 - Good housekeeping is maintained to prevent the accumulation of unnecessary combustibles
 - Adequate ventilation is maintained
 - Adequate and suitable fixed and portable fire fighting equipment is provided and maintained in good working order.
- Maintenance must include:
 - Regular inspection of fire equipment by a competent person appointed in writing and keeping a register
 - Annual inspection and service by an accredited service provider
- All employees are instructed in the use of the fire fighting equipment and know how to attempt to extinguish a fire;
- A sufficient number of employees are appointed and trained to act as an emergency team to deal with fires and other emergencies;
- Employees are informed regarding emergency evacuation procedures and escape routes;
- Emergency escape routes are kept clear at all times and clearly marked;
- Evacuation assembly points are demarcated;
- Evacuation is practiced to ensure that all persons are evacuated timeously;
- Roll call is held after evacuation to account for all personnel and ensure that no-one has been left behind; and
- A siren or alarm is fitted which is clearly audible to all persons on site.

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21.8 STACKING AND STORAGE

The Principal Contractor must ensure that:

- A competent person is appointed in writing to supervise all stacking and storage on a construction site;
- Adequate storage areas are provided and demarcated;
- The storage areas are kept neat and under control;
- The base of any stack is level and capable of sustaining the weight exerted on it by the stack;
- The items in the lower layers can support the weight exerted by the top layers;
- Cartons and other containers that may become unstable due to wet conditions are kept dry;
- Pallets and containers are in good condition and no material is allowed to spill out;
- The height of any stack does not exceed 3 times the base unless stepped back at least half the depth of a single container at least every fifth tier or the approval of an inspector has been obtained to build the stacks higher with the aid of a machine. The operator of the machine must be protected against items falling from overhead off the stack and no items may overhang;
- The articles that make up a single tier are consistently of the same size, shape and mass;
- Structures for supporting stacks are structurally sound and able to support the mass of the stack;
- No articles are removed from the bottom of the stack first but from the top tier first;
- Anybody climbing onto a stack must do it in a safe manner, taking reasonable safety precautions, and ensuring that the stack is stable and capable of supporting him or her
- Stacks that are in danger of collapsing are broken down and restacked;
- Stability of stacks are not threatened by vehicles or other moving plant and machinery;
- Stacks are built in a header and stretcher fashion and that corners are securely bonded;
- Stacks are stepped back at least half the depth of a single container at least every fifth tier; and
- Persons climbing onto stacks do not approach unguarded moving machinery or electrical installations.
- Laydown area is allocated for Contractor-supplied items.
- At all times, the Contractor shall be responsible for the safe and adequate storage of all materials and equipment on site which he is to install, whether they are supplied by himself or others.
- The safe handling, unloading and loading of material receipts and dispatches at site or storage areas shall be the Contractors' responsibility.

The Contractor shall provide a suitable and adequate lock-up store for the storage of items of equipment and material, which would be damaged or pilfered if stored in the open. The Principal Contractor shall provide all facilities required for weather-proofing, dust proofing or vermin proofing.

The Contractor is responsible for the proper storage and maintenance of all equipment until issue of the Certificate of Practical Completion.

All equipment and materials will be stored on suitable wood poles or pallets which will not protrude more than a meter from any of the stored material. Safe access ways shall be maintained between all stored items preventing employees from having to climb over or under equipment to retrieve the necessary.

21.9 HOUSEKEEPING

The Principal Contractor to ensure that:

- Housekeeping is continuously implemented and maintained;
- Materials and equipment are properly stored;
- Scrap, waste and debris is removed regularly;
- Materials placed for use are placed safely and not allowed to accumulate or cause obstruction to the free-flow of pedestrians and vehicular traffic;
- Waste and debris not to be removed from heights by throwing but rather by chute or crane;
- Where practicable, construction sites are fenced off to prevent entry of unauthorised persons;
- Catch platforms or nets are erected over entry and exit ways or over places where persons are working to prevent them being struck by falling objects;

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- An unimpeded work space is maintained for every employee;
- Every workplace is kept clean, orderly and free of tools, materials and the like that are not required for the work being done;
- As far as is practicable, every floor, walkway, stair, passage and gangway is kept in good state of repair, skid-free and free of obstruction, waste and materials;
- The walls and roof of every indoors workplace sound and leak-free; and
- Openings in floors, hatchways, stairways and open sides of floors or buildings are barricaded, fenced, boarded over or provided with protection to prevent persons from falling.

21.10 PUBLIC HEALTH AND SAFETY

The Principal Contractor is responsible for ensuring that non-employees affected by the construction work are made aware of the dangers likely to arise from the construction work as well as the precautionary measures to be observed to avoid or minimise those dangers. This includes:

- Non- employees entering the site for whatever reason;
- The surrounding community; and
- Passers-by the site.
- The Principal Contractor shall organize the site in such a manner that pedestrians and vehicles can move safely and without risks to health, including sufficient and suitable traffic routes and safe walkways with relevant signage.
- Appropriate signage must be posted to this effect and all employees on site must be instructed to ensure that non-employees are protected at all times. All non-employees entering the site must receive induction into the hazards and risks of the site and the control measures to be observed.
- The Principal Contractor shall recognize that the Community Liaison Officer (CLO) is the link between Johannesburg Water SOC Ltd and the community and provide all reasonable support to the Community Liaison Officer to ensure relevant responsibilities are fulfilled and positive relationships with the community are maintained.

21.11 TRAFFIC MANAGEMENT

- Where activities are performed close to public routes, the Principal Contractor will establish a traffic management plan incorporating the requirements of relevant by-laws.
- At a minimum, barricading, warning signage and flagmen will be provided to ensure the protection of workers from vehicles in transit.
- Where required, the Principal Contractor will interact with the local traffic department to establish minimum requirements to be implemented on public routes.

21.12 HAND TOOLS

The Principal Contractor must inspect all hand tools before it is brought onto the site.

- As far as possible all hand tools must be numbered and placed on register to be inspected monthly by a person designated to do so.
- Any tools found to be in an unsafe condition must immediately be removed from service and either discarded or rectified.
- No chisels with “mushroomed” heads must be used.
- No hammer shall be used with a cracked or damaged handle.
- All files must be fitted with handles.
- All trolleys, pushcarts, etc. used on site must be identifiable, placed on register and inspected at least once every month.
- Non-sparking tools must be used in areas where the risk of fire or explosion is present.
- No homemade hand tools are allowed on the project.
- All tools shall be attached to a suitable lanyard when utilised in elevated positions

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21.13 PORTABLE ELECTRICAL EQUIPMENT

Portable electrical tools and equipment includes every unit that takes electrical power from a 15 ampere plug point and is moved around for use in the workplace for example; drills, saws, grindstones, portable lights, etcetera. Other electrical appliances such as fridges, hotplates, heaters, and etcetera must be inspected and maintained to the same standards as portable electrical tools and appliances.

The use, inspection and maintenance of portable electrical tools and equipment shall be as follows:

- Periodical inspections must be carried out by a competent person appointed in writing;
- Inspection results must be recorded in a register;
- Only competent authorised persons are allowed to use portable electrical tools and equipment; and
- The correct protective equipment must be worn or used whilst operating portable electrical tools and equipment.

This equipment:

- Must be maintained in good condition at all times to prevent an electrical shock to the user;
- The main power source should incorporate an earth leakage protection device or receive power through a double wound transformer or be double insulated and clearly marked as such; and
- All equipment must be fitted with a switch to allow for safe and easy starting and stopping.

The following requirements apply to portable lights:

- Must be fitted with a robust non-hygroscopic non-conducting handle;
- Live metal parts or parts which may become live must be protected against contact;
- The lamp must be protected by a strong guard;
- The cable lead-in must withstand rough handling;
- Inspections must be undertaken that concentrate on plug, cord, switch and any obvious faults;
- A register be kept for each piece of equipment with findings of regular inspections undertaken to evaluate the condition of these lights; and
- When used in wet/damp/metal container conditions, the lamp must be protected.

21.14 LIFTING EQUIPMENT & MACHINERY

Lifting equipment must be designed and constructed in accordance with the manufactures/designers specifications as well as generally accepted technical standards and operated, used, inspected and maintained in accordance with the manufactures requirements as well as that of the of Driven Machinery Regulations promulgated in terms of the Occupational Health and Safety Act (Act no 85 of 1993).

The Driven Machinery Regulations requires that:

- Lifting equipment is clearly and conspicuously marked with the maximum mass load (MML) that it is designed to carry safely. When the MML varies with the conditions of use a table showing the maximum mass load with respect to every variable condition shall be posted up by the user in a conspicuous, place easily visible to the operator and the table shall be used by the driver/operator;
- Each winch on a lifting machine must at all times have, at least, three full turns of rope on the drum when the winch has been run to its lowest limit;
- Lifting equipment shall be fitted with a brake or other device capable of holding the MML. This brake or device shall automatically prevent the downward movement of the load when the lifting power is interrupted;
- Lifting equipment shall be fitted with a load limiting device that automatically arrest the lift when the load reaches its highest safe position or when the mass of the load is greater than the MML;
- Every chain or rope on a lifting machine that forms an integral part of the machine must have a factor of safety as prescribed by the manufacturer of the machine. Where no standard is available the factor of safety must be:
 - chains – 4 (four)
 - steel wire ropes 5 (five)
 - fibre ropes- 10 (ten)

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- Every hook or load attaching device must be designed to prevent the load from slipping off or disconnecting;
- Every lifting machine must be inspected and load tested by a competent person every time it has been dismantled and re-erected and every 12 months after that. The load test must be in accordance with the manufacturer's requirements or to 110% of the MML. In addition, all ropes, chains, hooks or other attaching devices, sheaves, brakes and safety devices forming an integral part of a lifting machine must be inspected every 6 months by a competent person;
- All maintenance, repairs, alterations and inspection results must be recorded in a log book and each lifting machine must have its own log book; and
- No person may be lifted by a lifting machine not designed for lifting persons unless in a cradle approved by the inspector of the Department of Labour.

General requirements for cranes and lifting equipment

All documentation must be provided to the Johannesburg Water SOC Ltd Project Engineer prior to mobilisation. Failure to do so and the resulting cost of any delays and/or remedial activities will be for the Contractor's account.

All crane operators must be authorised by the relevant Engineer before they may operate a crane or lifting machine. The Load charts must be displayed at the crane.

Daily pre-use inspections of the cranes must be done and be kept on the file. The inspections must be logged in a logbook. The area in which a lift is performed must always be barricaded to prevent employees from entering.

A crane or lifting machine must not be left unattended and the keys may never be left in the ignition when the operator is not present. Properly constructed out rigger pads must be used when soil is uneven or unstable. (Only sleepers or appropriately designed steel plate pads may be used for this purpose).

Only a competent rigger may direct a lift of any kind unless the following requirements are met. Rigger assistants used for performing lifting operations shall be limited to lifts with all of the following requirements:

- Lifts lower than 5 tons
- Easy lifts that does not require the load to be lifted over structures, equipment or machinery
- Equipment that is not critical
- Rigging configuration that requires the attachment of several parts of lifting equipment such as chain blocks to adjust the angle of loads.
- All safety devices on a crane or lifting machine must be functional.

Certification will be required for record purpose, and shall cover the following:

- A Brake or other device capable of holding the maximum mass should the power fail, or which is such that it shall automatically prevent the uncontrolled downward movement of the load when the raising effort is interrupted; and
- A Limiting device which shall automatically arrest the driving effort when:
- The Hook or Load attachment point of the Power Driven lifting machine reaches its highest safe position; and
- In the case of a Winch Operated lifting machine with a lifting capacity of 5000kg or more, the load is greater than the rated mass load of such machine.

The user shall ensure that every lifting machine is operated by an Operator specifically trained for a particular type of lifting machine; the user shall not require or permit a person to operate such lifting machine unless the operator is in possession of a certificate of training, issued by an accredited person or organisation.

No Crane shall be used at arrival on site before copies of all documentation have been handed over to the Johannesburg Water SOC Ltd and the Crane have been checked by a person duly authorised and signed off as acceptable. Copies of all documentation shall be kept in the SHE File at all times.

No Crane shall be used without a pre-use check and findings entered on an approved checklist. Before any cranes are established on site the following must be inspected and approved:

- Operator's licences

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- Training certificates
- Medical fitness certificate.
- The cranes load test certificate.
- Rope test certificates including Mill / Destructive test.
- The lifting gear load test certificates.
- The load limiting device calibration certificate.
- Proof that the hooks have been measured for spreading.
- The service inspection history.
- Monthly comprehensive inspection certificate
- Operation and maintenance Manuals and crane condition.

Cranes and Lifting Machines

A contractor shall ensure that where tower cranes are used:

- Account is taken of the effects of wind forces on the structure;
- Account is taken of the bearing capacity of the ground on which the tower crane is to stand;
- The bases for the tower cranes and tracks for rail-mounted tower cranes are firm and level;
- The tower cranes are erected at a safe distance from excavations;
- There is sufficient clear space available for erection, operation and dismantling;
- The tower crane operators are competent to carry out the work safely; and
- The tower crane operators are physically and psychologically fit to work in such an environment by being in possession of a medical certificate of fitness."

No user shall use or permit any person to use a Jib-Crane with a lifting capacity of 5000kg or more at a minimum Jib radius, unless it is provided with:

- A load indicator that shall indicate to the operator of the Jib-Crane the mass of the load being lifted, provided that such a device shall not require manual adjustment from the application of the load, to the Jib-Crane, until the release of the load.
- A Limiting Device, which shall automatically arrest the driving effort whenever the load is lifted, is greater than the rated mass load of the Jib-Crane.

Mobile Crane near Power Lines

No mobile cranes are to be used near overhead power lines until the Johannesburg Water SOC Ltd representative has been notified and provided safe access conditions and a valid permit to work is obtained. Mobile cranes shall be effectively earthed when working in the vicinity of electrical wires. Assume that all electrical equipment and wires are live and avoid them.

Lifting tackle

The following requirements will apply to lifting tackle:

- Manufactured of sound material, well-constructed and free from patent defects;
- Clearly and conspicuously marked with an identity number;
- MML factor of safety:
 - Natural fibre ropes - 10(ten)
 - Man-made fibre ropes and woven webbing - 06(six)
 - Steel wire ropes – single rope - 06(six)
 - Steel wire ropes – combination slings - 08(eight)
 - Mild Steel chains - 05(five)
 - High tensile/alloy steel chains - 04(four)
- Steel wire ropes must be examined by a competent person every three months and the results recorded in a designated logbook. The ropes must be discarded (not used any further for lifting purposes) when wear and corrosion is evident.

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21.15 LADDERS

The following requirements for ladders will apply:

- All ladders used on the site shall be constructed and used in compliance with the OH&S Act and Regulations.
- Ladders, which provide access to a working platform, shall extend one metre above the platform where it provides access, and shall be secured to prevent slipping.
- Timber ladders shall not be painted other than with clear preserving oils, clear varnishes or clear plastics.
- Ladders, which are in a damaged condition, shall not be used and shall be labelled accordingly and removed from the Premises.
- All Ladders shall be numbered, logged in a register, and inspected monthly.
- A ladder in use shall be held by an assistant and/or properly tied down in position.
- Only ladders that do not conduct electricity shall be used in live electrical sub-stations and switching rooms.
- Ladders shall be removed after use and stored in an appropriate facility as to not expose them unnecessarily to the elements or potential damage by surrounding activities.

21.16 CONSTRUCTION VEHICLES AND MOBILE PLANT

Johannesburg Water SOC Ltd will inspect construction vehicles and mobile plant prior to being allowed on a project site. Suppliers of hired vehicles, plant and equipment will be required to comply with this specification as well as the Occupational Health and Safety Act (Act no. 85 of 1993) and Regulations.

Construction vehicles and mobile plant to be:

- Of acceptable design and construction;
- Maintained in good working order;
- Used in accordance with their design and intention for which they were designed;
- Operated and/or driven by trained, competent and authorised operators/drivers. No unauthorised persons are to be allowed to drive construction vehicles and mobile plant;
- Provided with safe and suitable means of access;
- Fitted with adequate signalling devices to make movement safe including reversing;
- Provided with roll-over protection (where applicable);
- Inspected daily before start-up by the driver, operator and/or user and the findings recorded in a register/log book;
- Fitted with two head and two tail lights that are in good working condition and must be used whilst operating under poor visibility conditions;
- When used for transporting persons must have seats firmly secured and sufficient for the number of persons being transported.

Operators and drivers of construction vehicles and mobile plant must be in possession of a valid medical certificate declaring the operator and/or driver physically and psychologically fit to operate or drive construction vehicles and mobile plant.

No loose tools, materials etc. are allowed in the driver and/or operators compartment/cabin or in the compartment in which any other persons are transported.

No person shall ride on any construction vehicle or mobile plant otherwise than in a safe place provided thereon for that purpose. Employees shall only be transported if provision for seating and safety belts has been provided with an adequate canopy or rollover protection.

All construction vehicles and mobile plant left unattended at night, adjacent to a freeway in normal use or adjacent to construction areas where work is in progress, must have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, in order to identify the location of the vehicles or plant.

Bulldozers, scrapers, loaders, and other similar mobile plant must, when being repaired or when not in use, be fully lowered or blocked with controls in a neutral position, motors stopped and brakes set.

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Self-Propelled Mobile Machinery

All Self-Propelled Mobile Machinery must be inspected daily and the findings recorded in a register. Pre-use inspection checklist shall identify critical items that would stop the operator from operating machinery should a defect be detected.

All operators shall be tested on their ability to operate machinery and equipment inspected prior to be used on any of the premises by the Johannesburg Water SOC Ltd Project Inspectors and Responsible Engineer. Relief drivers shall be made available for mobile machinery where there is a need for on-going operations and the contractor shall establish a rotation schedule.

All Drivers/Operators shall be appointed under the applicable legislation prior to operating any type of mobile equipment or machinery:

- If Driver/Operator does not adhere to the rules and regulations his appointment as operator shall be cancelled and he shall not be able to carry on with his duty.
- No Driver/Operator shall be appointed without proof of training, driver's licence or letter of competency.
- No training of Drivers/Operators on Site.
- No passengers on dump truck, Loaders or Excavators.
- No eating or drinking allowed while operating equipment.
- No vehicle shall be left unattended with engine running or key in ignition.
- Drivers may use no cellular phones during operations.

Equipment Approval

Authorization for the use of equipment shall be given in writing only after the following minimum requirements and documentation have been verified and shall as a minimum include the following:

- Minimum two lights in front and rear of vehicle
- Communications system (where required);
- Reflective Taping;
- First-aid kit, fire-fighting equipment and emergency roadside triangles;
- Tyres in good condition;
- Windscreen clear of cracks;
- Safety belts fitted for all occupants;
- Signage for clear identification;
- Windscreen wipers;
- Warning hooter and reverse alarm;
- Rotating warning lights (where applicable);
- Maximum number of persons indicated;
- Equipment free of oil and other leaks;
- Maintenance/Service & Equipment manuals available;

Operator Approval

Authorization for operators for the use of equipment shall be given in writing only after the following minimum requirements and documentation have been verified and shall as a minimum include the following:

- Operator's Certificate (accredited training organisation);
- Operators Licence appropriate to the nature of the Mobile equipment;
- Operator's knowledge tested and familiar with the controls for the vehicle;
- Public driver's permit where required;
- Medical fitness certificate.

21.18 Fall protection (Working in elevated positions)

A pre-emptive risk assessment will be required for any work to be carried out above **two metres** from the ground or any floor level. This work will be classified as "work in elevated positions".

As far as is practicable, any person working in an elevated position will work from a platform, ladder or other device that is at least as safe as if he is working at ground level. Whilst working in this position he shall be wearing a single

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belt with lanyard to prevent the person falling from the platform, ladder or other device. This safety belt will be, as far as is possible, secured to a point away from the edge over which the person might fall and the lanyard must be of such a length and strength that the person will not be able to move over the edge.

Alternatively, any platform, slab, deck or surface forming an edge over which a person may fall may be fitted with suitable guard rails at two different heights as prescribed in the relevant South African National Standard for the design, erection, use and inspection of access scaffolding.

Where the requirement in the paragraph above is not practicable, the person will be provided with a full body harness that will be worn at all times and shall be attached above the wearer's head at all times. The lanyard must be fitted with a shock-absorbing device or the person must be attached to a fall arrest system (anchorage connector; body wear; and connecting device) approved by Johannesburg Water SOC Ltd.

Where the requirements in the paragraph above are not practicable, a suitable catch net must be erected.

Employees working in elevated positions must be trained to work without risk to their health and safety or to the health and safety of others and be declared medically and psychologically fit to perform work at elevated positions. Where work on roofs is carried out, the risk assessment must take into account the possibility of persons falling through fragile material, i.e. skylights and openings in the roof.

Access scaffolding

Access scaffolding must be erected, used and maintained safely in accordance with Construction Regulations and relevant SA Bureau of Standards Code of Practice.

Detailed consideration must be given to all scaffolding to ensure that it is properly planned to meet the working requirements, designed to carry the necessary loadings and maintained in a sound condition. Sufficient material must be available to erect the scaffolding properly.

Scaffolding must only be erected, altered or dismantled by persons who have adequate training and experience and are competent in this type of work and under the continuous supervision of such a person.

21.19 Structures

The Principal Contractor must ensure that:

- Only skilled employees are allowed to erect structures and that the skills of these employees are verified at regular intervals.
- Steps are taken to ensure that no structure becomes unstable or collapses due to construction work being performed on it or in the vicinity of it.
- No structure is overloaded to the extent that it becomes unsafe.
- He has received from the designer the following information:
 - Information on known or anticipated hazards relating to the construction work and the relevant information required for the safe execution of the construction work.
 - A geo-scientific report (where applicable).
 - The loading the structure is designed to bear.
 - The methods and sequence of the construction process.

All drawings relating to the design are on site and available for inspection.

21.20 Explosive powered tools

Every explosive powered tool must be:

- Provided with a guard around the muzzle to confine flying fragments or particles; and

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- Must be fitted with a firing mechanism that will prevent the explosive powered tool from firing unless it is pushed against the surface and at the right angle. Where the explosive powered tool is fitted with an intermediate piston between the charge and the nail this requirement is waived.

The Principal Contractor or user must ensure that:

- Only the correct type of cartridge is used;
- The explosive powered tool is cleaned and inspected daily before use by an appointed competent person. The competent person will keep a register with the findings of his inspection and the details of cleaning, service and repairs;
- The safety devices are in good working order before the explosive powered tool is used;
- When the explosive powered tool is not being used it is stored in an unloaded condition together with the cartridges in a safe and secure place inaccessible to unauthorised persons;
- A warning notice is displayed at the point where the explosive powered tool is in use;
- The issue and return of cartridges must be by issue/returns register signed by both issuer and user and empty cartridge cases must be returned with unspent cartridges;
- Users and operators of the explosive powered tool have received the necessary training and has been authorised as competent to use/operate the explosive powered tool; and
- Users and operators must wear the prescribed personal protective equipment whilst using and/or operating the tool.

21.21 Bulk mixing plants (Batch plants)

- All contractors shall ensure that all bulk mixing plants are operated and supervised by a competent person who has been appointed in writing.
- All contractors shall ensure that the placement and erection of a bulk mixing plant complies with the requirements set out by the manufacturer and that such plant is erected as designed.
- All contractors shall ensure that all devices to start and stop a bulk mixing plant are provided and that these devices are:
 - Placed in an easily accessible position; and
 - Constructed in such a manner as to prevent accidental starting.
- The contractor shall ensure that the machinery and plant selected is suitable for the task and that all dangerous moving parts of a mixer are placed beyond the reach of persons by means of doors, covers or other similar means.
- No person shall be permitted to remove or modify any guard or safety equipment relating to a bulk mixing plant, unless authorized to do so by the appointed person.
- The contractor shall ensure that all persons authorized to operate the bulk mixing plant are fully aware of all the dangers involved in the operation thereof and conversant with the precautionary measures to be taken in the interest of health and safety.
- No person supervising or operating a bulk mixing plant shall authorize any other person to operate the plant, unless such person is competent to operate machinery.
- The contractor shall ensure that all precautionary measures as stipulated for confined spaces in "good safe practices" are adhered to when entering any silo.
- The contractor shall ensure that a record is kept of any repairs or maintenance to a bulk mixing plant and that it is made available, on site, to an inspector, client, client's agent or employee upon request.
- The contractor shall ensure that all lifting machines and lifting tackle used in the operation of a bulk mixing plant complies with the requirements of the Regulations promulgated.
- The contractor shall ensure that all precautionary measures are adhered to regarding the usage of electrical equipment in explosive atmospheres, when entering a silo, as contemplated in the Regulations.

21.22 Electrical installations

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The installation of temporary electricity for construction shall be in accordance with Construction Regulations and the Electrical Installation Regulations. The Principal Contractor must ensure that:

- Existing services are located and marked before construction commences and the markings maintained during construction;
- Electrical installations and -machinery are sufficiently robust to withstand normal working conditions on site;
- Temporary electrical installations must be inspected at least once a week by a competent person and a record of the inspections kept in the SHE File;
- Electrical machinery used on a construction site must be inspected daily before start-up by the competent driver/operator or any other competent person and a record of the inspections kept in the SHE File; and
- A competent person appointed in writing must control and be responsible for all temporary electrical installations.
- An employer or user shall provide free of charge and maintain in good condition such protective equipment as may be necessary to prevent incidents, for use by persons engaged in working on or in close proximity to live electrical machinery or dead electrical machinery which may become live.

21.22.1 Electrical control gear

- The contractor shall ensure that all electrical machinery are provided with controlling apparatus and protective devices which shall, as far as is reasonably practicable, be capable of automatically isolating the power supply in the event of a fault developing on such machinery.
- The contractor shall place a switch, circuit breaker or fuse in the neutral conductor of a polyphase alternating current or three-wire direct current distribution system unless such switch, circuit breaker or fuse is so arranged as to isolate all phase conductors and the neutral conductor simultaneously: Provided that this shall not include an isolating link on the neutral conductor installed for test purposes or to prevent circulating currents.
- The contractor shall, whenever reasonably practicable, provide switchgear with an interlocking device so arranged that the door or cover of the switch cannot be opened unless the switch is in the 'off position and cannot be switched on unless the door or cover is locked.
- The contractor shall mark or label all controlling apparatus permanently so as to identify the system or part of the system or the electrical machinery which it controls, and where such control apparatus is accessible from the front and the back these markings shall be on both the front and the back.
- The contractor shall post a notice at switchgear or control gear which has been switched off or locked out to enable persons to work on electrical machinery or other machinery operated by electricity and controlled by. Such switchgear or control gear, warning against reclosing such switchgear or control gear.

21.22.2 Work on disconnected electrical machinery

- Without derogating from any specific duty imposed on employers or users of machinery by the Act, an employer or user shall, whenever work is to be carried out on any electrical machinery which has been disconnected from all sources of electrical energy, but which is liable to acquire or to retain an electrical charge, as far as is practicable, cause precautions to be taken by earthing or other means to discharge the electrical energy to earth from such electrical machinery or any adjacent electrical machinery if there is danger there from before it is handled and to prevent any electrical machinery from being charged or made live while persons are working thereon

21.22.3 Portable electric tools

No person shall use or permit the use of a portable electric tool with an operating voltage that exceeds 50 V to earth unless-

- It is connected to a source of electrical energy incorporating an earth leakage protection device, the construction of which meets the requirements of the relevant health and safety standard incorporated into these Regulations under section 44 of the Act; or
- It is connected to a source of electrical energy through the interposition between each tool and the source of an individually double-wound isolating transformer, the secondary winding of which is not earthed at any point

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and the construction of which meets the requirements of the relevant health and safety standard incorporated into these Regulations under section 44 of the Act; or

- It is connected to a source of high frequency electrical energy derived from a generator which is used solely for supplying energy to such portable electric tool and which arrangement is approved by the chief inspector; or it is clearly marked that it is constructed with double or reinforced insulation.

No person shall sell a portable electric tool constructed with double or reinforced insulation unless-

- It is clearly marked that it is constructed with such insulation; and Its insulation is constructed in accordance with the relevant health and safety standard incorporated into these Regulations under section 44 of the Act.
- No employer or user shall use or permit the use of a portable electric tool which is not fitted with a switch to allow for easy and safe starting and stopping of the tool.
- The employer or user shall maintain every portable electric tool, together with its flexible cord and plug, in good working order.

21.22.4 Switchboards

The contractor shall ensure that an unobstructed space for operating and maintenance staff is provided at the back and front of all switchboards, and the space at the back shall be kept closed and locked except for the purpose of inspection, alteration or repair: Provided that the requirements of this regulation with respect to the unobstructed space at the back of the switchboard shall not apply in the case of-

- switchboards which have no uninsulated conductors accessible from the back;
- switchboards, the switchgear of which is of a totally enclosed construction;
- switchboards, the backs of which are only accessible through an opening in the wall or partition against which they are placed, such openings being kept closed and locked; and
- switchboards which can be safely and effectively maintained from the front and which have all parts accessible from the front.

21.22.5 Electrical machinery in hazardous locations

- No person may use electrical machinery in locations where there is danger of fire or explosion owing to the presence, occurrence or development of explosive or flammable articles, or where explosive articles are manufactured, handled or stored, unless such electrical machinery, with regard to its construction relating to the classification of the hazardous locations in which it is to be used, meets the requirements of a safety standard incorporated for this purpose in these regulations under section 36 of the Act.
- Every user of electrical machinery shall be in possession of a certificate in a form acceptable to the chief inspector which has been issued by an approved inspection authority, in which it is certified that the electrical machinery has been manufactured and tested for the groups of dangerous articles in terms of the safety standard which has been incorporated in these regulations for this purpose under section 36 of the Act: Provided that in lieu of such certificate an inspector may approve permanent labeling on such machinery which contains all the relevant information.
- When diverse items of electrical machinery such as motors, cables and control apparatus are used together to form an electrical installation, the user shall ensure that the selection, arrangement, installation, protection, maintenance and working thereof results in no less a degree of safety than when the individual items of such machinery are used separately.
- The user shall use electrical machinery to which this regulation applies only under such conditions and in such surroundings as are prescribed in the safety standard incorporated in these regulations for this purpose under section 36
- No person shall effect repairs or adjustments to or otherwise work on electrical machinery under conditions (bullet 1) unless such machinery has been rendered dead and effective measures have been taken to ensure that such machinery remains dead.
- Wherever there is a possibility of the formation of static electricity under working conditions, the user shall earth all metallic structures, machine parts, pneumatic conveyor ducts and pipelines conveying flammable

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articles and the like, or take such other measures as may be necessary to effectively prevent the formation of electric sparks.

- The user shall cause all electrical machinery to which this regulation applies to be examined and tested at intervals not exceeding two years by a person who is competent to express an opinion on the safety thereof.
- The person carrying out the examination shall enter, sign and date the results of each such examination in a record book which shall be kept by the user for this purpose: Provided that where such machinery is subject to adverse climatic or physical conditions the frequency of such examinations shall be increased to intervals of no longer than one year or such shorter period as circumstances may necessitate.

21.22.6 Design and construction

- No person shall authorize, design, install or permit or require the installation of an electrical installation, other than in accordance with a health and safety standard incorporated into these regulations under section 44 of the Act: Provided that the components within an electrical installation shall comply with the standards referred to in the incorporated standard and proof of compliance shall be identifiable on the components or certification shall be available from the supplier or manufacturer of the components: Provided further that items of an electrical installation not covered by such incorporated safety standard, and the conductors between the point of supply and the point of control, shall be installed in accordance with the by-laws or regulations of the supplier concerned.
- A registered person shall exercise general control over all electrical installation work being carried out, and no person shall allow such work without such control: Provided that where the voltage exceeds 1kV, the installation shall be designed and supervised by a person deemed competent in terms of paragraphs (b), (c) or (d) of the definition of a competent person in regulation 1 of the General machinery Regulations, 1998.
- No supplier shall restrict the application of a health and safety standard referred to in sub-regulation (1) when an electrical installation is installed, except where the distribution system of the supplier may be adversely affected by the application thereof.

21.22.7 Electrical contractor

- Any person, including a juristic person, who intends to do installation work as an electrical contractor shall register annually with the chief inspector in the form prescribed in annexure 1 of the Electrical Installations Regulations.

21.22.8 Commencement and permission to connect installation work

- No person shall commence with installation work which would require a new supply or an increase in electricity supply capacity unless the supplier has been notified thereof in the form of Annexure 3: Provided that the supplier may waive this requirement in respect of such types of work as it may specify.
- No person shall connect or permit the connection of any completed or partially completed electrical installation to the electricity supply unless it has been inspected and tested by a registered person and a certificate of compliance for that electrical installation has been issued: Provided that the supplier may on request connect the supply to the installation for the purpose of testing and completion of the certificate of compliance by a registered person: Provided further that this sub-regulation shall not apply in the case where the electricity was disconnected for the non-payment of the electricity account or where there has been a change of tenant but not of ownership.
- Where the supply to an electrical installation is 25kVA or above, the user shall appoint an approved inspection authority or a competent person who shall ensure the compliance from the commencement to the commissioning of the installation.

21.22.9 Issuing of certificate of compliance

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Only registered person may issue a certificate of compliance in the form of annexure 4 and which shall be accompanied by a test report in the format approved by the chief inspector, after having satisfied himself or herself by means of an inspection and testing that—

- a new electrical installation complies with the provisions of regulation 7 (1) of the Electrical Installation Regulations (EIR); or
- an electrical installation which existed prior to the publication of the current edition of the health and safety standard incorporated into these regulations in terms of regulation 7 (1) (EIR), complies with the general safety principles of such standard; or
- an electrical installation which existed prior the publication of the current edition of the health and safety standard incorporated into these regulations in terms of regulation 7 (1) and to which extensions or alterations have been affected, that—
 - ting part of the installation, complies with the general safety principles of such standard and is reasonable safe, and
 - extensions or alterations affected comply with the provisions of regulation 7 (1) of the Electrical Installation Regulations (EIR).
- If at any time prior to issuing a certificate of compliance any fault or defect is detected in any part of the installation, the registered person shall refuse to issue such certificate: Provided that if such fault or defect in the opinion of the registered person constitutes an immediate danger to persons in the case where electricity is already supplied, he or she shall forthwith take steps to disconnect the supply to the circuit in which the fault or defect was detected and notify the chief inspector.
- Any person who undertakes to do electrical installation work shall ensure that a valid certificate of compliance is issued for that work.
- No person shall amend a certificate of compliance issued by a registered person.

21.23 DEMOLITION

- A contractor must appoint a competent person in writing to supervise and control all demolition work on site.
- A contractor must ensure that before any demolition work is carried out, and in order to ascertain the method of demolition to be used, a detailed structural engineering survey of the structure to be demolished is carried out by a competent person and that a method statement on the procedure to be followed in demolishing the structure is developed by that person.
- During demolition, the competent person must check the structural integrity of the structure at intervals determined in the method statement, in order to avoid any premature collapses.
- A contractor who performs demolition work must-
 - (a) with regard to a structure being demolished, take steps to ensure that-
 - (i) no floor, roof or other part of the structure is overloaded with debris or material in a manner which would render it unsafe;
 - (ii) all reasonably practicable precautions are taken to avoid the danger of the structure collapsing when any part of the framing of a framed or partly framed building is removed, or when reinforced concrete is cut; and
 - (iii) precautions are taken in the form of adequate shoring or other means that may be necessary to prevent the accidental collapse of any part of the structure or adjoining structure;
 - (b) ensure that no person works under overhanging material or a structure which has not been adequately supported, shored or braced;
 - (c) ensure that any support, shoring or bracing contemplated in paragraph (b), is designed and constructed so that it is strong enough to support the overhanging material;
 - (d) where the stability of an adjoining building, structure or road is likely to be affected by demolition work on a structure, take steps to ensure the stability of such structure or road and the safety of persons;
 - (e) ascertain as far as is reasonably practicable the location and nature of electricity, water, gas or other similar services which may in any way be affected by the work to be performed, and must before the commencement of demolition work that may affect any such service, take the steps that are necessary to render

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circumstances safe for all persons involved;

- (f) cause every stairwell used and every floor where work is being performed in a building being demolished, to be adequately illuminated by either natural or artificial means;
 - (g) cause convenient and safe means of access to be provided to every part of the demolition site in which persons are required to work; and
 - (h) erect a catch platform or net above an entrance or passageway or above a place where persons work or pass under, or fence off the danger area if work is being performed above such entrance, passageway, or place so as to ensure that all persons are kept safe where there is a danger or possibility of persons being struck by falling objects.
- A contractor must ensure that no material is dropped to any point, which falls outside the exterior walls of the structure, unless the area is effectively protected.
 - No person may dispose of waste and debris from a high place by a chute unless the chute-
 - (a) is adequately constructed and rigidly fastened;
 - (b) if inclined at an angle of more than 45 degrees to the horizontal, is enclosed on its four sides;
 - (c) if of the open type, is inclined at an angle of less than 45 degrees to the horizontal;
 - (d) where necessary, is fitted with a gate at the bottom end to control the flow of material; and
 - (e) discharges into a container or an enclosed area surrounded by barriers.
 - A contractor must ensure that every chute used to dispose of rubble is designed in such a manner that rubble does not free-fall and that the chute is strong enough to withstand the force of the debris travelling along the chute.
 - A contractor must ensure that no equipment is used on floors or working surfaces, unless such floors or surfaces are of sufficient strength to support the imposed loads.
 - Where a risk assessment indicates the presence of asbestos, a contractor must ensure that all asbestos related work is conducted in accordance with the Asbestos Regulations, 2001, promulgated by Government Notice No. R. 155 of 10 February 2002.
 - Where a risk assessment indicates the presence of lead, a contractor must ensure that all lead related work is conducted in accordance with the Lead Regulations, 2001, promulgated by Government Notice No. R.236 of 28 February 2002.
 - Where the demolition work involves the use of explosives, a method statement must be developed in accordance with the applicable explosives legislation, by an appointed person who is competent in the use of explosives for demolition work and all persons involved in the demolition works must adhere to demolition procedures issued by the appointed person.
 - A contractor must ensure that all waste and debris are as soon as reasonably practicable removed and disposed of from the site in accordance with the applicable legislation.

22. Monthly reporting

- The Principal Contractor is required to provide Johannesburg Water SOC Ltd. with a monthly report in the format provided on the last working day of the month.
- The report will include the monthly man-hours, incidents, training, inductions, audits, etc

23. Project close out

- Upon completion of the project, the contractor is required to hand over a consolidated project file to the Client with all the working documents for retention.

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**OCCUPATIONAL HEALTH & SAFETY (SHE) SPECIFICATION: COVID-19**

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OCCUPATIONAL HEALTH, SAFETY & ENVIRONMENTAL SPECIFICATION

COVID-19 GUIDELINES FOR JOHANNESBURG WATER SOC (JW) CONTRACTORS

Prepared by: OHS Department PO Box 61542 Marshalltown 2107 Tel: +27 11 688 1476	PRINCIPAL CONTRACTOR:	
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	FAX NUMBER	
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	SIGNATURE:	

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1. Introduction

The OHSA (Occupational Health and Safety Act – Act 85 of 1993), read with its regulations and incorporated standards, requires the employer to provide and maintain as far as is reasonably practicable a working environment that is safe and without risks to the health of workers and to take such steps as may be reasonably practicable to eliminate or mitigate the hazard or potential hazard.

The OHSA requires employers, to ensure, as far as is reasonably practicable, that all persons who may be directly affected by their activities (such as customers, clients or contractors and their workers who enter their workplace or come into contact with their employees) are not exposed to hazards to their health or safety. This obligation also applies to self-employed persons (for example, plumbers or electricians) whose working activities bring them into contact with members of the public.

2. PURPOSE

The purpose of this document is to give guidance to all contractors conducting work on behalf of JW on the measures to be implemented to safeguard their employees, JW employees, visitors coming to their site as well as the public against COVID-19.

3. MINIMUM REQUIREMENTS TO BE COMPLIED WITH:

3.1. COVID-19 Risk Assessment

Every employer shall develop a risk assessment in relation to COVID-19 which takes into consideration:

- Identification of exposure levels
- Identification of “high contact” activities
- Identification of vulnerable workers and special measures for their protection, including protection against unfair discrimination or victimization

The risk assessment will form part of the safety file that will be evaluated for conformance, and thereafter audited monthly for compliance.

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3.2. COVID-19 SOP / Amendment to the SHE plan

- Each employer needs to demonstrate how he or she will comply with the requirements of various COVID-19 legislation.
- The SOP must also outline how the employer will identify employees with comorbidities and measures to be taken.

3.3. Control measures

Control measures will include

3.3.1 Alcohol based sanitizer (70%)

A hand sanitizer must be made available at all sites, and must contain at least 70% alcohol content and is in accordance with the recommendations of the Department of Health.

Every employer must, free of charge, ensure that –

- there are sufficient quantities of hand sanitizer based on the number of workers or other persons who access the workplace at the entrance of, and in, the workplace which the workers or other persons are required to use;
- every employee who works away from the workplace, other than at home, must be provided with an adequate supply of hand sanitizer.
- If a worker interacts with the public, the employer must provide the worker with sufficient supplies of hand-sanitizer at that worker's workstation for both the worker and the person with whom the worker is interacting.

3.3.2 Cloth masks (3 ply)

Every employer must –

- provide each of its employees, free of charge, with a minimum of two cloth masks, which comply with the requirement set out in the Guidelines issued by the Department of Trade, Industry and Competition, for the employee to wear while at work and while commuting to and from work; and
- Require any other worker to wear masks in the workplace.
- Ensure that workers are informed, instructed, trained and instructed as to the correct use of cloth masks.

3.3.3 Hand soap and hygiene facilities

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The employer must ensure that-

- there are adequate facilities for the washing of hands with liquid hand soap and clean water;
- only paper towels are provided to dry hands after washing – the use of fabric towels is prohibited;
- the workers are required to wash their hands and sanitize their hands regularly while at work;
- the workers interacting with the public are instructed to wash or sanitize their hands between each interaction with public;

3.3.4 Engineering controls

Every employer must –

- keep the workplace well ventilated by natural or mechanical means to reduce the SARS-CoV-2 viral load;
- where reasonably practicable, have an effective local extraction ventilation system with high-efficiency particulate air HEPA filters, which is regularly cleaned and maintained, and its vents do not feedback in through open windows;
- Ensure that filters are cleaned and replaced in accordance with the manufacturer's instructions by a competent person.
- Every employer must arrange the workplace to ensure minimal contact between workers and as far as practicable ensure that there is a minimum of 1.5m between workers while they are working, for example, at their workstations.
- If it is not practicable to arrange work stations to be spaced at least 1.5m apart, the employer must-
- Arrange physical barriers to be placed between work stations or erected on work stations to form a solid physical barrier between workers while they are working

3.3.5 Social distancing protocol

- Every employer must arrange the workplace to ensure minimal contact between workers and as far as practicable ensure that there is a minimum of 1.5m (metres) between workers while they are working, for example, at their workstations.

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- Depending on the circumstances of the workplace or the nature of the sector, the minimum distance may need to be longer.
- Reducing the number of workers present in the workplace at any time may assist in achieving the required social distancing.
- Employers therefore need to identify work that can be performed remotely / at home in order to reduce the number of employees coming physically to the work environment.
- Every employer must arrange the workplace to ensure minimal contact between workers and as far as practicable ensure that there is a minimum of 1.5m between workers while they are working, for example, at their workstations.
- If it is not practicable to arrange work stations to be spaced at least 1.5m apart, the employer must-
- arrange physical barriers to be placed between work stations or erected on work stations to form a solid physical barrier between workers while they are working; or
- Supply the employee free of charge with appropriate PPE based on a risk assessment of the working place.

The employer should develop a protocol on social distancing which will include:

- No handshakes
- No hugs
- No kissing
- No horseplay
- No touching each other
- Minimum of 1.5m distance between two employees during work, meetings, lunch, etc.
- Installation of physical screens in the workplace to separate workstations
- Minimum number of people allowed in the vehicles during transportation

All the requirements above should be observed in conjunction with wearing of masks and regular handwashing and sanitizing.

3.3.6 Cleaning and disinfection

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Every employer must take measures to ensure that-

- all work surfaces and equipment are disinfected before work begins, regularly during the working period and after work ends;
- all areas such as toilets, common areas, door handles, shared electronic equipment are regularly cleaned and disinfected;
- Disable biometric systems or make them COVID-19-proof.
- Surfaces that workers and members of the public come into contact with are routinely cleaned and disinfected.
- There is provision for the disinfection of the premises in the event that an employee tests positive at work.

4. Employees above the age of 60, and those with comorbidities

- The employer shall identify all comorbidities that will increase the severity of COVID-19 should employees with them be infected.
- The employer should identify whether those employees will work fully from home or on a rotational basis with full PPE and other prevention and control measures observed.
- Employees over the age of 60 must also be identified and work from home.

5. Special provisions

- The employer must appoint a compliance officer to ensure compliance with these requirements.
- The compliance officer will also address employee or workplace representative concerns and to keep them informed and, in any workplace in which a health and safety committee has been elected, consult with that committee on the nature of the hazard in that workplace and the measures that need to be taken;
- The employer must ensure that all relevant legal requirements and the risk assessment plan are strictly complied with through monitoring and supervision;
- The employer must, as far as practicable, minimize the number of workers on at the workplace at any given time through rotation, staggered working hours, shift systems, remote working arrangements or similar measures in order to achieve social distancing.

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- Take measures to minimize contact between workers as well as between workers and members of the public;
- Notify employees that if they are sick or have symptoms associated with COVID-19 that they must not come to work and to take paid sick leave in terms of section 22 of the BCEA.
- Display notices advising persons other than employees entering the workplace of the precautions they are required to observe while in the workplace;

If an employee has been diagnosed with COVID-19, the employer must-

- Inform the Department of Health and the Department of Employment and Labour using the WCL1 form;
- Investigate the cause including any control failure and review the risk assessment to ensure that the necessary controls and PPE requirements are in place;
- Give administrative support to any contact-tracing measures implemented by the Department of Health.

Symptom screening

Every employer must take measures to-

- Screen any worker, at the time that they report for work, to ascertain whether they have any of the observable symptoms associated with COVID-19, namely fever, cough, sore throat, redness of eyes or shortness of breath (or difficulty in breathing);
- Require every worker or visitor to report whether they suffer from any of the following additional symptoms: body aches, loss of smell or loss of taste, nausea, vomiting, diarrhoea, fatigue, weakness or tiredness; and
- Require workers to immediately inform the employer if they experience any of the symptoms above while at work.

If a worker presents with those symptoms, or advises the employer of these symptoms, the employer must –

- not permit the worker to enter the workplace or report for work; or
- if the worker is already at work, immediately-

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- isolate the worker, provide the worker with a FFP1 surgical mask and arrange for the worker to be transported in a manner that does not place other workers or members of the public at risk either to be self-isolated or taken for a medical examination or testing; and
- assess the risk of transmission, disinfect the area and the worker's workstation, refer those workers who may be at risk for screening and take any other appropriate measure to prevent possible transmission;
- ensure that the worker is tested or referred to an identified testing site;
- place the employee on paid sick leave in terms of section 22 of the BCEA or if the employee's sick leave entitlement under the section is exhausted, make application for an illness benefit in terms of clause 4 of the Directive issued on 25 March 2020 on the COVID-19 Temporary Employer Relief Scheme under regulation 10(8) of the Regulations promulgated in terms of section 27(2) of the Disaster Management Act;
- ensure that the employee is not discriminated against on grounds of having tested positive for COVID-19 in terms of section 6 of the Employment Equity Act, 1998 (Act No. 55 of 1998);
- If there is evidence that the worker contracted COVID-19 as a result of occupational exposure, lodge a claim for compensation in terms of the Compensation for Occupational Injuries and Diseases Act, 1993.

6. PROCEDURES TO BE FOLLOWED ON SITE

6.1 ENTRY AND EXIT ON THE SITE CAMP

- The security personnel who will be trained in the procedures will do daily screening via questionnaire for every employee and visitor entering the site.
- Temperature checks will be done by security personnel using non-contact infrared thermometer.
- Every employee who records a temperature above 38°C will be sent home to seek for medical help.
- No employee or visitor who answers any question by yes on the questionnaire should be granted access into the site premises.
- Report to the site manager daily

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6.2 MEETING ATTENDANCE

BEFORE the meeting or event

- Check the advice from the authorities in the community where you plan to hold the meeting or event. Follow their advice.
- Develop and agree a preparedness plan to prevent infection at your meeting or event.
 - Consider whether a face-to-face meeting or event is needed. Could it be replaced by a teleconference or online event?
 - Could the meeting or event be scaled down so that fewer people attend?
 - Ensure and verify information and communication channels in advance with
 - Pre-order sufficient supplies and materials, including face masks, hand soap, tissue and hand sanitizer for all participants.
- Develop and agree a response plan in case someone at the meeting becomes ill with symptoms of COVID-19 (dry cough, fever, malaise). This plan should include at least:
 - Identify a room or area where someone who is feeling unwell or has symptoms can be safely isolated.
 - Have a plan for how they can be safely transferred from there to a health facility.
 - Know what to do if a meeting participant, staff member or service provider tests positive for COVID-19 during or just after the meeting
 - Agree the plan in advance with your partner healthcare provider or health department.

DURING the meeting or event

- Provide information or a briefing, preferably both orally and in writing, on COVID-19 and the measures that organizers are taking to make this event safe for participants.
 - Encourage regular hand-washing or use of an alcohol rub by all participants at the meeting or event
 - Encourage participants to cover their face with the bend of their elbow or a tissue if they cough or sneeze. Supply tissues and closed bins to dispose of them in.
 - Provide contact details or a health hotline number that participants can call for advice or to give information.
- Display dispensers of alcohol-based hand rub prominently around the venue.

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- If there is space, arrange seats so that participants are at least one meter apart.
- Open windows and doors whenever possible to make sure the venue is well ventilated.
- If anyone who starts to feel unwell, follow your preparedness plan.

AFTER the meeting

- Retain the names and contact details of all participants for at least one month. This will help public health authorities trace people who may have been exposed to COVID-19 if one or more participants become ill shortly after the event.
- If someone at the meeting or event was isolated as a suspected COVID-19 case, the organizer should let all participants know this. They should be advised to monitor themselves for symptoms for 10 days and take their temperature twice a day.
- If they develop even a mild cough or low-grade fever (i.e. a temperature of 38 C or more), they should stay at home and self-isolate. This means avoiding close contact (1 meter or nearer) with other people, including family members. They should also telephone their healthcare provider or the local public health department, giving them details of their recent travel and symptoms.

7. Identifying contacts

To identify contacts, a detailed case investigation and interview with the COVID-19 patient or their caregiver must be conducted.

Environment	Criteria	Ways to identify contacts
Known/identifiable contacts		
Workplace (Immediate colleagues)	Any employees who had: ✓ Face-to-face contact with a COVID 19 patient within 1 metre and for >15 mins ✓ Direct physical contact with a COVID-19 patient ✓ Provided direct care for a COVID-19 patient in the workplace without proper PPE	✓ Direct interview with the COVID-19 patient and/or their caregiver(s). ✓ Direct interview with all employees and supervisors ✓ Interview can also be done telephonically

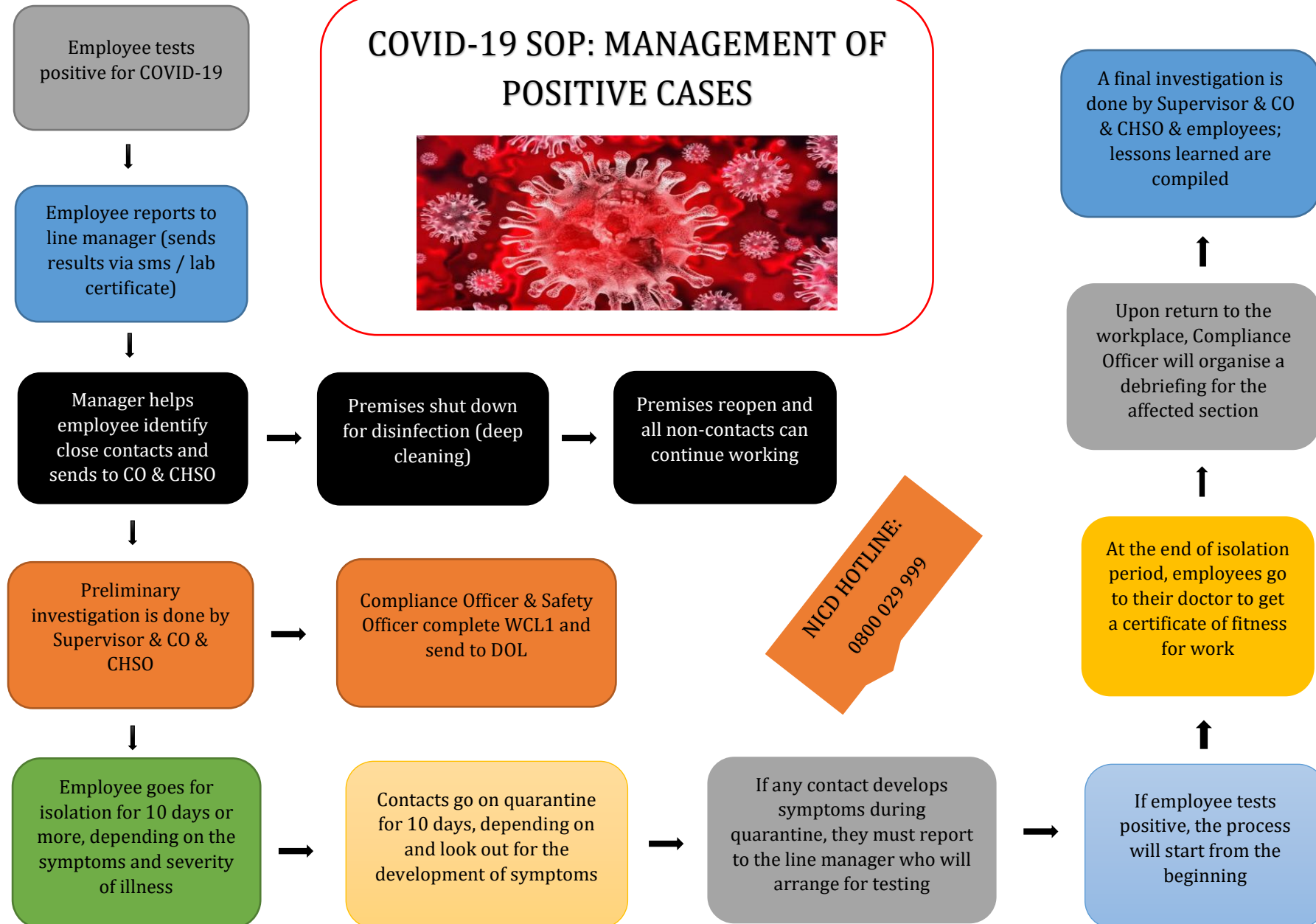
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	✓ Shared working space or equipment with a COVID 19 patient ✓ Shared a room, meal, or other space with a confirmed patient	
Workplace (Visitors / suppliers)	✓ All visitors who visited the site within the 2 week period and were potentially in contact with the infected employee	✓ Daily signing registers ✓ Meeting attendance registers

This information will be shared with the health authorities so that they can be able to do household, community, social and contact tracing for all contacts associated with a contact

- Where possible, the Project / Construction Manager should check in with contacts to make sure they are self-monitoring and have not developed symptoms.
- Contacts who develop symptoms should promptly isolate themselves and notify the NICD.
- They should be promptly evaluated for infection and for the need for medical care.

COVID-19 SOP: MANAGEMENT OF POSITIVE CASES





HEALTH, SAFETY & ENVIRONMENTAL (SHE) SPECIFICATION: BASELINE RISK ASSESSMENT

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PROJECT DESCR:	GEOTECHNICAL INVESTIGATION SERVICES

POSSIBLE RISKS FOR THIS PROJECT

Task	Hazard	Risk	Consequence	Rating	Controls
Transportation of material to site	✓ Unsafe road conditions ✓ Un-road worthy vehicles ✓ Unsecured material ✓ Incompetent drivers ✓ Alcohol use by driver ✓ Inclement weather ✓ Speeding	✓ Overturning vehicles ✓ Vehicle collisions	✓ Injuries ✓ Property damages ✓ Third party liability	M	✓ Adherence to the speed limit ✓ Only competent/ authorised drivers should operate the vehicle ✓ Inspection of vehicles ✓ Equipment and material to be properly secured ✓ Alcohol testing to be done ✓ The road to be paved to prevent accidents ✓ Traffic control to be implemented to avoid collisions
Offloading of material	✓ Faulty lifting machinery & equipment ✓ Suspended load ✓ Poor housekeeping	✓ Malfunctioning ✓ Falling on employees ✓ Obstructed walkways by materials	✓ Injuries	M	✓ Inspect lifting equipment prior to use. ✓ Ensure the safe working load prior to use ✓ Train the employees in manual lifting ✓ Ensure proper housekeeping ✓ The correct PPE must be worn ✓ Designate the stacking areas and put signs ✓ Stacking and storage inspector must be appointed and in charge

Stacking and storage	✓ Unsafe stacks of materials or pallets	✓ Falling of pallets and material on employees ✓	✓ Injuries ✓ Property damage	M	✓ Supervision of all stacking of materials on site ✓ Materials of same base and heights stacked together ✓ Barricade the stacking area ✓ Unsafe stacks to be removed immediately ✓ Never stack materials during knocking off time or late at night ✓ Use task specific PPE
Construction vehicles and mobile plant operation	✓ Incompetent operator	✓ Loss of control ✓ Machine running uncontrollably ✓ Bumping employees	✓ Serious injuries ✓ Fatalities	H	✓ Only competent personnel may operate construction vehicles and mobile plant.
	✓ Faulty machine	✓ Machine running uncontrollably ✓ Colliding with employees and machinery, equipment	✓ Serious injuries, ✓ Fatalities ✓ Property damages	H	✓ Inspect all construction vehicles and mobile plant prior to use. ✓ Implement lockout procedures for all equipment and plant.
Excavation	✓ Deep excavations	✓ Collapse ✓ Falling ✓ Unsafe entry and exit ✓ Spoil material	✓ Serious injuries	H	✓ Fencing off of project site ✓ No unauthorised entry into the project site. ✓ Full time security on site to monitor entry and exit. ✓ Safe method of entry and exit to be provided for employees ✓ Spoil material to be stored at least 2m away from the excavation ✓ Signage to be displayed indicating deep excavations
	✓ Excavator	✓ Incompetent operator ✓ Faulty excavator ✓	✓ Serious injuries ✓ Electrocution	H	✓ Only competent personnel are allowed to operate the excavator ✓ All excavators must be inspected prior to use

					✓ All underground services to be identified prior
Drilling	✓ Drilling ✓ Open excavated pits ✓ Stall / breakage of drill head / reamer head ✓ Pipe line collapse ✓ Bore hole collapse	✓ Contact with live services ✓ Workers falling inside ✓ Equipment breaking / malfunctioning ✓ Caving in and burying of employees	✓ Electrocution ✓ Injuries ✓ Property damage ✓ Fatalities	H	✓ Ensure that all services are identified on drawings. ✓ Only trained employees to undertake the activities. ✓ Any deviations identified on the drill path must be reported to the drill rig operator. ✓ Barricade all open excavations ✓ Ensure that there is proper and sufficient geotechnical data. ✓ Inspect all equipment prior to use.
Drilling	✓ Noise	✓ Over-exposure	✓ Noise-induced hearing loss	M	✓ Provide employees with hearing protection ✓ Provide rest periods for employees
	✓ Vibration	✓ Over exposure	✓ Raynaud's Syndrome	M	✓ Provide employees with vibration gloves. ✓ Rotate employees or provide rest periods.
	✓ Fumes	✓ Inhalation	✓ Respiratory problems	L	✓ Provide employees with respirators ✓ Never use indoors
	✓ Dust	✓ Inhalation	✓ Respiratory problems	L	✓ Provide employees with dust masks ✓ Develop measures for dust control
	✓ Contact with underground services	✓ Damage to services	✓ Power cuts ✓ Water cuts ✓ Lawsuits	M	✓ All underground services to be identified prior to drilling
Use of Hand tools	✓ Damaged tools	✓ Usage of the wrong tool for the task ✓ Using damaged tools	✓ Cuts & injuries	M	✓ Tools must be inspected daily prior to performing the task.

Working at heights	✓ Heights ✓ Unfit employees ✓ Using hand tools ✓ Unsecured tools and equipment	✓ Falls ✓ Unfit for the job ✓ Damaged hand tools ✓ Falling onto employees	✓ Injuries	M	✓ Employees to use proper PPE including safety harnesses when working at heights. ✓ Inspect all tools prior to use. ✓ Provide training for using safety harnesses correctly. ✓ Employees working at heights must be certified fit to work. ✓ Hand tools must be attached to lanyards when working at heights. ✓ Use tool bags ✓ Use netting system below each level. ✓ No work should be done on the ground when work at heights is in progress. ✓ Proper signage to be displayed.
Use of generator	✓ Lifting equipment	✓ No SWL displayed ✓ Faulty equipment ✓ Employees standing around	✓ Serious injuries ✓ Property damages	M	✓ Load testing of lifting equipment ✓ Inspection of lifting tackle and equipment prior to use ✓ Display SWL ✓ Only competent people to operate the lifting equipment ✓ Access control to the lifting area
Fueling of equipment	✓ Spillages	✓ Slips, trips, falls	✓ Injuries	L	✓ Prevent spillages ✓ Use drip trays ✓ Use funnels for fuelling
		✓ Fire	✓ Injuries	M	✓ No smoking allowed near the generator
	✓ Diesel fumes	✓ Inhalation	✓ Respiratory problems	L	✓ Provide employees with respirators
		✓ Skin contact	✓ Skin irritation	L	✓ Provide employees with gloves, safety boots and overalls
	✓ Running engine	✓ Explosion	✓ Injuries	M	✓ Switch engine off before refueling and make sure fuel cap is replaced.

					✓ No smoking allowed near the generator
Electricity	✓ Voltage	✓ Contact with live electricity	✓ Electrocution	M	✓ Ensure that power is switched off when servicing the generator ✓ The frame of the generator and any external conducting parts should have proper grounding / earthing wiring. ✓ Do not touch with wet hands
General activities	✓ Overhead power lines	✓ Contact with live electricity	✓ Electrocution	M	✓ Always follow SOP when carrying materials
	✓ Site access	✓ Unattended visitors ✓ Not following site rules	✓ Injuries	L	✓ Induction to be conducted when entering site ✓ Personnel to be escorted
	✓ Work temperature	✓ Exposure to temperature extremes	✓ Ill health	L	✓ Staff to take rest breaks ✓ Drinking water must be available
	✓ Exposure to communicable diseases	✓ Using of communal facilities	✓ Ill health	L	✓ Employees to be informed about the risks
Working alone	✓ Employees working alone	✓ No supervision	✓ Injuries	M	✓ Practice buddy system ✓ No employee should work on the roof alone ✓ All work to be supervised.

RISK ASSESSMENT MATRIX

Likelihood	Consequences
------------	--------------

	Insignificant (minor problem easily handled by normal day to day processes)	Minor (Some disruption possible e.g. Damage equal to R150k)	Moderate (significant time / resources required. E.g., damage equal to R500k)	Major (Operations severely damaged. E.g., damages equal to R1m)	Catastrophic (business survival is at risk. Damage equal to R5m – 10m)
Almost certain (90% chance)	High	High	Extreme	Extreme	Extreme
Likely (between 50-90%)	Moderate	High	High	Extreme	Extreme
Moderate (between 10-50%)	Low	Moderate	High	Extreme	Extreme
Unlikely (between 3-10%)	Low	Low	Moderate	High	Extreme
Rare (<3%)	Low	Low	Moderate	High	High

JOHANNESBURG WATER (SOC) LTD

MEDICAL SCREENING POLICY

JW 14087: GEOTECHNICAL INVESTIGATION SERVICES

NOTICE

It is the Contractor's responsibility to ensure that medical surveillance requirements specified in the Occupational Health and Safety Act (85/1993) and Regulations and any other applicable legal and Johannesburg Water's requirements are fully complied with.

This document is meant to facilitate the Contractor's compliance to applicable requirements and does not replace the applicable legal requirements.

This document may be revised at any time to include applicable legal requirements not currently included that may come to the attention of Johannesburg Water in future. The Contractor will accordingly be responsible to comply with the revised requirements as might be necessary.

Where methods to ensure legal compliance have been specified in this document, Contractors may submit alternative detailed method statements for consideration and approval by Johannesburg Water. Johannesburg Water may, at its sole discretion, reject or accept such alternative methods.

1 PURPOSE OF THE MEDICAL SURVEILLANCE REQUIREMENTS PROCEDURE

The purpose of this Medical Surveillance Requirements Procedure is to facilitate the achievement of legal compliance relating to medical surveillance by all Consultants, Contractors, Subcontractors and suppliers that will be working on the Johannesburg Water project and to ensure that employees are fit to work in the roles that they have been employed to execute and remain so for their duration on the project site.

This document represents the minimum requirements for medical surveillance and does not replace applicable legal requirements.

2 MEDICAL SURVEILLANCE OBJECTIVES

The Johannesburg Water main objectives for medical surveillance are:

- a) To ensure compliance to all applicable medical surveillance legal requirements.
- b) To ensure compliance to all Johannesburg Water's requirements regarding medical surveillance.
- c) To ensure that employees are fit to execute the work for which they have been employed.
- d) To prevent employees from acquiring occupational diseases or illnesses.
- e) To ensure early detection and treatment of occupational diseases and to prevent the aggravation of existing medical conditions.
- f) To ensure that employees on departure from the project have not contracted any occupational diseases and to enable any such condition that arises to be suitably addressed.

All contractors are required to demonstrate total commitment towards the achievement of these objectives.

3 GENERAL REQUIREMENTS

- 3.1 The Principal Contractor shall ensure that a medical surveillance programme is implemented for all employees.
- 3.2** An initial health evaluation shall be carried out by an occupational health practitioner immediately after a person commences employment, where any exposure exists or may exist, which comprises:
- an evaluation of the employees medical and occupational history;
 - a physical examination; and
 - any other essential examination which in the opinion of the occupational health practitioner is desirable in order to enable the practitioner to do a proper evaluation.
- 3.3 Medical surveillance & Immunization shall be done accredited institutions or occupational health doctor, including, but not limited to:
- a) Audiograms.
 - b) A cardio-respiratory examination, including full size chest x-rays (If lung function tests are abnormal)
 - c) Lung function tests.
 - d) Eye/ sight tests.
 - e) A general physical examination.
 - f) A review of previous medical history.
 - g) Blood pressure tests
 - h) Glucose tests
 - i) COVID 19 screening and testing

Copies of all medical certificates shall be submitted to the Johannesburg Water Project Specialist or Appointed OHS Agent to prior to site establishment and before an employee is allowed to come onto site.

Specific attention shall be given to the physical and psychological fitness of people who will be required to work in elevated positions and operators of mobile machinery.

An exit medical certificate shall be obtained for all workers at the end of the contract and for all workers who leave the employment of the Contractor before the end of the Project. Copies of all exit medical certificates shall be submitted to the Johannesburg Water Project Specialist or Appointed OHS Agent.

Medical surveillance shall address all occupational health risks to which the employee is exposed, identified through the risk assessment referred to in section 4 below.

Retention monies will be withheld if the exit medical is not complete for all employees.

The cost of all medical examinations will be borne by the Contractor as provision is made on the bill of quantities.

4 OCCUPATIONAL HEALTH RISK ASSESSMENT

4.1 The Contractor shall conduct an occupational health risk assessment prior to site establishment.

4.2 The Contractor shall ensure that, as far as is reasonably practicable, ergonomic related hazards are analyzed, evaluated and addressed in the risk assessment.

4.3 The methodology used by the contractor to assess occupational health risks associated with their activities shall be submitted to Johannesburg Water for approval by the Johannesburg Water Project Specialist or Appointed OHS Agent prior to site establishment. The methodology should take the following into consideration, among others:

- a) Legal requirements.
- b) Normal activities undertaken by the contractor.
- c) Abnormal situations (e.g. unanticipated breakdown of equipment etc).
- d) Emergency situations (e.g. fires, exposure to chemicals).
- e) Changes in work procedures and methods.
- f) Previous experience.

-
- 4.4 A risk register that will include the following shall be submitted to the Johannesburg Water Project Specialist or Appointed OHS Agent before site establishment.
- a) All occupational health risks identified during the occupational health risk assessment.
 - b) A list of the occupational health risks that have been identified as being significant.
 - c) Reference to the method statements, measures or procedures that will be followed to either eliminate or reduce the significant risks to tolerable levels.
- 4.5 The Contractor shall, in writing, clearly explain how each occupational health risk assessed to be significant will be addressed to eliminate or reduce it to a tolerable level and submit it for approval by the Johannesburg Water Project Specialist or Appointed OHS Agent before site establishment. This may be through method statements or written operational control procedures. Associated responsibilities and authorities shall be clearly defined. All method statements shall reflect at least:
- a) When the activities relating to the method statement will be conducted (timing).
 - b) Materials to be used.
 - c) Equipment and staffing requirements.
 - d) The proposed construction procedure designed to implement the relevant requirements.
 - e) The system to be implemented to ensure compliance with the method statement.
 - f) Any other information deemed to be necessary by the Johannesburg Water Project Specialist or Appointed OHS Agent and/or the contractor's responsible person.
- 4.6 For significant occupational health risks identified after site establishment, method statements shall be submitted to the Johannesburg Water Project Specialist or Appointed OHS Agent at least 10 working days before the start of the associated activity, when possible.
- 4.7 All changes to approved method statements or procedures shall be approved in writing by the Johannesburg Water Project Specialist or Appointed OHS Agent.
- 4.8 The contractor's Responsible Person shall retain records of any amendments and shall ensure that only the most current approved version of any method statement or procedure is used.
-

-
- 4.9 Every occupational health risk that is identified during the risk assessment process shall be conveyed to every employee whose work is associated with the risk. This may be done in the form of a toolbox talk but does not replace the toolbox talk entirely. Each employee shall sign to confirm an understanding of the occupational health risks in the tasks.
- 4.10 Occupational health risk assessments may be combined with safety and environmental risk assessments, but the consideration of occupational health issues shall be clearly reflected in the records generated and maintained.
- 4.11 The occupational health risk assessment process and effective implementation of measures to eliminate or reduce identified risks is the responsibility of the Contractor. Johannesburg Water will closely monitor the effectiveness of implemented measures.

Acknowledgement of JW Medical Screening Policy

Name of Contractor

I, the undersigned, hereby acknowledge that I have obtained copies of JW Medical Screening Policy and confirm that I fully understand them and the consequences of non-compliance.

Signed at on this Day of 20.....

Signature of Contractor / Mandatory

Date

Signature of 16.2 / Construction Manager

Date

Witness 1

Witness 2

SECTION D		CONTRACTORS' SHE QUALIFICATION QUESTIONNAIRE					
INJURY / ILLNESS STATISTICS							
USE THE PREVIOUS THREE YEARS' INJURY AND ILLNESS RECORDS TO COMPLETE THE FOLLOWING:							
		20_____	20_____	20_____			
NUMBER TOTAL RECORDABLE CASES							
NUMBER OF RESTRICTED WORKDAY CASES							
NUMBER OF LOST WORKDAY CASES							
NUMBER OF FATALITIES							
NUMBER OF EMPLOYEE HOURS WORKED							
SHE MANAGEMENT SYSTEM				Yes	No	N/A	Proof required
1	Does your Company have an SHE Management System? If Yes , then complete subsections 1.1 – 1.2:						
1.1	Provide the type(s) / name(s) of the management system(s).						X
1.2	If this is a recognised accredited system, please attach copies of certificates.						X
2	Does your Company have a Safety, Health, and Environmental (SHE) Policy in place that is signed by the supplier's senior management?						X
3	Has your Company identified the specific SHE impacts associated with the products, services or works it provides, and the steps taken to mitigate these impacts?						X
4	Does your Company observe SHE legislation and industry best practice standards?						X
5	Has your Company been prosecuted or issued with an enforcement notice / directive / compliance notice for infringement of any SHE legislation in the past three (3) years?						
5.1	If Yes, please provide details of the prosecution / enforcement notice /directive / compliance notice and what measures were taken to ensure the issue/s would not recur.						X
6	Has your Company had any reportable incident (safety and/or environmental) in the past five (5) years?						
6.1	If yes, please provide details:						X
ENVIRONMENTAL MANAGEMENT				Yes	No	N/A	Proof required
7	Has your company had any notices of violations, permit non- compliances or reportable spills in the past year?						
	If yes, how many?						
8	Has your Company a formally established EMS in place?						
	If so, is it based on ISO 14001 and is it certified?						X
	If not, what are your plans to do establish one in the next 12 months?						X
9	Has your Company implemented any third-party certifications or reviews related to your product or services such as Energy Star or Type III environmental declarations – Principles and procedures (ISO 14025)? If so, which one?						X
10	Does your Company measure and trend energy use?						
	Are there targets in place to reduce consumption?						
	Is there a programme in place to reduce consumption?						
	Does your Company measure and trend waste use?						
	Are there targets in place to reduce waste?						
11	Is there a programme in place to reduce waste?						
	Do you incorporate any recycled materials in your manufacturing process?						
	Can your product be easily recycled, re-used or disposed of?						
12	Does your Company have any opportunities to collaborate with us to improve environmental performance, such as transport reduction or technological improvements?						

OCCUPATIONAL HEALTH & WELLNESS		Yes	No	N/A	Proof required
13	Does your Company have a Health and Wellness Policy/Plan and Programme?				X
14	Does your Company have an HIV/Aids Awareness Policy/Plan and Programme?				X
15	Does your Company have an Employee Assistance Programme for permanent and temporary employees?				X
16	Does your Company have a medical surveillance programme that includes permanent and temporary employees?				X
17	Does your Company have man-job specifications (risk based) for each employee (including temporary / casual and labour broker persons) that is specific to the individual, the position that they fill, the work environment and tasks that they perform?				X
SECURITY MANAGEMENT		Yes	No	N/A	Proof required
18	Does your Company have a Security Management Policy to protect resources?				X
EMERGENCY PREPAREDNESS PLAN		Yes	No	N/A	Proof required
19	Does your Company have a Policy/Standard on Emergency Preparedness?				X
SUB-CONTRACTORS AND SUPPLIERS MANAGEMENT		Yes	No	N/A	Proof required
20	Does your Company appoint competent subcontractors /suppliers? (provide details of selection process and criteria)				X
21	Do you have arrangements for monitoring compliance & performance of your subcontractor/supplier?				X
VEHICLE SAFETY		Yes	No	N/A	Proof required
22	Does your Company have a policy that addresses Driver, Passenger and Vehicle Safety (which includes vehicle maintenance, driver/operator competence)?				X
23	Do your Company's motor vehicles / cycles, construction vehicles, mobile plant used/hired comply with the manufacturer's design and legal requirements?				
HYGIENE MONITORING		Yes	No	N/A	Proof required
24	Does your Company have an Occupational Hygiene Programme?				
SHE COMPETENCY		Yes	No	N/A	Proof required
25	Supervisors: Do the Appointed Supervisors have the required training, knowledge and experience specific to the work to be performed? (Proof has to be provided)				X
26	Does/Do the SHE functionary (ies) have the required SHE-related training, knowledge and experience specific to the work being performed? (Proof has to be provided)				X
27	Do employees have the appropriate qualifications and experience for performing the assigned tasks?				X
28	If not, are they under direct and controlled competent supervision?				X
FIRE PREVENTION		Yes	No	N/A	Proof required
29	Are the fire risks being assessed and is provision made for the risks?				
HAZARDS IDENTIFICATION & RISK ASSESSMENT (HIRA)		Yes	No	N/A	Proof required
30	Does your Company have procedures in place for conducting hazard identification and risk assessments and for developing and implementing safe systems of work/method statements?				X
31	Does your Company have an updated Legal Register of the applicable legislation with which it has to comply?				X
32	Does your Company have a competent person appointed to carry out hazard identification and risk assessments?				X
33	Do employees perform hazard identification and a risk assessment prior to the commencement of a task?				X
34	Does your Company have a standard/procedure on the hierarchy of control principles that is applied to the mitigation of risks?				X

TRAINING MANAGEMENT		Yes	No	N/A	Proof required
35	Does the Company have an orientation and safety induction programme/ policy?				
36	Does the Company have implemented training arrangements in place to ensure that employees have sufficient skills and understanding to discharge their various duties? This includes refresher training that will keep employees updated on legislation and good health, safety and environmental practice. This applies throughout the Company, from top management to trainees.				X
37	Are training records kept?				X
38	Have training matrices been developed and implemented?				X
40	Have team leaders and team members been given the appropriate level of First Aid training?				X
COIDA		Yes	No	N/A	Proof required
41	Is your company registered with COIDA or a mutual company and are you still in good standing? If yes, please provide copy of current valid certificate issued by the Compensation Commissioner.				X
42	Are all the Company's employees registered with COIDA?				X
REFERENCES – PLEASE PROVIDE AT LEAST TWO(2) CLIENTS REFERENCES					
1	Client's name:				
	Description of works, services, product:				
	Duration of contract (specify start and end dates):				
	Value of contract/work/services/product:				
	Contact telephone number/s:				
	Number of 'near misses' reported:				
	Number of lost-time injuries:				
	Number of disabling injuries:				
	Number of motor vehicle incidents/accidents:				
	Number of fatalities:				
	Number of lost-time injuries:				
	Largest number of permanent staff members working for the supplier during the contract period:				
	Number of permanent or non-permanent staff members involved in the work/services/product on the contract: Total number of staff days lost due to Injuries:				
	Number of incidents of non-compliance to environmental legislation (including conditions of environmental authorisations / permits / licences):				
Number of environmental incidents:					
2	Client's name:				
	Description of works, services, product:				
	Duration of contract (specify start and end dates):				
	Value of contract/work/services/product:				
	Contact telephone number/s:				
	Number of 'near misses' reported:				
	Number of lost-time injuries:				
	Number of disabling injuries:				

Number of motor vehicle incidents/accidents:	
Number of fatalities:	
Number of lost-time injuries:	
Largest number of permanent staff members working for the supplier during the contract period:	
Number of permanent or non-permanent staff members involved in the work/services/product on the contract: Total number of staff days lost due to Injuries:	
Number of incidents of non-compliance to environmental legislation (including conditions of environmental authorisations / permits / licences):	
Number of environmental incidents:	

COMPANY SIGN-OFF

I acknowledge that the information provided in this SHE Contractors' Competency Questionnaire, as part of the Johannesburg Water evaluation process, is true and correct.

Company name	
Name and surname	
Position	
Signature	
Date	

FOR OFFICE USE ONLY					
SCORING:					
A: Each question scores one (1) point. Total possible points					
Percentage Score = $\frac{\text{Actual Score}}{\text{Possible Score}} \times 100 = \underline{\hspace{2cm}}\%$					
Note: if a question is Not Applicable, do not score any points.					
B: Subsections:	Actual score	Total			
Organisational structure and contact details of key persons					
Comments:					
SUPPLIER EVALUATION RESULT – Comply/Not Comply					
Approved /Not approved (NOTE: Gatekeeper of minimum of 80% is required)					
NAME OF ASSESSOR:					
SIGNATURE:					
DATE:					

SHE CONTRACTORS' MANAGEMENT SYSTEM**TENDER DOCUMENT SHE SPECS SIGN-OFF FORM**

REQUESTED BY

T. Mbonani

DATE

09/06/2021

JW 14087**JW 14087: GEOTECHNICAL INVESTIGATION SERVICES****LIST OF SHE SYSTEM ATTACHED TO THE TENDER DOCUMENT**

SHE SYSTEM ATTACHED	Y/N	VERSION	NO PAGES	REMARKS
Volume 2 SHE Specification & Acknowledgement Form	Y	V2 – 05/15	37	For info
Baseline Risk Assessment	Y	V01 – 05/15	12	For info
Medical Screening Policy	Y	V01 – 05/15	8	For info
SHE Contractor's Competency Form	Y	V01 – 01/12	6	For info
Returnable Annexure A	Y	V02 - 02/20	1	Return with tender document
COVID-19 Risk Assessment	Y	V01 - 04/20	4	For info
COVID 19 Guidelines	Y	V02 - 08/20	11	For info

NB* All documents shall be returned with the tender documents and copies thereof to be submitted with the safety file by the successful bidder.



ENVIRONMENTAL MANAGEMENT PLAN

Johannesburg Water SOC Ltd



Environmental Management Plan

Prepared By:
OHSE&DM
Environmental Section
PO Box 61542
Marshalltown

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DISCLAIMER

1. Should there be any other Environmental related activities issued as non-compliance during construction, the contractor is liable to comply with those requirements
2. Should the contractor deviate from the conditions and requirements of the EMP and/or Environmental Authorisation(if applicable), the contractor is liable for non-compliances, rectification and associated fines thereof
3. This EMP does not exempt the Contractor from complying with other relevant legislations related to the construction activities.



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LIST OF APPENDICES

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LIST OF ACRONYMS Acronym

Description

BA	Basic Assessment
BAR	Basic Assessment Report
CA	Competent Authority
DEA	Department of Environmental Affairs
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EO	Environmental Officer
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
GDARD	Gauteng Department of Agriculture and Rural Development
GN	Government Notice
I&AP	Interested and Affected Party
JW	Johannesburg Water
km	Kilometre
m	meter
MSDS	Material Safety Data Sheets
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)

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NWA	National Water Act, 1998 (Act No. 36 of 1998)
PHRAG	Provincial Heritage Resources Authority for Gauteng
RE	Resident Engineer
WUL	Water Use License
WULA	Water Use License Application
WWTW	Wastewater Treatment Works

DEFINITIONS

Environment

The surroundings in which humans exist and which comprise of:

- Land, water and atmosphere of the earth.
- Micro-organisms, plant and animal life.
- Any part or combination of a) and b) and the interrelationships among and between them.
- The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that can influence human health and well-being.

Environmental Aspect

Those components of the company's activities, products and services that is likely to interact with the environment.

Environmental Authorisation

The written statement from the relevant environmental authority in terms of the National Environmental Management Act (Act 107 of 1998), with or without conditions, that records its approval of a planned activity and the implementation thereof and the mitigating measures required to prevent or reduce the effects of environmental impacts during the life of a contract.

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Environmental Impact Assessment (EIA)

The decision making process of examining the environmental impacts of a development in terms of the NEMA (107 of 1998) and the EIA Regulations (Government Notice No.R982, R983, R984, R985 and R986).

Environmental Management Programme (EMPR)

An environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented; and that the positive benefits of the projects are enhanced.

Environmental Management System (EMS)

A set of processes and practices that enable an organization to reduce its environmental impacts and increase its operating efficiency. The EMS provides a framework that helps a company achieve its environmental goals through consistent control of its operations.

Auditing

A systematic and objective assessment of an organization's activities and services conducted and documented on a periodic basis internally and externally

Environmental Objective

An overall environmental goal, arising from the environmental policy, that an organization sets itself to achieve, and which is quantified where practicable.

Environmental Target

A detailed performance requirement, quantified where practicable, applicable to the organization or parts thereof, that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives.

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Floodplain

A flat expanse of land bordering a river channel, formed through sediment deposition and other alluvial processes, and often characterized by frequent flooding as a result of bank overspill from the river channel.

Groundwater

Sub-surface water in the zone in which permeable rocks, and often the overlying soil, are saturated.

Hazardous waste

Waste that are proven to be toxic, corrosive, explosive, flammable, carcinogenic, radioactive, poisonous or classified as such in legal terms.

Heritage Resource

Any place or object of cultural significance including buildings, structures, landscapes, graves and geological, archaeological and paleontological sites.

Landscape

Land modified for human use and occupation, embracing both the natural (wilderness) environment and the urban.

Management actions

Practical actions aimed at achieving management objectives and targets.

Management objectives

Desired outcome of management measures for mitigating negative impacts and enhancing the positive impacts related to project activities and aspects (i.e. risk sources).

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Monitoring

A systematic and objective observation of an organization's activities and services conducted and reported on regularly.

Natural Vegetation

All existing vegetation species, indigenous or otherwise, of trees, shrubs, groundcover, grasses and all other plants found growing on the site.

Pollution

Any change in the environment caused by substances, radioactive or other waves, or noise, odours, dust or heat, emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future.

Furthermore pollution can also be regarded as an undesirable state of the natural environment being contaminated with harmful substances as a consequence of human activities.

Protected Plants

Plant species officially listed on the Protected Plants List (each province has one), and which may not be removed or transported without a permit to do so from the relevant provincial authority.

Reinstatement

Reinstatement is defined as the return of a disturbed area to a state, which approximates the state (where possible), which it was before disruption.

Riparian Habitat

The physical structure and associated vegetation of the areas associated with a watercourse which are commonly characterised by alluvial soils, and which are inundated or flooded to an extent and with a frequency sufficient

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to support vegetation of species with a composition and physical structure distinct from those of adjacent land areas.

Runoff

The total water yield from a catchment including surface and subsurface flow.

Sensitive environmental features

Environmental features protected by legislation (e.g. heritage resources), or identified during the EIA as sensitive through specialists' findings and input received from Interested and Affected Parties.

Subsoil

The soil horizons between the topsoil horizon and the underlying parent rock.

Topsoil

Topsoil can be regarded as the fertile upper part or surface of the soil.

Transplanting

The removal of plant material and replanting the same plants in another designated position.

Veld

Unimproved areas of natural vegetation.

Wastewater

Means water contaminated by the project activities.

Watercourse

A geomorphological feature characterized by the presence of a stream flow channel, a floodplain and a transitional upland fringe seasonally or permanently conveying surface water.

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Waterlogged

Soil or land saturated with water long enough for anaerobic conditions to develop.

Weeds and Invader Plants

Weeds and invader plants are defined as undesirable plant growth that shall include, but not be limited to all declared category 1, 2 and 3 listed invader species as set out in the Conservation of Agricultural Resources Act (No 43 of 1983) regulations. Other vegetation deemed to be invasive should be those plant species that show the potential to occupy in number, any area within the defined construction area.

Wetland

Land where a surplus of water (i.e. waterlogging) is the key factor determining the nature of the soil development as well as the types of plants and animals living at the soil surface.

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1. BACKGROUND

The purpose of this document is to provide management measures that will ensure that potential negative impacts associated with the activity are minimized whilst positive impacts are optimised, provided that the EMP is implemented by a suitably qualified Environmental Officer (EO). The proponent developer, the main contractor and the sub- contractor are responsible for the implementation of the EMP throughout the stages. Therefore it is imperative that the EMP is circulated to site managers, contractors and Depots who will perform any work on site which has the potential to cause environmental damage. Any parties responsible for transgression of the underlying management measures outlined in this document will be held liable for non- compliances.

The following is a generic EMP to mitigate against “generally occurring impacts” associated with the construction phase of Johannesburg Water’s activities. "Generally occurring impacts" refers to potential impacts typical of Johannesburg Water’s activities, and are not restricted to a single or specific site. The findings of this EMP will be implemented at all sites.

This section forms an integral part of the **Contract Specification** and, in particular, shall be a part of the **ENVIRONMENTAL MANAGEMENT PLAN FOR CONSTRUCTION AND OPERATIONAL ACTIVITIES**.

PURPOSE

The purpose of this EMP is to ensure that Johannesburg Water conducts all its activities related to the construction and maintenance in accordance with the provisions of NEMA, and other applicable legislations. This EMP has taken into account the provisions of the Constitution and the principles of Integrated Environmental Management.

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2. APPLICABLE LEGISLATIONS

Several laws and regulations apply to the protection of the environment and contain environmental principles and standards that need to be applied and permits and licences that need to be obtained. This EMP will be subject to regulatory control under a range of State, Provincial and Local regulations. Such legislation largely embraces pollution prevention, resource use and conservation, and socio cultural (heritage) protection. This chapter reviews legislation pertaining to this generic EMP.

According to Section 2 (1, 2 & 3) of the National Environmental Management Act No. 107 of 1998 (NEMA), all organs of state have to apply certain principles set out in NEMA when taking decisions that may significantly affect the environment. The key principles of this Act include that all “actions” that they approve must be economically, socially and environmentally sustainable. It further states that “people and their needs” must be at the forefront of “its concern” and their interests must be served equitably.

These legislative requirements include, but are not limited to, the provisions of the legislation represented is described below:

The Constitution of the Republic of South Africa, 1996 (Act 108 of 1996)

Section 24 of the Constitution of South Africa (Act 108 of 1996) states that “Everyone has the right (a) to an environment that is not harmful to their health or well-being; and

(b) to have the environment protected, for the benefit of present and future generations through reasonable legislative and other”

Measures that:

- Prevent pollution and ecological degradation;
- Promote conservation; and
- Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development”.
- Section 152 of the Constitution states that the objectives of local government are to:
- Ensure that services are provided to communities in a sustainable manner;

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- Promote social and economic development; and
- Promote a safe and healthy environment.

National Environmental Management Act, 1998 (Act No. 107 of 1998) (as amended)

The National Environmental Management Act 107 of 1998 (NEMA) requires that an environmental authorization is obtained before activities, which have been listed in terms of NEMA, are commenced with. The failure to obtain such an environmental authorization, before commencing with listed activities, could result in administrative sanctions, including compliance notices or directives ordering the cessation of the operations until authorized; and fines of up to ZAR10 million for each such contravention.

The Environmental Impact Assessment Regulations (EIA Regulations) set out the process to be followed in applying for an environmental authorization, while the listing notices; list the activities that require authorization (the Listing Notices). National Environmental Management Act (NEMA) 107 of 1998 amended in 07 of April 2017. The following are the listed activities:

- EIA Regulations GNR 326
- Listing Notice 1; Government Notice Number (GNR) 327 (Basic Assessment).
- Listing Notice 2; Government Notice Number (GNR) 325 (Full EIA/ Scoping & Environmental Impact Report)
- Listing Notice 3 ;GNR 324 (It applies on both Basic Assessment and full EIA)

National Environmental Management: Biodiversity Act 2004 (Act 10 of 2004)

Provides management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act 107 of 1998; the protection of species and ecosystems that warrant national protection and the sustainable use of indigenous biological resources.

The National Environmental Management Waste Act 2008 (Act 59 of 2008)

The National Environmental Management Waste Act (NEMWA) reforms the law regulating waste management in order to protect health and the environment providing reasonable measures for the prevention of pollution

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and ecological degradation and for securing ecologically sustainable development; to provide for institutional arrangements and planning matters; to provide for national norms and standards for regulating the management of waste by all spheres of government; to provide for specific waste management measures; to provide for licensing and control of waste management activities; to provide for the remediation of contaminated land; to provide for the national waste information system; to provide for compliance and enforcement; and to provide for matters connected therewith.

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

The Occupational Health and Safety Act make provision in regulation

- Section 8 for the general duties of employers to their employees.
- Section 9 of the Regulations makes provision for general duties of employers and self-employed persons to persons other than their employees.

National Heritage Resources Act (NHRA) 1999, (Act 25 of 1999)

The protection and management of South Africa's heritage resources are controlled by the National Heritage Resources Act. The South African National Heritage Resources Agency (SAHRA) is the responsible authority for implementing the National Heritage Resources Act (NHRA) 1999, (Act 25 of 1999).

Section 38(1) of the NHRA lists development activities that would require authorisation by the responsible heritage resources authority. Activities considered applicable to the proposed project include the following:

- (c) Any development or other activity which will change the character of a site:*
 - (i) Exceeding 5 000 m² in extent; and*
 - (ii) The rezoning of a site exceeding 10 000 m² in extent.*

Water Services Act 1997, (Act 108 of 1997)

This Act provides for the rights of people to amongst others, basic sanitation. It acknowledges that that there is a duty on all spheres of government to ensure that sanitation services are provided in a manner which is efficient, equitable and sustainable and that it should be sufficient for subsistence and sustainable economic activity. The

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provision of sanitation services must be undertaken in a manner consistent with the broader goals of water resource management. This project is in line with the Act as it aims to provide sufficient sanitation services to the region in a sustainable manner.

Conservation of Agricultural Resources (CARA) 1983 (Act 43 of 1983)

The CARA aims to ensure the protection of agricultural resources such as land with agricultural potential and water and makes provision for the eradication of alien and invasive species.

NEMA Air Quality Act (AQA) 2004, (Act 39 of 2004)

The aim of this law is to regulate air quality and protect the environment in South Africa through reasonable measures to prevent pollution and ecological degradation, while securing sustainable development. The Act also provides national norms and standards for air quality management, monitoring and control.

The objectives of NEM: AQA are to protect the environment by providing reasonable measures to protect air quality, prevent air pollution and to give effect to Section 24(b) of the Constitution. NEM: AQA must be read in conjunction with NEMA, which provides framework legislation and establishes an integrated environmental management system for South Africa.

Within NEM: AQA, the control and management of emissions relates to the listing of activities which requires the issuing of emission licenses. In terms of Section 22, No person may conduct an activity listed on the national list (or provincial list) without an atmospheric emission license.

Government Gazette 32434 of 24 July 2009 listed activities, which require an atmospheric emission license before it commences. Air quality limits and thresholds are fundamental to effective air quality management, providing the indicators to safe exposure levels for the majority of the population.

Listed activities and associated minimum emission standards identified in terms of section 21 of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) e.g. category 8 relevant to JW activities.

National Water Act (NWA) 1998, (Act 36 of 1998)

Water use is controlled by the National Water Act (NWA) 1998, (Act 36 of 1998) . The NWA recognises that water is a scarce resource in South Africa and its provisions are aimed at achieving sustainable use of water to the

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benefit of all users. The provisions of the Act are thus aimed at discouraging pollution and waste of water resources. According to Section 21 of the NWA the following activities require a water use licence (WUL) prior construction:

“21.(a) taking water from a water resource;

21.(b) storing water;

21.(c) impeding or diverting the flow of water in a watercourse;

21.(d) engaging in a stream flow reduction activity contemplated in section 36;

21.(e) engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1);

21.(f) discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;

21.(g) disposing of waste in a manner which may detrimentally impact on a water resource;

21.(h) disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process;

21.(i) altering the bed, banks, course or characteristics of a watercourse;

21.(j) removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and

21.(k) using water for recreational purposes.”

3. OBJECTIVES OF THE ENVIRONMENTAL MANAGEMENT PROGRAMME

The purpose of this EMP is to provide an easily interpreted reference document that ensures that the project environmental commitments, safeguards and mitigation measures from the environmental planning documents, project approvals, and Scope of Works are implemented.

The objectives for the EMP are:

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- To develop, implement and maintain effective management systems for the environmental aspects ;
- To document details of environmental protection infrastructure and controls so that they are able to provide long term protection for the natural environment;
- To ensure compliance with relevant legislation (National, Provincial and Local), regulatory requirements and environmental documents;
- To maximise the value and outcomes of environmental monitoring activities so that the information can be applied to the planning and implementation of future projects;
- To ensure that all Environmental Management considerations are implemented during the operational and maintenance phases of the project.

All the Environmental specifications and the procedures discussed in this document were also developed in accordance with the relevant legislation applicable to the development.

3.1 Phases of the Project

The EMP deals with the following phases as detailed below:

3.1.1 The Planning and Design Phase

Overall Goal for Planning and Design: Undertake the planning and design phase of the development in a way that:

- Ensures that the design of the proposed developments responds to the identified environmental constraints and opportunities.
- Ensures that the best environmental options are selected for all components of the project.
- **Ensure that there is sufficient financial provision for environmental assessment, monitoring and rehabilitation.**

The EMP offers an ideal opportunity to incorporate pro-active environmental management measures with the goal of attaining sustainable development.

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Pro-active environmental measures minimize the chance of impacts taking place during the construction and operational phase. There is still the chance of accidental impacts taking place; however, through the incorporation of contingency plans (e.g. this EMP) during the planning phase, the necessary corrective action can be taken to further limit potential impacts. In order to meet this goal, actions plans for the planning and design phase have been identified together with monitoring requirements.

3.1.2 The Construction Phase

The bulk of the impacts during this phase will have immediate effect (e.g. noise-, dust- and water pollution etc.) If the site is monitored on a continual basis during the construction phase, it is possible to identify these impacts as they occur. These impacts will then be mitigated through the contingency plans identified in the planning phase, together with a commitment to sound environmental management from Johannesburg Water.

3.1.3 Rehabilitation / Reinstatement Phase

This phase will involve restoring the land impacted during the construction phase back to its original state. This process will mainly on rectifying the negative impacts that have been caused during construction by the removing pollution or contaminants and other dangerous substances from groundwater, sediment, or surface water and improvement of the soil.

3.1.4 The Operational Phase

By taking pro-active measures during the planning and construction phases, potential environmental impacts emanating during the operational phase will be minimised. This, in turn, will minimise the risk and reduce the monitoring effort, but it does not make monitoring obsolete.

4. ROLES AND RESPONSIBILITY

The implementation of this EMP requires the involvement of several stakeholders, each fulfilling a different but vital role to ensure sound environmental management during the construction and operational phases. The stakeholders are discussed below.

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4.1 Johannesburg Water

Shall:

- Ensure that the EMP is kept on JW's depots and construction sites.
- Remain ultimately responsible for ensuring that the development is implemented according to the requirements of the EMP.
- **Ensure that the Environmental section attends all project related tender briefing sessions.**
- Although Johannesburg Water appoints specific role players to perform functions on his/her behalf, this responsibility is delegated.
- Be liable for restoring the environment in the event of negligence leading to damage to the environment.
- **Ensure that the EMP is included in the tender documentation so that the contractor who is appointed is bound to the conditions of the EMP, and there's sufficient budget for Environmental assessments during the planning, design, construction, decommissioning (rehabilitation) phases of the project.**
- Ensure that the contractor appointed understands and acknowledges the content of this EMP.
- **Ensure that the compliance with the conditions of the environmental authorisation and the EMP is audited.**
- Ensure that the Environmental section signs all close out reports to confirm rehabilitation.

4.2 The Contractor

Shall:

- Be bound to the EMP conditions through his/her contract with Johannesburg Water, and is responsible for ensuring that he adheres to all the conditions of the EMP.
- Thoroughly familiarise him/herself with the EMP requirements before construction begins and must request clarification on any aspect of these documents, should they be unclear.
- Ensure adherence to the environmental management specifications.
- Ensure that any instructions (whether verbal or written) issued by the site Manager, project manager, site engineer or EO, in terms of the EMP is adhered to.
- Ensure that a report is tabled at each site meeting, which will document all incidents report that has occurred during the period before the site meeting.

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- Ensure that incidents register is kept in the site office.
- Ensure that a register of all public complaints is maintained.
- Ensure that all employees, including those of sub-contractors receive Environmental Induction before the commencement of construction in order that they can constructively contribute towards the successful implementation of the EMP (i.e. ensure their staff are appropriately trained as to the environmental obligations).
- Appoint an Environmental Liaison Officer (ELO) prior Construction for Environmental Authorised Projects.
- Appoint SHE Officer prior Construction for unauthorized projects i.e the SHE Officer with Environmental Management experience or be trained on Environmental legislation.

4.3 Environmental Liaison Officer (ELO)/ SHE Officer:

Shall:

- Ensure that the project team is involved in all aspects of project planning that can influence environmental conditions on the site.
- Be permanently on site during the construction phase to oversee the Contractor's internal compliance with the EMP requirements and ensuring that the environmental specifications are adhered to.
- Assist with day-to-day monitoring of the construction activities.
- Ensure that any issues raised by the EO will be routed to the SHE Officer for the contractors' attention.
- The ELO/ SHE Officer shall be permanently on site during the construction phase to oversee the Contractor's internal compliance with the EMP requirements and ensuring that the environmental specifications are adhered to.
- Be responsible for keeping detailed records of all site activities that may pertain to the environment and include all these aspects in an environmental register.
- The ELO/SHE Officer must keep a register of complaints from any community members on environmental issues.
- The ELO /SHE Officer will be required to keep a record of all on-site environmentally related incidents and how these incidents were dealt with.

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- Ensure proper rehabilitation is undertaken before site closure.

4.3.1 Requirements of the Environmental Liaison Officer (ELO) / SHE Officer:

- ELO/SHE must have a Diploma in Safety Management or equivalent
- Must have or be able to obtain ISO 14001: 2015 and Environmental Law formal training.
- Must have at least one (1) year proven relevant experience in both SHE related matters.

OR

- ELO/SHE must hold a National Diploma or Degree in Environmental Management.
- Must have at least one (1) year relevant experience in Environmental related issues.

4.4 Resident Engineer (RE)/ Site Agent

Shall:

- Liaise with the Contractor and Environmental Officer (EO) on environmental matters, as well as any pertinent engineering matters where these may have environmental consequences.
- Oversee the general compliance of the Contractor with the EMP and other pertinent site specifications.
- Familiarise him/herself with the EMP specifications and further monitor the Contractor's compliance with the Environmental Specifications on a daily basis, through the Site Diary, and enforce compliance.
- Ensure that Monthly Audits reach the contractor before Monthly Progress Meeting.
- Ensure proper rehabilitation is undertaken before site closure.

4.5 Project Engineer /Inspectors (PE/PI)

Shall:

- Ensure that there is a sufficient budget for complying with all EMP conditions at the tender stage.
- Ensure sufficient budget is provided for rehabilitation/ Reinstatement.
- Ensure proper rehabilitation is undertaken before site closure.
- Ensure of all specifications and legal constraints specifically with regards to the environment are highlighted to the Contractor(s) so that they are aware of these.
- Ensure that Contractor(s) are made aware of all stipulations within the EMP.
- Ensure that the EMP is correctly implemented throughout the project by means of site inspections and meetings. This will be documented as part of the site meeting minutes.

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- Be fully conversant with the EIA for the project, the EMP, the conditions of the Environmental Authorisation (if applicable), and all relevant environmental legislation.
- Ensure compliance monitoring of contractors on a day to day basis.
- Ensure adherence and implementation of the tender requirements.
- Ensure reference of specific non-compliance/non-conformance issues to the responsible units and/or contractors.

4.6 Environmental Officers

Shall:

- Be responsible for informing the contractors of any decisions that are taken concerning environmental management during the project phase. This would also include informing the contractors of the necessary corrective actions to be taken
- Liaise with environmental authorities where necessary.
- Review all the environmental documents from the Contractor, including sign off.
- Conduct environmental monthly audits of all contractors' work on site where necessary
- Maintain site documentation of related to environmental management (EMP, Method statements, audit reports, monitoring results, receipts of waste removal etc.). Documents to be maintained on the relevant site Documents Control Systems.
- Inspect and report on environmental incidents and check corrective actions.
- Conduct environmental incidents enquiries.
- Review and sign off method statements prepared by Contractors.
- Ensure that an environmental compliance monitoring strategy/framework is implemented.

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5. CONTENTS FOR CONTRACTOR'S ENVIRONMENTAL FILE

The following documents must be submitted by the contractor in the Environmental file before Construction commences on site. The file must be submitted to the Environmental Section prior construction for approval. The Contractor should achieve a minimum score of 80% for the file to be approved.

- JW Declaration letter of understanding with EA/GA/WUL/EMP and other associated permits for the project
- SHE/ELO appointment letter
- Contractor Environmental induction and attendance register
- Environmental Toolbox talk and attendance register
- Site Camp layout (All open spaces belong to City Parks, thus proper permission must be obtained and acknowledgment in writing from City Parks must be submitted, prior to site establishment. This process is independent to councilors giving permission to contractors. The land should be assessed regardless. failure to do so will result in City parks fining the contractor)
- Environmental Policy
- Legal Register
- Environmental Aspect and Impact Register
- Objective and Targets & Management Plan
- MS/ Storm water management plan and Erosion & Sediment control
- Alien invasive and weeds control plan
- Hazardous Material Management (handling of hazardous substances/ procedure for refuelling/ appointment letter for store man)
- Environmental Method Statements for the activities are to be undertaken (e.g. MS for excavation or installation of a pipe, the MS must cover also environmental aspect and impacts and how the impacts will be mitigated)
- Method statement register and permit register
- Waste management plan or Method statement for waste management
- Waste register for the waste that has been disposed off

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- Complaints register
- Incident report (Flash report/ investigation report)
- Incident register
- Hazardous chemical or substances register
- Emergency Response Plan (Include environmental emergencies e.g. snake sighting, biting and handling including hydrocarbon spill)
- Training Matrix
- Dust Management Plan
- Daily environmental checklist/ weekly checklist/ Spill kit checklist
- SHE monthly report and audit report
- Rehabilitation plan

6. ENVIRONMENTAL SPECIFICATIONS

6.1 Site Establishment

- The intended actions and programme for site establishment shall be submitted to Client including a plan showing the layout of the construction camp, including the positions of all buildings, stockpile and laydown areas, vehicle wash and service areas, fuel storage areas and other infrastructure.
- The construction camp shall occupy as small an area as possible, and no site establishment shall be allowed within 100 m of any watercourse or water body unless otherwise approved by Client. The site layout shall be planned to facilitate ready access for deliveries, facilitate future works and to curtail any disturbance or security implications for neighbours. The final site layout shall be subject to the Environmental section approval.
- All open spaces belong to city parks. Proper consultation and approval to be obtained by the contractor from city parks prior to construction should there be a need to establish a construction site in the open space.
- All site structures shall be of a temporary nature and shall be removed at the end of the contract. All site establishment components (as well as equipment) shall be located within previously disturbed areas

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where possible, and shall be positioned to limit visual intrusion on neighbours and the size of area disturbed.

- All “No-Go” areas shall be clearly identified prior to the commencement of construction. No clearing of 300 square metres of indigenous vegetation will be allowed.

6.2 Development footprint

- The development footprints and disturbed areas surrounding the proposed project infrastructure should be kept as small as possible and the areas cleared of natural vegetation and topsoil must be kept to a minimum;
- The extent of all development footprint areas and permanent/ temporary structures must be limited to what is essential;
- As far as possible, existing roads are to be utilised, to limit cumulative impacts from roads and traffic;
- The height of any temporary structures such as topsoil stockpiles should be kept as low as possible.

6.3 Infrastructure placement

- Infrastructure should not be placed on ridgelines or other locations where they would be silhouetted against the sky;
- Any stockpiles generated during the construction phase must be shaped and rounded to blend in with the surrounding undulating landscape and to minimize visual contrast. Such stockpiles, if vegetated and shaped appropriately, may be positioned in such a manner as to screen the construction activities from view;
- Where infrastructure is sited within view of visually sensitive areas, it must be placed as far away as possible or within lower-lying areas where it may be screened by topography. Where full screening of infrastructure components is not possible, siting should take advantage of partial screening opportunities;
- As far as possible, surface infrastructure should be placed in areas that have already been disturbed;

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- New roads are to follow the contours of the landforms in order to make it less visually prominent and to reduce the need for cut and fill activities. Siting of roads should avoid steep side slopes which may contribute towards erosion.
- Infrastructure appearance
- It is recommended that any stockpiles be vegetated with indigenous grasses in order to blend more easily and for screening purpose.

6.4 Eating Areas

- Designated eating areas shall be provided on site.
- These eating areas shall be clearly demarcated and shall be provided with bins with lids.
- Staff will be prohibited from consuming meals anywhere other than at these eating areas and that noise is limited.
- All eating areas shall include provision for a smoking area.

6.5 Soil

- The contractor should remove 150mm of topsoil and stockpile at a height of not more than 1m. Topsoil to be maintained throughout construction period and should not be disturbed.
- Topsoil should be temporarily stockpiled, separately from (clay) subsoil and rocky material, when areas are cleared. If mixed with clay sub-soil the usefulness of the topsoil for rehabilitation of the site will be lost.
- Stockpiled topsoil should not be compacted and should be replaced as the final soil layer. No vehicles are allowed access onto the stockpiles after they have been placed.
- Stockpiled soil should be protected by erosion-control berms if exposed for a period of greater than 14 days during the wet season. The need for such measures will be indicated in the site-specific report.
- Topsoil stripped from different sites must be stockpiled separately and clearly identified as such.
- Topsoil obtained from sites with different soil types must not be mixed.
- Topsoil stockpiles must not be contaminated with oil, diesel, petrol, waste or any other foreign matter, which may inhibit the later growth of vegetation and micro-organisms in the soil.

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- Soil must not be stockpiled on drainage lines or near watercourses without prior consent from the Project Manager.
- Soil should be exposed for the minimum time possible once cleared of invasive vegetation, that is the timing of clearing and grubbing should be co-ordinated as much as possible to avoid prolonged exposure of soils to wind and water erosion.
- Stockpiled topsoil must be either vegetated with indigenous grasses or covered with a suitable fabric to prevent erosion and invasion by weeds.
- Limited vehicular access is allowed across rocky outcrops and ridges.
- All cut and fill surfaces need to be stabilized with appropriate material or measures when major civil works are complete.
- Erosion and donga crossings must be dealt with as river crossings. Appropriate soil erosion and control procedures must be applied to all embankments that are disturbed and destabilized.
- All equipment must be inspected regularly for oil or fuel leaks before it is operated. Leakages must be repaired on mobile equipment or containment trays placed underneath immobile equipment until such leakage has been repaired.
- Soil contaminated with oil must be appropriately treated and disposed of at a permitted landfill site or the soil can be regenerated using bio-remediation methods.
- Runoff must be reduced by channelling water into existing surface drainage system.

6.6 Water

- Adequate sedimentation control measures must be instituted at any river crossings when excavations or disturbance of a riverbanks or riverbeds takes place.
- Adequate sedimentation control measures must be implemented where excavations or disturbance of drainage lines of a wetland may take place.
- All fuel, chemical, oil, etc. spills must be confined to areas where the drainage of water can be controlled. Use appropriate structures and methods to confine spillages such as the construction of berms and pans, or through the application of surface treatments that neutralise the toxic effects prior to the entry into a water course.

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- Oil absorbent fibres must be used to contain oil spilt in water.
- During construction through a wetland, the majority of the flow of the wetland should be allowed to pass downstream.
- Vehicular traffic across wetland areas must be avoided.
- No dumping of foreign material in streams, rivers and/or wetland areas is allowed.
- The wetland area and/or river must not be drained, filled or altered in any way including alteration of a bed and/or, banks, without prior consent from the DWS. The necessary licenses must be obtained in terms of Section 21 and 22 of the National Water Act, 36 of 1998 from DWS.
- No fires or open flames are allowed in the vicinity of the wetland, especially during the dry season.
- No swimming, washing (including vehicles and equipment), fishing or related activity is permitted in a wetland or river.
- Disturbances to nesting, breeding and roaming sites of animals in or adjacent to wetland areas must be minimized.

6.7 Air

- Speed limits must be implemented in all areas, including public roads and private property to limit the levels of dust pollution.
- Dust must be suppressed on access roads and construction sites during dry periods by the regular application of water or a biodegradable soil stabilisation agent. Water used for this purpose must be used in quantities that must not result in the generation of run-off.
- Where possible the use of potable water should be minimised for dust suppression purposes, preferably recycled or reused water.
- The site-specific investigation will quantify the impact of dust on nearby wetlands, rivers and dams in terms of sedimentation. Mitigation measures identified during the site specific study must be implemented.
- The Contractor must notify the Principal of all schools within 50m of the site of proposed activities. The Principal must in turn ensure that children with allergies and respiratory ailments take the necessary

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precautionary measures during the construction period. The Contractor must ensure that construction activities do not disturb school activities e.g. dust clouds may reduce visibility affecting sports activities.

- Waste must be disposed of, as soon as possible at a municipal transfer station, skip or on a permitted landfill site. Waste must not be allowed to stand on site to decay, resulting in malodours.
- Noise control measures must be implemented. All noise levels must be controlled at the source. All employees must be given the necessary ear protection gear. IAP's must be informed of the excessive noise factors.
- The Contractor must inform all adjacent landowners of any after-hour construction activities and any other activity that could cause a nuisance e.g. the application of chemicals to the work surface. Normal working hours must be clearly indicated to adjacent land owners.
- No loud music is allowed on site and in construction camps.
- No fires are allowed if smoke from such fires will cause a nuisance to IAPs.

6.8 Social and Cultural

- Access by non-construction people onto any construction sites must be restricted. The Contractors activities and movement of staff must be restricted to designated construction areas only.
- The Contractors crew must be easily identifiable due to clothing, identification cards or other methods.
- Rapid migration of job seekers could lead to squatting and social conflict with resident communities and increase in social pathologies if not properly addressed. The Contractor must ensure that signs indicating the availability of jobs are installed.
- Criteria for selection and appointment (by the Contractor) of construction labour must be established to allow for preferential employment of local communities. The Local Authority must be actively involved in the process of appointing temporary labourers.
- Sub-Contractors and their employees must comply with all the requirements of this document and supporting documents e.g. the Contract document that applies to the Contractor. Absence of specific reference to the sub-contractor in any specification does not imply that the sub-contractor is not bound by this document.

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- No member of the construction workforce is allowed to wander around private property, except within the immediate surroundings of the site.
- The Contractor must provide suitable sanitation facilities for site staff. Sanitation provided during the construction phase should be managed so that it does not cause environmental health problems. The use of the surrounding veld for toilet purposes is not permitted under any circumstance.
- The Contractor must arrange for all his employees and those of his sub-contractors to be informed of the findings of the environmental report before the commencement of construction to ensure:
 - A basic understanding of the key environmental features of the work site and environments, and
 - Familiarity with the requirements of this document and the site specific report.
- Supervisory staff of the Contractor or his sub-contractors must not direct any person to undertake any activities which would place such person in contravention of the specifications of this document endanger his/her life or cause him/her to damage the environment.
- The demand for construction materials and supplies will have an effect on the local economy. This impact can be optimised by sourcing and purchasing materials locally and regionally wherever possible, insofar as the material complies with the design specification.
- The Contractor must maintain a detailed complaints register. This must be forwarded, together with solutions, to the authorities when requested.

6.9 Aesthetics

- Scenic Quality
- Damage to the natural environment must be minimized.
- The contractor may not remove any trees. If trees are in the way of the pipe route or with the development sites, the contractor must inform the environmental section who will then liaise with city parks for permission or recommendation.
- Trees and tall woody shrubs must be protected from damage to provide a natural visual shield. Excavated material must not be placed on such plants and movement across them must not be allowed, as far as practical.

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- The clearing of all sites must be kept to a minimum and surrounding vegetation must, as far as possible, be left intact as a natural shield.
- No painting or marking of natural features must be allowed.
- Above-ground Structures (reservoirs, water hammer tanks, valve chambers, pump stations etc.)
- All above ground structures should be located in areas where the visual impact from roads, houses etc. is minimised.
- All above ground structures could be treated or painted to blend in with the natural environment.
- Cut and fill areas, river and stream crossings and other soil stabilisation works must be constructed to blend in with the natural environment.
- Natural outcrops, rocky ridges and other natural linear features must not be bisected. Vegetation on such features must, as far as possible, not be cut unless absolutely necessary for construction.
- Excavated material must be flattened (not compacted) or removed from site. No heaps of spoil material must be left on site once the Contractor has moved to a new construction site.
- Any complaints from interest groups regarding the appearance of the construction site must be recorded and addressed promptly by the Contractor.

6.10 Archaeology and Cultural Sites

- All finds of archaeological finding must be reported to the nearest police station.
- Archaeological finding from the graves of victims of conflict, or any burial ground or part thereof which contains such graves and any other graves that are deemed to be of cultural significance may not be destroyed, damaged, altered, exhumed or removed from their original positions without a permit from the South African Heritage and Resource Agency (SAHRA).
- Work in areas where artefacts are found must cease immediately.
- Under no circumstances must the Contractor, his/her employees, his/her sub-contractors or his/her sub-contractors' employees remove, destroy or interfere with archaeological artefacts. Any person who causes intentional damage to archaeological or historical sites and/or artefacts could be penalised or legally prosecuted in terms of the National Heritage Resources Act, 25 of 1999.
- A fence at least 2m outside the extremities of the site must be erected to protect archaeological sites.

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- All known and identified archaeological and historical sites must be left untouched.
- Work in the area can only be resumed once the site has been completely investigated. The Project Manager will inform the Contractor when work can resume.
- Environmentalist must arrange for examinations of findings with an Archaeologist.

6.11 Flora

- All suitable and rare flora and seeds must be rescued and removed from the site. They must be suitably stored, for future use in rehabilitation.
- The felling and/or cutting of trees and clearing of bush must be minimised.
- Bush must only be cleared to provide essential access for construction purposes.
- The spread of alien vegetation must be minimized.
- Any incident of unauthorised removal of plant material, as well as accidental damage to priority plants, must be documented by the Contractor.
- Woody vegetative matter stripped during construction must either be spread randomly throughout the surrounding veld so as to provide biomass for other micro-organisms and habitats for small mammals and birds, or it may be stockpiled for later redistribution over the reinstated top soiled surface. No vegetative matter must be burnt or removed for firewood other than those removed during the grubbing and clearing phase. Such vegetation can be made available to the local inhabitants to be used as firewood.
- No tree outside the footprint of the Works area must be damaged.

6.12 Fauna

- No species of animal may be poached, snared, hunted, captured or wilfully damaged or destroyed.
- Snakes and other reptiles that may be encountered on the construction site must not be killed unless the animal endangers the life of an employee.
- Anthills and/or termite nests that occur must not be disturbed unless it is unavoidable for construction purposes.
- Disturbances to nesting sites of birds must be minimized.

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- The Contractor must ensure that the work site is kept clean and free from rubbish, which could attract pests.

6.13 Infrastructure

- The relevant authorities must be notified of any interruptions of services, especially the Local Municipality, National Road Agency, Transnet, TELKOM and ESKOM. In addition, care must be taken to avoid damaging major and minor pipelines and other services.
- The integrity of property fences must be maintained.
- No telephone lines must be dropped during the construction operations, except where prior agreement by relevant parties is obtained. All crossings must be protected, raised or relocated as necessary.
- All complaints and/or problems related to impacts on man-made facilities and activities must be promptly addressed by the Contractor and documented.
- Storage Facilities
- Proper storage facilities should be provided for the storage of oils, grease, fuels, chemicals and hazardous materials.
- The Contractor must ensure that accidental spillage does not pollute soil and water resources.
- Fuel stock reconciliation must be done on all underground tanks to ensure no loss of oil, which could pollute groundwater resources.
- Cement must be stored and mixed on an impermeable substratum.
- The Contractor shall ensure that existing services (e.g. roads, pipelines, and powerlines and telephone services) are not damaged or disrupted unless required by the contract and with the permission of the RE.
- The Contractor shall be responsible for the repair and reinstatement of any existing infrastructure that is damaged or services which are interrupted.
- A time limit for the repairs may be stipulated by the RE in consultation with the Contractor.

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6.14 Traffic Control

- All reasonable precautions must be taken during construction to avoid severely interrupting the traffic flow on existing roads, especially during peak periods.
- Before any work can start the Local Traffic Department must be consulted about measures to be taken regarding pedestrian and vehicular traffic control.

6.15 Access Roads

- The Contractor and the affected landowner must collaborate on the planning and construction of new access routes and the repair or upgrading of existing routes.
- Access to the site must be controlled such that only vehicles and persons directly associated with the work gains access to the site.
- Temporary access roads must not be opened until required and must be restored to its former state as soon as the road is no longer needed.

6.16 Batching Plants

- Concrete must be mixed only in an area demarcated for this purpose, ideally on an impervious surface (e.g. cement mixing pit)..
- Batching operations to take place in a designated area, which will be kept clean at all times.
- All concrete spilled outside this area, must be promptly removed by the Contractor and taken to a permitted waste disposal site.
- After all concrete mixing is complete; all waste concrete must be removed from the batching area and disposed of at an approved dumpsite.
- Ensure separation of clean and dirty water from batching plant.
- Storm water must not be allowed to flow through the batching area. Water laden with cement must be collected in a retention area for evaporation and not allowed to escape the batching area.
- Operators must wear suitable safety clothing.
- Wastewater from batching operations to be suitably disposed of.

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- Waste concrete and cement sludge to be removed on a regular basis (to prevent overflowing) and to be disposed of at a suitable facility.
- Unused cement bags will be stored in an area not exposed to the weather and packed neatly to prevent hardening or leakage of cement.
- Used cement bags will be stored so as to prevent windblown dust and potential water contamination. Used bags will be disposed of adequately at a licenced waste disposal facility.
- Limit concrete batching to single sites where possible.
- Concrete transportation will not result in spillage.
- Cleaning of equipment and flushing of mixers will not result in pollution, with all contaminated wash water entering the waste water collection system.
- To prevent spillage onto roads, ready mix trucks will rinse off the delivery shoot into a suitable sump prior to leaving the site. The Contractor shall ensure such designated concrete wash bay area's/ sumps are created and that all concrete trucks delivering concrete to site first empty and clean their shoots at this point before leaving the site. The dried waste product shall be handled as construction rubble.
- Suitable screening and containment will be in place to prevent windblown contamination from cement storage, mixing, loading and batching operations.
- All contaminated water and fines from exposed aggregate finishes will be collected and stored in sumps and will be adequately disposed of.
- All visible remains of excess concrete will be physically removed on completion of the plastering or concrete pouring and disposed of in an acceptable manner.
- Any spilled concrete to be cleaned up immediately.
- In practice all wastes arising from construction activities are to be handled; transported and disposed of in accordance with the relevant regulations. All efforts should be made to minimise, reclaim or recycle waste, and failing that, dispose of it in a manner licensed by the government for that purpose.

6.17 Ablution Facilities

- Chemical toilet facilities should be managed and serviced by a qualified company. No disposal or leakage of sewerage should occur on or near the site.

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6.18 Blasting

- Blasting must not endanger public or private property.
- Noise mufflers and/or soft explosives must be used to minimize the impact on animals.
- All the provisions of the Explosives Act, 26 of 1956 and the Minerals Act, 50 of 1991 must be complied with.
- The Contractor must take measures to limit fly rock.

6.19 Electrical

- Measures must be taken to prevent any interference that could result in flashover of power lines due to breaching of clearances or the collapse of power lines due to collisions by vehicles and equipment.
- Measures must be taken during thunderstorms to protect workers and equipment from lightning strikes.
- All tall structures must be properly earthed and protected against lightning strikes.

6.20 Fire prevention

- The Contractor must take all the necessary precautions to protect the materials on site and to avoid veld fires.
- No fires or open flames are allowed on site unless directly used for construction purposes, e.g. acetylene blowtorch.
- Review all SABS standards relating to fire precautions and fire control namely, SABS 0131-3 Section 8 and SABS 089-1 or as amended.
- The Contractor must have fire-fighting equipment and a first aid box available on site and on all vehicles working on site.
- All waste bins must be kept away from fuel tank installations.
- All fuel tanks must be installed above ground, depending on the volume of stored fuel, for easy detection of fuel leaks.

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- Any welding or other sources of heating of materials must be done in a controlled environment, wherever possible and under appropriate supervision, in such a manner as to minimise the risk of veld fires and/or injury to staff.
- Fires lit for comfort (warmth) must be actively discouraged by the Contractor, due to the risk of veld fires and the risk to adjacent properties. Also, no waste material must be burnt.

6.21 Excavation

- The process of excavation and back filling must be carried out as a sequential process following one another as quickly as possible.
- Excavations must only remain open for a minimum period of time and during this time they must be clearly demarcated. If excavations place the public at risk these sites must be fenced.
- The residents directly affected by open trenches must be notified of the dangers. This will be done during the site-specific phase.
- Danger tape shall not be utilised to prevent personnel from open excavations. Construction vehicles should avoid creating new roads, use existing roads.
- Topsoil must be cleared and retained as it contains most inorganic matter and nutrients.
- Harvested grass should be retained and used as a mulch to combat erosion.
- Soil should be exposed for the minimum time possible once cleared of invasive vegetation.
- Avoid prolonged exposure of soils to wind and water erosion when clearing and grubbing.
- Stockpiled topsoil must be covered with suitable fabric to prevent erosion and weed invasion.
- Stockpiled topsoil must be covered with suitable fabric to prevent erosion and weed invasion.
- No vehicles are allowed to access onto the stockpiles after they have been placed.
- Topsoil and subsoil must be kept separate throughout construction and rehabilitation.
- A marsh wire or snow netting shall be erected around the exposed excavations to warn the public.
- The contractor must rip and re-vegetate temporal roads after project completion.

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6.22 Workshops, storage areas and materials handling

- These areas shall be chosen so as to cause the least impact on the biophysical and social elements of the area.
- The siting of workshops, maintenance and refuelling sites and materials storage areas shall not be in the vicinity of sensitive sites e.g. wetlands, cultivated fields or drainage lines, or where local land owners can be disturbed.
- Storm water shall be diverted around the storage area. Storm water falling on the storage area shall be discharged if it meets the required water quality standards.
- Proper storage facilities, placed on an impermeable surface, shall be provided for the storage of oils, grease, fuels, chemicals and other hazardous materials to be used during the construction phase of the project. If fuel is required on site it shall be stored in a secure area in a steel tank supplied and maintained by the fuel suppliers. Leakage of fuel shall be avoided.
- An adequate bund wall, 110% of volume, shall be provided for fuel and diesel areas to accommodate any spillage or overflow from these substances. The area inside the bund wall shall be lined with an impervious lining to prevent infiltration of the fuel into the soil.
- In addition, hazard signs indicating the nature of the stored materials shall be displayed on the storage facility or container and Material Safety Data Sheets (MSDS's) will be made available for all hazardous chemicals. Before containers or storage facilities are erected, emergency procedures in the event of misuse or spillage that may negatively affect an individual or the environment will be in place.
- The storage facilities (including any tanks) shall be surrounded by a bund wall, in order to ensure that accidental spillage does not pollute local soil or water resources.
- The storage areas shall not be utilised for accommodation purposes and shall be access controlled.
- The storage area shall be kept tidy and the area shall be rehabilitated after use.
- An inventory of any hazardous chemicals/substances (including that within equipment) kept on site, along with a description of possible ill effects and treatment of health-related afflictions resulting from accidents, shall be kept in the storage area as well as by the appropriate manager. These areas shall be securely fenced.

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- Gas welding cylinders and LPG cylinders shall be stored in a secure, well-ventilated area.
- A notice board with the contact details of the responsible party shall be displayed at the gate to the storage area.
- The contractor shall ensure that any delivery drivers are informed of all procedures and restrictions required to comply with the EMP. Someone with an adequate understanding of the CEMP shall supervise drivers during delivery and off-loading.
- All vehicles and machinery will be inspected for any leaks or malfunctions regularly. Vehicle servicing or repairs is prohibited from site, unless in an emergency.
- Drip trays shall be inspected and emptied daily and serviced when necessary. In particular drip trays shall be closely monitored during rain events to ensure that they do not overflow. The contents must be disposed of at a recognised site.
- All repairs done on machinery using hydrocarbons as fuels or lubricants shall have a drip tray placed strategically to avoid incidental spillage.
- Workers shall be made aware of the health risks associated with any hazardous substances used (e.g. smoking near refuelling depots), and shall be provided with appropriate protective clothing / equipment in case of spillages or accidents.
- Cement and other potential environmental pollutants shall be stored and mixed on plastic sheeting or ready mix trucks shall be used. There shall be no opportunity for environmental contamination.
- Workshop areas shall be monitored for oil and fuel spills and such spills shall be cleaned and remediate to the satisfaction of the EO.
- The Contractor shall be in possession of an emergency spill kit that must be complete and available at all times on site.

6.23 Method Statement

The objective is to ensure all construction activities are undertaken with the appropriate level of environmental awareness to minimise environmental risk.

The environmental specifications are required to be underpinned by a series of Method

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Statements, within which the Contractors and Service Providers are required to outline how any identified environmental risks will practically be mitigated and managed for the duration of the contract, and how specifications within this EMPr will be met. That is, the Contractor will be required to describe how specified requirements will be achieved through the submission of written Method Statements to Johannesburg Water Environmental Section and ECO.

A Method Statement is defined as “a written submission by the Contractor in response to the environmental specification or a request by the Site Manager, setting out the plant, materials, labour and method the Contractor proposes using to conduct an activity, in such detail that the Site Manager and Environmental Officers are able to assess whether the Contractor's proposal is in accordance with the Specifications and/or will produce results in accordance with the Specifications”. The Method Statement must cover applicable details with regard to:

- Construction procedures
- Materials and equipment to be used
- Getting the equipment to and from site
- How the equipment/material will be moved while on-site
- How and where material will be stored
- The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur
- Timing and location of activities
- Compliance/non-compliance with the Specifications, and
- Any other information deemed necessary by the Johannesburg Water.

The Contractor may not commence the activity covered by the Method Statement until it has been approved by the Site Manager, except in the case of emergency activities and then only with the consent of the Site Manager. Approval of the Method Statement will not absolve the Contractor from their obligations or responsibilities in terms of their contract.

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Failure to submit a method statement may result in suspension of the activity concerned until such time as a method statement has been submitted and approved. The EO and ECO should monitor the construction activities to ensure that these are undertaken in accordance with the approved Method Statement.

6.24 Re-vegetation and Rehabilitation or Reinstatement

Objective

To ensure re-vegetation and rehabilitation of disturbed areas is undertaken

Legislation and Standards

- Conservation of Agricultural Resources Act 43 of 1983
- Environment Conservation Act 73 of 1989
- National Forestry Act 84 of 1998
- National Environmental Management Act 107 of 1998
- Gauteng Nature Conservation Bill, 2014

Mitigation measures

In order to meet this goal, the following objective, actions and monitoring requirements are relevant:

- Disturbed areas must be rehabilitated/re-vegetated with appropriate natural vegetation and/or local seed mix. Re-use native/indigenous plant species removed from disturbance areas in the rehabilitation phase as per the re-vegetation and rehabilitation management plan.
- Re-vegetated areas may have to be protected from wind erosion and maintained until an acceptable plant cover has been achieved.
- On-going alien plant monitoring and removal within the disturbed project footprint (where the initial clearing for construction took place) must be undertaken on all areas of natural vegetation on an annual basis.
- All temporary facilities, equipment and waste materials must be removed from site and appropriately disposed of.
- All temporary access road must be rehabilitated to their original condition

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- Necessary drainage works and anti-erosion measures must be installed, where required, to minimise loss of topsoil and control erosion.
- On-going inspection of rehabilitated areas in order to determine effectiveness of rehabilitation measures implemented.
- On-going alien plant monitoring and removal should be undertaken as per the approved Rehabilitation/Re-vegetation plan.

6.25 Flora Search, Rescue and Relocation

Objective

To identify, remove, and where possible, relocate red data and conservation worthy flora species from proposed area.

Legal requirements

- National Environmental Management Act: Biodiversity Act (Act 10 of 2004) including Threatened or Protected Species Regulations;
- National Environmental Management Act (Act 107 of 1998);
- Gauteng Nature Conservation Bill, 2014/Transvaal Nature Conservation Ordinance 12 of 1983; and
- National Forests Act (Act 30 of 1998).

Management and Mitigation Requirement

- Conduct a detailed search of at the area. As a minimum, this should take place during the spring and summer months prior to impoundment so positive identification of flowering plants can be made. This should be done taking due cognisance of specialist studies already undertaken as part of the EIA process;
- Allow time for additional searches if these are deemed necessary, based on progress and diversity of plant species found;
- Identify and physically mark all conservation worthy plants found on the ground; and
- Capture markers and reference in a retrievable system, so that these can be located again for transplanting (e.g. using a combination of aerial photography, GPS and GIS, as appropriate).

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Plant search and rescue plan

- From information gathered during the plant marking exercise, establish the size.
- Requirements for the plant rescue team workforce, and the methodology to be employed during the rescue to maximise the likelihood of success; Document and motivate which species found on site are considered to be conservation worthy.
- Follow a multi-pronged approach to maximise the likelihood of success wherever feasible. In addition to transplanting of whole plants, seed can be collected and sown *in situ* in suitable habitats and/or in an off-site nursery.
- Any plants not suitable for transplantation must be considered for transplanting to existing conservation areas nearby. This could involve growing these plants on in an off-site nursery for a period of time.
- Depending on the conservation worthy species found, the location of suitable existing conservation areas nearby and the location of the off-site nursery, the most appropriate plant rescue options must be detailed in the search and rescue plan, and could be a combination of the following options:
- All required permits must be obtained from the appropriate authority covering plants to be affected by the plant rescue operation prior to the removal of the plants.

Aftercare and monitoring

- Record numbers and diversity of propagated plants and the health of the same, until they can be planted out;
- Aftercare of transplanted plants to be done in accordance with the plant search and rescue plan by an appropriate agent (e.g. staff from the commercial nursery or an appropriately trained onsite Contractor), including watering and alien plant control requirements. If done correctly, the frequency of input will decrease with time;
- Record numbers and diversity of transplanted plants and the health of the same;
- Monitoring must be undertaken as per requirements of the plant search and rescue plan approved by GDARD, including monitoring of alien plants and maintenance of a photographic record; and

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- Provide a detailed record (including photographic record) that indicates the success of the plant rescue operation. Records of corrective action taken to improve management of transplanted plants, where relevant, must also be completed.

6.26 STORM WATER MANAGEMENT

Objective

- To minimise erosion of soil from site during construction.
- To minimise deposition of soil into drainage.
- Minimise loss of vegetation cover due to construction related activities.

Mitigation Measures

- Identify and demarcate construction areas for general construction work and restrict construction activity to these areas. Prevent unnecessary destructive activity within construction areas (prevent over-excavations)
- Stockpile topsoil for re-use in rehabilitation phase. Maintain stockpile shape and protect from erosion. All stockpiles must be positioned at least 50 m away from drainage lines and wetlands.
- Erosion control measures: Run-off control and attenuation on slopes (sand bags, logs), silt fences, storm water channels and catch-pits, shade nets, soil binding, geofabrics, hydro seeding or mulching over cleared areas.
- Control depth of excavations and stability of cut faces/sidewalls.
- Compile a comprehensive storm water management plan as part of the final design of the project and implement during construction and operation.

Monitoring

- Regular inspections of the site by EO/SHE.
- Immediate reporting of ineffective sediment control systems.
- Public complaints register must be developed and maintained on site.

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6.27 Monitoring Program

OBJECTIVE: Monitor the performance of the control strategies employed against environmental objectives and standards

A monitoring programme must be in place not only to ensure conformance with the EMP, but also to monitor any environmental issues and impacts which have not been accounted for in the EMP that are, or could result in significant environmental impacts for which corrective action is required. The period and frequency of monitoring will be stipulated by the environmental authorisation (once issued). Where this is not clearly dictated, Johannesburg Water will determine and stipulate the frequency of monitoring required in consultation with the relevant authority. The contractor project manager will work with the site manager of the contractor to ensure that monitoring is conducted and reported.

The aim of the monitoring and auditing process would be to routinely monitor the implementation of the specified environmental specifications, in order to:

- Monitor and audit compliance with the prescriptive and procedural terms of the environmental specifications.
- Ensure adequate and appropriate interventions to address non-compliance.
- Ensure adequate and appropriate interventions to address environmental degradation.
- Provide a mechanism for the lodging and resolution of public complaints.
- Ensure appropriate and adequate record keeping related to environmental compliance.
- Determine the effectiveness of the environmental specifications and recommend the requisite changes and updates based on audit outcomes, in order to enhance the efficacy of environmental management on site.
- Aid communication and feedback to authorities and stakeholders.

Method of Monitoring

The Environmental Officer will ensure compliance with the EMP, and will conduct monitoring activities. The EO will undertake site inspections on a monthly basis or as specified in the environmental authorisation once issued.

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Monitoring Reports

Environmental Monthly reports will be compiled by the EO on a monthly basis and must be submitted to Environmental Specialist. The report should include details of the activities undertaken in the reporting period, any non-conformances or incidences recorded, corrective action required and details of these non-conformances or incidents which have been closed out.

A document handling system must be established to ensure accurate updating of EMP documents, and availability of all documents required for the effective functioning of the EMP. Supplementary EMP documentation could include:

- Method Statements;
- Environmental Action Plan
- Environmental File
- Site instructions;
- Emergency preparedness and response procedures;
- Record of environmental incidents;
- Non-conformance register
- Training records;
- Site inspection reports;
- Waste Register
- Water Usage Register
- Fauna and Flora Register
- Hazardous chemical Inventory list
- Monitoring reports;
- Auditing reports; and
- Public complaints register (single register for maintained for overall site).

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Table 1: Monitoring Programme

ISSUE	FREQUENCIES OF MONITORING	RESPONSIBLE PERSON
WATER		
Prevention of water pollution	Weekly in rainy season	Contractor’s Representative (CR)
Prevention of stagnant water on site.	Weekly in rainy season	
Proper functioning of sanitation facilities	Weekly	
SOIL		
Surface or gully erosion on site	Weekly in rainy season	CR
Soil contamination with oils	Monthly	CR
If small, clean up. If large, appoint a suitable contractor for clean-up.	Immediately	CR
Air		
Control domestic fires.	Weekly	CR
Heavy vehicle emission control.	Monthly	CR
Dust control of access roads. Wetting when required.	Weekly inspection	CR
WASTE		
Efficiency of domestic waste collection.	Bi Weekly	CR
Prevention of burning of solid/liquid wastes on site.	Weekly	CR
Proper collection and containment of liquid wastes (petroleum, oils, paints, resins & cooking oils)	Monthly	CR
The recycling and/or disposal thereof.		
The collection and disposal of construction waste (concrete, wood, steel)	Bi Weekly	CR
	Monthly	CR

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ISSUE	FREQUENCIES OF MONITORING	RESPONSIBLE PERSON
Collection of hazardous waste.	Bi Weekly	CR
WILDLIFE		
Weed Control	Weekly	CR
Control of illegal hunting or snaring of game, birds or other wild animals.	Weekly	CR
SOCIAL		
Inspect overall appearance of site. (paint work, cleanliness & housekeeping)	Weekly	CR
Resolve complaints		
Monitor behaviour of labourers	Daily	CR and IEC
	Daily	CR
SAFETY		
Inspect road signs, pedestrian and vehicle behaviour	At least once a week	CR

6.28 Fire Prevention and Control

Objective

- To avoid veld fires, claims and litigation.

Mitigation Measure

- Smoking shall be prohibited in the vicinity of flammable substances.
- Johannesburg Water and Contractor shall ensure that adequate fire-fighting equipment is available on site, in particular where flammable substances are being stored or used.
- Suitable precautions shall be taken (e.g. suitable fire extinguisher, welding curtains) when working with welding or grinding equipment near potential sources of combustion.

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- All fire control mechanisms (fire fighting equipment) will be routinely inspected by a qualified investigator for efficacy thereof and be approved by local fire services. Such mechanisms will be present and accessible at all times.
- All staff on site shall be made aware of general fire prevention and control methods, and the name of the responsible person to alert to the presence of a fire.
- The Contractor shall contact the relevant authority of a fire outside of a demarcated area as soon as it starts and not to wait until can no longer control it.
- The Contractor shall take all reasonable and precautionary steps to ensure that uncontrolled fires are not started as a consequence of his activities on site.

6.29 Internal Audits and Reporting

Typically, an audit analyses the results obtained from monitoring, assesses whether objectives and targets have been met and whether there are variances from the stipulated EMP and legal requirements. In addition, the audit assesses whether EMP implementation has been undertaken according to planned arrangements and that the EMP itself is being appropriately updated. The audit should confirm that identified corrective actions have been undertaken and then assess the effectiveness of such actions. The timing of audits should be included in the implementation schedule in the EMP.

The key steps in a successful audit are:

- Establish audit procedures.
- Determine the frequency of audits.
- Ensure that the auditors are competent, in that they must be able to undertake the audit objectively and competently. Audits may be undertaken by internal or external parties, although certain I&AP requirements may define a need for external auditors.
- Maintain records of audits.

A procedure is to be developed by the project management team for conducting EMP audits, and should incorporate processes for scheduling and reporting, as well as the timing and frequency of the audits. This procedure should also address responsibilities and required resources. The EO is usually responsible for the maintenance of the environmental audit information that is required prior, during and after an audit

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Internal audits must be undertaken by Johannesburg Water Environmental Section. Audit will be conducted as per the Audit Schedule.

6.30 Noise Pollution

Temporary noise pollution due to construction works should be controlled by proper maintenance of equipment and vehicles, and tuning of engines and mufflers. Construction works should be completed in as short a period as possible by assigning qualified engineers and foremen. It is the responsibility of the Contractor to monitor for the mitigation of such impacts. Noise problems should be reduced to normally acceptable levels by incorporating low-noise equipment in the design and/or locating such mechanical equipment in properly acoustically lined buildings or enclosures. In the presence of adequate buffer zones between the facility and residential areas, noise control measures must be minimized.

6.31 Environmental Awareness Plan

OBJECTIVE: Ensure all operation personnel have the appropriate level of environmental awareness and competence to ensure continued environmental due diligence and on-going minimisation of environmental harm (Environmental Awareness Plan)

To achieve effective environmental management, it is important that Contractors and site employees are aware of the responsibilities in terms of the relevant environmental legislation and the contents of this EMP. Johannesburg Water is responsible for informing its employees and contractors (transportation contractor) of their environmental obligations in terms of the environmental specifications, and for ensuring that employees are adequately experienced and properly trained in order to execute the works in a manner that will minimise environmental impacts. Johannesburg Water's obligations in this regard include the following:

- Employees must have a basic understanding of the key environmental features of the depot and its surrounding environment.
- Ensuring that a copy of the EMP is readily available on-site, and that all site staff are aware of the location and have access to the document. Employees must be familiar with the requirements of the EMP and

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the environmental specifications as they apply to the operation of the facility.

- Ensuring that, prior to commencing any new site works, all employees have attended an Environmental Awareness Training course. The course must provide the site staff with an appreciation of the project's environmental requirements, and how they are to be implemented.
- Awareness of any other environmental matters, which are deemed to be necessary by the depot manager.
- Ensure that construction workers have received basic training in environmental management, including the storage and handling of hazardous substances, minimise of disturbance to sensitive areas (wetland), management of waste and prevention of water pollution
- Records must be kept of those that have completed the relevant training.
- Training should be done either in a written or verbal format but must be in an appropriate format and language for the receiving audience
- Refresher sessions must be held to ensure the operating staffs are aware of their environmental obligations.

Therefore, prior to the commencement of construction activities on site and before any person commences with work on site thereafter, adequate environmental awareness and responsibility are to be appropriately presented to all staff present onsite, clearly describing their obligations towards environmental controls and methodologies in terms of this EMPr. This training and awareness will be achieved in the following ways:

Environmental Awareness Training

Environmental Awareness Training must be undertaken by the Environmental Officer and must take the form of an on-site talk and demonstration by the Environmental Officer before the commencement of construction activities on site. A record of attendance of this training must be maintained by the Environmental Liaison Officer/SHE Officer on site.

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Induction Training

Environmental induction training must be presented to all persons who are to work on the site – be it for short or long durations. Contractors or Engineers staff, site staff, sub-contractors or visitors to site.

This induction training should include discussing Johannesburg Water’s environmental policy and values, the function of the EMP and the importance and reasons for compliance to these. The induction training must highlight overall do’s and don’ts on site and clarify the repercussions of not complying with these. The reporting procedure must be explained during the induction as well. Opportunity for questions and clarifications must form part of this training. A record of attendance of this training must be maintained by the SHE officer on site.

Toolbox Talks

Toolbox talks should be held on a scheduled and regular basis (at least once a month) where the foreman/site supervision manager, environmental and safety representative and all employees on site hold talks relating to environmental practices and safety awareness on site. These talks should also include discussions on possible common incidents occurring on site and the prevention of reoccurrence thereof. Records of attendance and the awareness talk subject must be kept on file.

6.32 General Housekeeping

All construction and operational areas must be kept in a neat and orderly condition at all times;

- An efficient removal system of waste and rubble must be ensured during all development phases;
- All operational facilities, including vehicles, should be actively maintained;
- Any areas for material storage, waste sorting and other potentially intrusive activities must be screened from view as far as considered feasible.

6.33 Waste Water Management

Sanitation Facilities

- Ablution facilities shall be provided on site.
- The positioning of the ablution facilities shall be done in consultation with Client and shall be placed so that it cannot contaminate the natural streams and rivers. One toilet shall be provided per 10 staff

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members on site. Toilets shall be positioned within walking distance of wherever employees are employed on the site. Toilets shall be provided with locks and doors shall be secured to prevent the toilets from blowing over.

- The toilets shall be placed outside of areas susceptible to flooding.
- Chemical toilets shall be serviced regularly by an authorised service provider and removed to a registered waste water treatment works and disposal certificates shall be obtained from the waste disposal facility for each disposal and retained on site.
- Polluted run-off must be discharged in the local sewerage main and not overland or into public streams. In instances where a sewerage main is not available, polluted run-off will be collected in sub-surface tanks and a reputable effluent removal contractor will be contracted to dispose of the waste in an environmentally acceptable manner. Official documentation shall be obtained from the waste disposal facility for each disposal and retained on site.
- Any cooking on Site shall be done on well-maintained gas cookers with fire extinguishers present. No cooking shall be permitted to occur on open fires.
- Toilets situated close to the site boundaries or within sight of residential areas shall be hidden behind screens or other cover as approved by the Engineer;
- No spillage shall occur when the toilets are cleaned or emptied and the contents shall be properly stored and removed from Site.
- Discharge of waste from toilets into the environment and burial of waste is strictly prohibited;
- All building rubble and rubble from the demolished structures, solid and liquid waste must be disposed of as necessary at an appropriately licensed refuse facility.
- Ensure that no refuse wastes are burnt on the premises or on surrounding premises. No fires will be allowed on site.

Contaminated water

- Workshops, refuelling depots and washing areas shall be bunded.
- Any wastewater or spilled fuel collected within bunded areas around the refuelling area shall be disposed of as hazardous waste

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- Waste water containing hydrocarbons, paints oil etc. shall be treated as hazardous waste

6.34 Waste Management

Methods for waste management and waste minimisation shall be implemented from the outset of the contract as per the Waste Management Plan to be submitted to Client. All personnel shall be instructed to dispose of all waste in the proper manner. A waste avoidance and minimisation approach will be encouraged for the duration of the project. The following steps in order will be applied.

- Prevention – avoid and minimise waste
- Recycle – reuse and recover all general waste
- Treat – treatment in order to reduce toxicity reduce waste quantities
- Dispose – waste removal into a registered landfill facility

Solid waste

- Waste with the potential for market re-use will be stored in separate containers, this includes, scrap metal, used tyres and paper. This waste will be recycled where ever possible.
- Solid waste shall be temporarily stored in tip – poof metal drums or waste skips at an approved area on site for collection and disposal. This area shall be away from drainage lines or water courses.
- All general waste drums or skips will be appropriately labelled GENERAL WASTE
- A refuse control system shall be established for the collection and removal of refuse to the satisfaction of Client and ECO.
- No waste shall be burned at the site offices or anywhere else on the site.
- All building rubble shall be a) removed from the site and disposed of at an appropriate dumping site, or b) temporarily stored in a clearly demarcated area on site for future use.
- All waste shall be disposed at an appropriate waste disposal facility.

Litter

- No littering by construction workers shall be allowed. During the construction period, the facilities shall be maintained in a neat and tidy condition and the site shall be kept free of litter.
- Measures shall be taken to reduce the potential for litter and negligent behaviour with regard to the disposal of all refuse.

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- Littering, discarding or burying of any materials shall not be allowed on site.

Hazardous waste

- Hazardous waste shall be temporarily stored in tip – proof metal drums or waste skips at an approved area on site for collection and disposal. This area shall be away from drainage lines or water courses.
- All hazardous waste drums or skips will be appropriately labelled HAZARDOUS WASTE.
- Hazardous waste such as bitumen, tar and oil shall be disposed of at a registered waste disposal facility. Special care shall be taken to avoid spillage of tar products such as tar prime or pre-coating fluid to avoid water-soluble phenols from entering the ground or contaminating water.
- All used filter materials shall be stored in a secure bin for disposal off site. Any contaminated soil shall be removed and replaced with clean soil. Soil contaminated by oils and lubricants shall be collected and disposed of at a facility designated by the local authority to accept contaminated materials.
- Used oil, lubricants and cleaning materials from the maintenance of vehicles and machinery shall be collected in a holding tank and returned to the supplier. Water and oil shall be separated in an oil trap. Oils collected in this manner shall be retained in a safe holding tank and removed from site by a specialist oil recycling company for disposal at an approved hazardous waste disposal site. Oil collected by a mobile servicing unit shall be stored in the service unit's sludge tank and discharged into the safe holding tank for collection by the specialist oil recycling company.
- Sludge should be managed in accordance with the Sludge Guideline 2010.
- Sludge should be kept only at the drying bed and no sludge should be stored at a permeable ground or natural ground.
- Hazardous waste shall be disposed of at a registered hazardous waste disposal site, disposal certificates shall be kept in the site file for record.

Medical Waste

- All medical waste will be contained in the special bins provided. All sharp needles must be separated from other medical waste,

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- All out dated and disused medicines will be disposed of as a hazardous medical waste or returned to the supplier for disposal. (Tablets and syrups will be crushed and/or dissolved before disposal as hazardous waste),
- Medical waste used on personnel coming for treatment at the clinic are to be placed on a demarcated container storage room,
- The Occupational Health Nurse will notify a service provided for removal of the medical waste prior exceeding 90 days.
- The service provider to provide Waste Manifest as well as the Safe Disposal Certificate, to the OHN who
- The OHN will arrange for an approved hazardous waste disposal company to collect and dispose of this medical waste. The OHN is responsible for and authorised to keep all records in connection herewith (disposal certificates).

6.35 Erosion Management Plan

The objective to control soil erosion from an ecological perspective is:

- To reduce the effects of raindrop splash erosion on exposed soil surfaces.
- To keep rainwater on the soil surface for as long as possible to increase the infiltration rate and reduce surface runoff.
- To reduce the speed of surface runoff to reduce the erosion effect of the soil surface.
- To provide methods to retain soil, debris, seed banks and organic matter being carried away by runoff.
- To improve water retention of the area (Coetzee, 2005).

Areas with a high soil erosion potential on the site

Areas identified as being of high soil erosion potential on the site include:

- Any areas without vegetation cover
- Excavated areas
- Steep areas
- Areas which undergo overland flow of water.
- Areas close to water

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- Irrigated areas
- Compacted areas
- Rivers
- Drainage lines
- Any areas where developments cause water flow to accelerate on a soil surface.

If any erosion features are present as a result of the activities mentioned above the ELO must:

Assess the situation.

- Take photographs of the soil degradation.
- Determine the cause of the soil erosion.
- Inform and show the relevant contractors the soil degradation.
- Inform the contractor that rehabilitation must take place and that the contractor is to implement a rehabilitation method statement and management plan.
- Monitor that the contractor is taking action to stop the erosion and assist them where needed.
- The progress of the rehabilitation must be monitored weekly and recorded in the site diary.
- All actions with regards to the incidents must be reported on in the monthly Audit report.
- If the erosion incident has not being addressed by the contractor within 14 days of you reporting it, the Johannesburg Water's Environmental Section must be informed.

The contractor/ developer (with the EO's consultation) must:

Select a system to treat the erosion

Design the treatment system

Implement the system

Monitor the area to see if the system functions like it should, if it the system fails adapt or adjust the system to ensure erosion is controlled.

Monitoring must continue until the area has been stabilized

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General Erosion

The civil works contractor may use the following instruments to combat erosion when necessary:

- Reno matrices
- Slope attenuation
- Shade catch nets
- Mulching
- Hydro-seeding or transplanting
- Re-vegetating
- Tilling (roughing the surface)

Erosion Management control measures

Ensure that all soil surfaces are protected by vegetation or a covering to avoid the surface being eroded by wind or water.

Ensure that heavy machinery don't compact areas that are not meant to be compacted as this will result in compacted hydrophobic, water repellent soils which increase the erosion potential of the area.

Surface water control measures

Prevent the concentration or flow of surface water or storm water down cut or fill slopes or along pipeline routes or roads and ensure measures to prevent erosion are in place prior to construction.

Storm water and any runoff generated by hard surfaces should be discharged into retention swales or areas with rock rip-rap. These areas should be grassed with indigenous vegetation. These energy dissipation structures should be placed in a manner that flows are managed prior to being discharged back into the natural water courses, thus not only preventing erosion, but also supporting the maintenance of natural base flows within these systems, i.e. hydrological regime (water quantity and quality) is maintained.

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- Mitigate against siltation and sedimentation through the use of the above mentioned structures and ensure that all structures do not cause erosion.
- Ensure that all storm water control features have soft engineered areas that attenuate flows, allowing for water to percolate into the local aquifers.
- Minimise and restrict site clearing to areas required for construction purposes only and restrict disturbance to adjacent undisturbed natural vegetation.
- Vegetation clearing should occur in parallel with the construction progress to minimize erosion and/or run-off. Large tracts of bare soil will either cause dust pollution or quickly erode and then cause sedimentation in the lower portions of the catchment.
- Minimise the diversion of flows into different catchments.
- If implementing dust control measures, prevent over-wetting, saturation and run-off that may cause erosion and sedimentation.
- Water course (stream) crossings should not trap any run-off, thereby creating inundated areas, but allow for free flowing water courses.

ALL EROSION CONTROL MEASURES

Areas susceptible to erosion must be protected by appropriate measures and repair of any damage caused by erosion due to construction activities must be under taken as soon as possible.

Minimise erosion and sedimentation into water courses through effective stabilisation (gabions and reno mattresses) and re-vegetation of disturbed river banks (Refer to rehabilitation specifications and erosion control measures below).

Stabilisation of sandy, dispersive slopes or slopes steeper than 1:3 will be required.

Ensure that bare soil is covered and hydro seeded to reduce topsoil loss.

6.36 Alien Invasive Species

In terms of National Environmental Management: Biodiversity Act 2004 (Act no. 10 of 2004) section 75, 76 and its regulations (Alien invasive Species Regulations, 2014) Organs of state are obliged to draw up an Invasive

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Species Monitoring, Control and Eradication Plan for land under their control, "[hereafter termed a Control Plan]. These Plans have to cover all Listed Invasive Species in terms of section 70 (1).

Control and eradication of listed invasive species

In terms of section 75 the following must be undertaken:

- (1) Control and eradication of a listed invasive species must be carried out by means of methods that are appropriate for the species concerned and the environment in which it occurs.
- (2) Any action taken to control and eradicate a listed invasive species must be executed with caution and in a manner that may cause the least possible harm to biodiversity and damage to the environment.
- (3) The methods employed to control and eradicate a listed invasive species must also be directed at the offspring, propagating material and re-growth of such invasive species in order to prevent such species from producing offspring, forming seed, regenerating or re-establishing itself in any manner.

Mitigation Measures

- The Control and Eradication Plan of alien invasive species must be compiled and implemented at all JW sites.
- The use of herbicides shall only be allowed after a proper investigation into the necessity, the type to be used, the long-term effects and the effectiveness of the agent.
- Application shall be under the direct supervision of a qualified technician or trained personnel. All surplus herbicide shall be disposed of in accordance with the supplier's specifications.
- All alien vegetation in the area and densifiers creating a fire hazard shall be cleared and treated with herbicides in accordance with JW vegetation Management Plan.
- The application shall be according to set specifications and under supervision of a qualified technician and possibility of leaching into the surrounding environment shall be properly investigated and only environmentally friendly herbicides shall be used.
- Small weeds shall be uprooted before sprout on site.
- One may not uproot or remove such plants and dump or discard them elsewhere to regrow or allow their seeds to be spread or blown onto other properties.
- MSDS's for the herbicides shall be kept in a file and made known to the responsible personnel or Storeman.

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- Herbicides shall be kept at the designated area and the area shall be labelled.
- If a spill occurs, the spill shall be treated with the use of spill kit and contaminated material disposed of accordingly.

6.37. Emergency Planning and Response Procedures

The Contractor is to explain and implement emergency procedures and plans for events such as fire, explosion, spillage of hazardous substances, evacuation, *etc.* to staff prior to any construction activities taking place (usually during induction phase). The following associated activities are to be undertaken by the Contractor:

- Development and compilation of an emergency procedure and plan.
- Emergency Procedure and Plan is to describe the measures required to manage emergencies during the construction phase and transportation and / or storage of hazardous materials and waste.
- The Contractor is to ensure that emergency procedures mock training sessions are carried out on an ad hoc basis.
- The Contractor is to inform his workforce of the locality of the designated emergency meeting point.
- Emergency contact numbers are to be displayed in prominent places and are to include numbers such as the Police, the Fire Department, Ambulance Services, *etc.*

The ELO should compile and keep an Incidents and Accidents Register on site in which all incidents and accidents are recorded, e.g. chemical spills, fires, accidents involving workers and vehicles, *etc.*

The following information must be recorded in the Incidents Register:

- The name and contact details of the persons involved
- The person recording the incident
- The date and time of incident
- The nature, extent and cause of the accident
- The name and contact details of any persons notified of the incident
- The actions taken to deal with the incident and whether the accident has been sufficiently

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- Dealt with additional steps required to prevent recurrence of the incident.

INCIDENT REPORTING

The Contractor ELO/ SHE representative will be responsible for reporting all incidents that occur on site using Client's Flash Report form. The Client's Environmental Incident Reporting procedure will be followed to report all incidents to Client. Johannesburg Water's Incident and Investigation Reporting procedure will be followed to report all environmental events to the Environmental Section. The environmental officer will analyse the statistics to identify trends and high risk activities. Statistics will be distributed to the site manager; SHE rep's for information and shall be discussed at all OHS &E Committee meetings.

7. RECORD KEEPING, COMPLIANCE AND PENALTIES

Various records will be kept on site for monitoring purposes these include but not limited to:

- Copy of Environmental Management Plan
- Approved Environmental Method Statements
- Environmental Authorisation
- Environmental induction attendance register
- Hazardous chemicals register
- Waste disposal register and disposal certificates
- Oil/fuel spill register

Records of non-compliance shall also be kept on record and will include the nature and magnitude of the non-compliance in a register, the action taken to discontinue the non-compliance, the action taken to mitigate its effects and the results of the actions. External complaints received regarding activities on the construction site pertaining to the environment shall be recorded in a public complaints register and the response noted with the date and action taken. This record shall be submitted with the monthly reports and a verbal report given at the monthly site meetings. A score of 90% is required for the Monthly Audit undertaken by the Johannesburg Water's Environmental Officers.

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8. DECOMMISSIONING

Objective

- To avoid and or minimise the potential environmental and social impacts associated with the decommissioning phase

Mitigation Measures

Mitigation measures as detailed in the construction phase on the EMP regarding impacts on flora, fauna, habitats and wetlands would be applicable to this phase.

- Rehabilitation to be undertaken in terms of specifications outlined in the Rehabilitation section of this EMP as well as in terms of any specific requirements applicable at the time.
- Johannesburg Water EO will need to supervise decommissioning activities.

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JW EMP Annexure A: Environmental Management Requirement Acknowledgement Letter

Environmental Requirement for Contractors and Suppliers working for Johannesburg Capital Expenditure (CAPEX) projects	Unique no	JWEMP:122017
	Revision no	00

I, the undersigned, hereby acknowledge that I have obtained copies of the following listed documentation and confirm that I fully understand the contents thereof and the consequences of non-compliance. The Contractor furthermore reiterates its commitment to compliance of the requirements contained within the following provided documentation:

Name of the Contractor	
Vendor Number	
Project Number	
Scope of Work	
Declaration by Capital Expenditure Projects Contractor	
- I undertake to adhere to the requirements as set out in: - Johannesburg Water Environmental Management Plan and Waste Management Plan - Environmental requirements for Contractors working on Capital Expenditure Projects - I undertake to comply with all applicable environmental legal and other requirements. - Undertake to comply with Johannesburg Water's environmental standards, policies and procedures where applicable. - I pledge to inform all staff of their role in managing environmental impacts on site. - I am fully aware that incidents must be reported within 24 hours of occurrence. - I pledge to implement environmental best practice on site at all times during the contract. - I pledge that all non-conformances issued to us will be addressed promptly.	
I hereby acknowledge that I have obtained copies of Johannesburg Water Environmental Management Plan and Waste Management Plan and confirm that I fully understand the contents thereof and the consequences of non-compliance. The Contractor furthermore reiterates their commitments to	

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compliance of the requirements contained within the following provided documentations and conform to all above mentioned requirements.

Signed at on this Day of 20.....

Contractor	Signature:	Date:
Project Engineer (Witness)	Signature:	Date:

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SAFETY , HEALTH & ENVIRONMENTAL (SHE) SPECIFICATION

PROJECT NUMBER:	JW 14087
PROJECT LOCATION:	VARIOUS LOCATIONS WITHIN COJ
PROJECT DESCR:	GEOTECHNICAL INVESTIGATION SERVICES

ANNEXURE 1: COVID-19 GUIDELINES



SAFETY , HEALTH & ENVIRONMENTAL (SHE) SPECIFICATION

PROJECT NUMBER:	JW 14087
PROJECT LOCATION:	VARIOUS LOCATIONS WITHIN COJ
PROJECT DESCR:	GEOTECHNICAL INVESTIGATION SERVICES

ANNEXURE 2: BASELINE RISK ASSESSMENT



SAFETY , HEALTH & ENVIRONMENTAL (SHE) SPECIFICATION

PROJECT NUMBER:	JW 14087
PROJECT LOCATION:	VARIOUS LOCATIONS WITHIN COJ
PROJECT DESCR:	GEOTECHNICAL INVESTIGATION SERVICES

ANNEXURE 3: MEDICAL SCREENING POLICY



SAFETY , HEALTH & ENVIRONMENTAL (SHE) SPECIFICATION

PROJECT NUMBER:	JW 14087
PROJECT LOCATION:	VARIOUS LOCATIONS WITHIN COJ
PROJECT DESCR:	GEOTECHNICAL INVESTIGATION SERVICES

ANNEXURE 4: CONTRACTOR COMPETENCY EVALUATION



SAFETY , HEALTH & ENVIRONMENTAL (SHE) SPECIFICATION

PROJECT NUMBER:	JW 14087
PROJECT LOCATION:	VARIOUS LOCATIONS WITHIN COJ
PROJECT DESCR:	GEOTECHNICAL INVESTIGATION SERVICES

ANNEXURE 5: SIGN OFF FORM



SAFETY , HEALTH & ENVIRONMENTAL (SHE) SPECIFICATION

PROJECT NUMBER:	JW 14087
PROJECT LOCATION:	VARIOUS LOCATIONS WITHIN COJ
PROJECT DESCR:	GEOTECHNICAL INVESTIGATION SERVICES

ANNEXURE 6: ENVIRONMENTAL MANAGEMENT PLAN



COVID 19 RISK ASSESSMENT FOR CONTRACTORS

PROJECT NUMBER:	JW 14087
PROJECT LOCATION:	VARIOUS LOCATIONS WITHIN COJ
PROJECT DESCR:	GEOTECHNICAL INVESTIGATION SERVICES

Activity	Hazard	Risk	Consequence	Who may be exposed	Rating	Controls
Coming to site / leaving site	Public transport	Contact with infected public members; Contact with contaminated surfaces;	Spreading / Contracting COVID 19; Fatalities	Contractor's employees,	H	✓ Employer to provide employees with reliable transportation; ✓ Regular disinfection and sanitizing of all vehicles; ✓ Employees to adhere to the social distancing protocol; ✓ Employees to wash their hands regularly (before getting into the car and after exiting) and put on masks. ✓ Ensure proper ventilation in the vehicle by opening the windows
Entering construction site	Contaminated surfaces	Physical contact with contaminated surfaces	Contracting COVID 19; Fatalities	Contractor's employees, Suppliers, Visitors JW employees, Consultants	H	✓ Conduct daily screening through a questionnaire and thermometer to assess the risk of COVID 19 in the workplace ✓ Hand washing for 20 seconds with running water and soap; ✓ Provide employees with clean running water for handwashing. ✓ Regular disinfection and sanitizing of surfaces ✓ Regular awareness on COVID 19 transmission and prevention; ✓ Employees to refrain from touching their faces and wash their hands regularly;
		Physical contact with infected employees	Contracting COVID 19; Fatalities	Contractor's employees, Suppliers, Visitors,	H	✓ Handwashing for 20 seconds with running water and soap; ✓ Regular disinfection and sanitizing of surfaces



COVID 19 RISK ASSESSMENT FOR CONTRACTORS

PROJECT NUMBER:	JW 14087
PROJECT LOCATION:	VARIOUS LOCATIONS WITHIN COJ
PROJECT DESCR:	GEOTECHNICAL INVESTIGATION SERVICES

	Infected employees			JW employees, Consultants		✓ Regular awareness on COVID 19 transmission and prevention;
Entering a construction site	Infected employees	Droplet spread from infected persons	Contracting COVID 19; Fatalities	Contractor's employees, Suppliers, Visitors, JW employees, Consultants	H	✓ Regular screening of employees; ✓ Provide employees with face masks; ✓ Employees to refrain from touching their faces and wash their hands regularly; ✓ Teach employees to cough inside their elbow or tissue and wash their hands or sanitize immediately afterwards. ✓ Employees to report to management if they are feeling sick; especially if they have flu-like symptoms, fever or sore throat.
Lunch	Contact with other employees	Contact with source of infection	Spreading / Contracting COVID 19; Fatalities	Contractor's employees, JW employees, Consultants	H	✓ Practice social distancing of up to 2m (but not less than 1m) between two people; ✓ Teach employees to cough inside their elbow or tissue and wash their hands or sanitize immediately afterwards;
	Sharing of food	Contact with source of infection	Spreading / Contracting COVID 19; Fatalities	Contractor's employees	H	✓ Discourage employees from sharing lunch and having contact with each other;
Meeting attendance	Infected persons	Physical contact with other employees	Contracting COVID 19; Fatalities	Contractor's employees, Suppliers, Visitors, JW employees, Consultants	H	✓ Minimise face to face contact by introducing virtual communication such as Skype, Zoom, Teams, etc; ✓ Avoid handshakes, hugs and sharing food; ✓ Practice social distancing of at least 1m apart. ✓ Employees to report to management if they are feeling sick; especially if they have flu-like symptoms, fever or sore throat.



COVID 19 RISK ASSESSMENT FOR CONTRACTORS

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		Droplet spread from infected persons	Contracting COVID 19; Fatalities	Contractor's employees, Suppliers, Visitors, JW employees, Consultants	H	✓ Minimise face to face contact by introducing virtual communication such as Zoom, Teams, etc; ✓ Practice social distancing of at least 1m apart. Teach employees to cough inside their elbow or tissue and wash their hands or sanitize immediately afterwards.
Visitors entering site	Infected visitors; Contact with contaminated surfaces	Droplet spread from infected persons; Physical contact with contaminated surfaces;	Spreading / Contracting COVID 19; Fatalities	Contractor's employees, Suppliers, Visitors, JW employees, Consultants	H	✓ Induction of all visitors to ensure that they are aware of the COVID 19. ✓ Screening of visitors through a questionnaire and thermometer to assess the possible prevalence of COVID 19 in the workplace; ✓ Sanitize visitors hands upon entry, and upon exiting the site camp or construction site.
Working in the office	Limited working space	Contact with infected employees and cough or sneeze droplets	Spreading / Contracting COVID 19; Fatalities	Contractor's employees, Visitors, JW employees, Consultants	H	✓ Erect physical barriers between employees sharing an office; ✓ Provide at least 1m distance between workstations; ✓ Teach employees to cough inside their elbow or tissue ✓ Employees to practice proper personal hygiene ✓ Face masks to be provided and worn
Working outside	Contact with other employees	Contact with infected employees and cough or sneeze droplets	Spreading / Contracting COVID 19; Fatalities	Contractor's employees, JW employees, Consultants	H	✓ Practice social distancing of up to 2m (but not less than 1m) between two people; ✓ Teach employees to cough inside their elbow or tissue and wash their hands or sanitize immediately afterwards; ✓ Provide employees with face masks, clean water and sanitizer;



COVID 19 RISK ASSESSMENT FOR CONTRACTORS

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						✓ Regular awareness on COVID 19 transmission and prevention; ✓ Employees to refrain from touching their faces and wash their hands regularly; ✓ Teach employees to cough inside their elbow or tissue and wash their hands or sanitize immediately afterwards. ✓ Employees to report to management if they are feeling sick; especially if they have flu-like symptoms, fever or sore throat.
Employee selection	Old age	High susceptibility to COVID 19; Comorbidities such as high blood pressure, diabetes	Fatalities	Old employees		✓ Ensure that all employees are below the age of 60 ✓ Reduce exposure to employees above the age of 50 by allowing them to work from home at least twice a week. ✓ Medical screening of all employees prior to work

 Johannesburg Water	SAFETY, HEALTH & ENVIRONMENTAL (SHE) SPECIFICATION	
	TENDER NUMBER:	JW 14087
	PROJECT LOCATION:	VARIOUS LOCATIONS WITHIN COJ
	PROJECT DESCRIPTION:	GEOTECHNICAL INVESTIGATION SERVICES

JW 6.4

Returnable Annexure A: Acknowledgement of SHE Specification & Annexures

DECLARATION BY CONTRACTOR

I, the undersigned, and representing the tenderer as indicated hereby acknowledge that I have obtained copies of the following listed documentation and confirm that I fully understand the contents thereof and confirm compliance thereto in the event of being successful:

- OHS Specification (Volume 2)
- Annexure 1: Baseline Risk Assessment
- Annexure 2: Medical Screening Policy
- Annexure 3: Contractor Competency Evaluation
- Annexure 4: Sign off form
- Annexure 5: Environmental Management Plan

We furthermore commit to:

- Comply with all applicable SHE related legal and other requirements.
- Inform all staff of their role in managing environmental impacts and safety hazards on site.

Signed at on this Day of 20.....

Name of tenderer	
Name of Authorized person	
Authorized Signature*	

*Signature must be as per form JW 3.3 as applicable

NB: Failure to complete this form in full and have it signed as required will result in elimination