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# OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION



## JOHANNESBURG DEVELOPMENT AGENCY

### EASTERN GATEWAY PRECINCT – UPGRADING OF OVAL PARK

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## LIST OF ABBREVIATIONS

AIA	Approved Inspection Authority
BOQ	Bill of Quantities
CHS	Construction Health and Safety
CHSO	Construction H&S Officer
CoF	Medical Certificate of Fitness
CM	Construction Manager
CR	Construction Regulations (Gazette 10113 of 7/02/2014)
CWP	Construction Work Permit
DoL	Department of Labour
ECO	Environmental Control Officer
EMP	Environmental Management Plan
ER	Engineer's Representative
HIRA	Hazard Identification Risk Assessment
H&S	Health and Safety
OHP	Occupational Health Practitioner
OHSA	Occupational Health and Safety Act No. 85 of 1993 (as amended)
PSHSP	Project Specific Health and Safety Plan
PSHSS	Project Specific Health and Safety Specification
PC	Principal Contractor
Pr. CHSA	Professional Health & Safety Agent
PPE	Personal Protective Equipment
RE	Resident Engineer
SANS	South African Bureau of Standards (Authority)
SACPCMP	South African Council for the Construction and Project Management Professions
SETA	Sector Education and Training Authority
SWP	Safe Work Procedure

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## Key References

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

Compensation for Injury and Occupational Diseases Act No. 100 of 1993 (as amended)

SANS 1921 Construction and Management Requirements for Works Contracts

South African National Standards (SANS) 1200 Specification for civil engineering construction

South African National Standard 1921-3 Steelworks

South African National Standard 1921-6 HIV/AIDS Awareness

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## **1 PROJECT AND SCOPE OF WORK DETAILS**

### **1.1 Locality of the Works**

The project site is in Browning Street, Jeppestown, in the Johannesburg CBD.

### **1.2 Project Description / Detailed Scope of Work:**

The works to be carried out under this project consist of the following main components:

- Paving upgrade and creation of new pathways
- Stormwater pipes and kerb inlets
- Sewer reticulation and new manholes
- Water reticulation including new fire hydrants
- Bulk earthworks
- Kids play area
- 5-a-side soccer field
- Workout area including outdoor gym
- Seating areas including new steel canopies
- Fencing
- Landscaping
- Lighting
- Street furniture
- Refurbishment work to 3 existing buildings

### **1.3 Format of the Project Specific Health and Safety Plan**

The format of the PSHSP is to follow the same Index as the PSHSS. Each aspect is to be responded to in terms of the way the PC must manage the scenario, and is requested not to insert the supporting documentation within the plan. Each section is to cross reference where the information can be found in the supporting documentation provided that is contained within the H&S System of the PC. The submission of 'generic' documentation is not acceptable. The PC must receive a full report on the appropriateness of the plan, and further requirements if any. The Plan is to consider the project and the operational requirements, including matching to the construction programme. It is preferable that a similar approach is followed in managing Contractors.

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## 1.4 Management of Suppliers

Suppliers are required to be managed in terms of access to site, as well as being responsible for specific H&S requirements when on site. The CHSO must keep an up to date list of all Suppliers, and ensure that a list of H&S requirements that relate to their activities are available. Site rules in terms of security and induction apply to Suppliers. The PC must include specific requirements in their PSHSP, and state how the Suppliers must be managed on a day-to-day basis. The following aspects are applicable to Suppliers or short-term works (surveying, testing, repairs, servicing, deliveries etc.). Cognisance is to be taken of the level of risk involved and the CHSO is to ensure the level of OHS documentation is appropriate:

- Mandatory agreements in place
- Letter of Good Standing
- Method statements and risk assessments
- Load testing and registers for cranes or lifting devices
- Medical certificates of fitness
- Material Safety Data Sheets (MSDSs)

## 2 ROLES AND RESPONSIBILITIES

### 2.1 Client (*Construction Regulation 5*)

The Client will adhere to all the requirements as stipulated in the Construction Regulations 2014.

#### 2.1.1 Project Manager

The PM is the accountable person for the overall management of the project, on and off-site, and is the delegated responsible person appointed in terms of the OHSA, Section 16(2). The PM is responsible for ensuring that the PSHSS and any amendments are provided to the PC and designers throughout the project. The PM must liaise with the Pr. CHSA to communicate any changes to designs or information relating to project H&S risk and the mitigation thereof. The PM must also ensure that all the statutory requirements, JDA requirements are adhered to by the PC and their Contractors at all times

#### 2.1.2 Designers (*Construction Regulation 6*)

The 'permanent works' Designers for the project are responsible for the overall management of the project design, and will ensure that the applicable safety standards incorporated into Construction Regulations under section 44 of the Act are complied with in the design. The

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requirement of each design team is a 'Design for H&S' risk approach, both from the design and materials used, complexity and constructability, where possible, to limit project and life cycle risk. While this is contextualised in the Construction Regulations, a minimum level of compliance is not always optimum or must suit the project. The hierarchy of control in identifying and mitigating risk is to be applied in each design activity. Ergonomic and health risks are to be considered. The designers must identify risks both in terms of practical ways in which the PC is required to construct, which could increase risk to the Client across the construction life cycle. Mitigation outcomes are to be included in any HIRA attached to the PC documentation that must include assessment of products specified, with alternative approaches chosen.

### **2.1.3 Construction Health and Safety Agent (*Construction Regulations 3&5*)**

The Pr. CHSA is the responsible person appointed to act on behalf of the client regarding the construction health and safety aspects, and to manage the health and safety on a construction project for the client. Duties are as per the outputs and deliverables outlined by the SACPCMP and the statutory requirements. The Client must ensure that the Pr. CHSA is informed of any design aspects, changes to design and must participate in mitigating project risk and liability.

The Pr. CHSA will audit the PC and ensure that the CHS requirements as they relate to the dynamics of the project are adhered to. The Pr. CHSA will notify any non-conformances to the Client and the Engineer, as and when required. The Pr. CHSA may increase the frequency of visits and audits depending on the risk and construction activities. Managing day-to-day risks remains the responsibility of the Contractor. Work or activities shall be stopped or halted by any party where workers of any level are at risk, and appropriate corrective action taken. Records of such actions are to be noted, and penalties applied where deemed necessary as set down in the PSHSS.

## **2.2 Principal Contractor (*Construction Regulations 7*)**

The Contractor must appoint, in writing, the 8.1, a full time competent Construction Manager to manage all the construction work on site, as well as a full time CHSO, to assist in the control of all health and safety related aspects on the site, and to co-ordinate, advise, assist, plan and support in all operational and planning issues as they relate to, or affect H&S. The CHSO must have a sound knowledge of the Occupational Health and Safety Act, as well as all the applicable regulations, and be registered with the South African Council for the Project and Construction Management Professions (SACPCMP) as Construction Health and Safety Officer (CHSO).



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He/ She must preferably have completed the Safety Management Training Course (SAMTRAC) presented by National Occupational Safety Association (NOSA), or equivalent. The Contractor must submit details of the proposed candidate(s) to the Employer's Agent and the Pr. CHSA, who will select a person who meets the required criteria.

The PC must further appoint adequate, resourced, competent persons in all the areas of work that are experienced in such areas, and are aware of their CHS accountabilities and responsibilities. All appointment letters and competency certificates, CVs etc. are to be approved by the Client or jointly with the Pr. CHSA in terms of technical and CHS competence prior to commencement of work.

Where persons are replaced or added to the project, the aforementioned is required prior to appointment. The project Organogram is to be updated accordingly. If there are any appointments that are not applicable, then a brief explanation as to why they are not applicable should be made. The CHSO must review all appointments prior to submission to ensure compliance and competence. The PC is to ensure that the CHSO is resourced and have the support and accountability required in terms of the OHS Act and Regulations, as well as the duties required by the SACPCMP. Resources include administrative supplies such as computers, printers, 3G cards, vehicles, means of communication, stationary etc.

The CHSO is to be involved with tender or quotations and adjudication for their Contractors and Suppliers relative to CHS requirements (Stage 4), adapt the Base line risk assessments and PSHSS for inclusion with such documents as and when necessary. No Contractor or Supplier may commence work unless the CM and PM/ Engineer have evidence of the approval of PSHS plans. The CHSO must ensure that Contractors PSHSPs have at least a seven (7) day clearance period before they can commence on site. The audit process must measure the completeness of the documentation.

The Pr. CHSA will be responsible for auditing/inspections and ensuring compliance to legal and other requirements at least monthly, or as deemed necessary relative to risk or CHS management. Any instructions given by the CHSO are to be followed by the PC and Contractors. The PSHSS forms an integral part of the Contract, and the PC is required to make it an integral part of their Contracts with Contractors and Suppliers. A PSHSS is to be made available for each level of Contract and each Contractor must comply as instructed. No contractor may commence work without written approval of the PSHSP by the PC or contractor when appointing their Contractors.

The PSHSS must be read in conjunction with the OHS Act, its Regulations (as amended) and any other standards relating to work being done, and ensure a minimum of statutory compliance. The information relative to the scope of the project, the works etc. is detailed in the tender document

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(but not limited to), is to be taken into account when developing the project specific H&S plan (PSHSP) and associated documentation.

The Baseline Risk Assessment is to be included, as is a summary of risks identified as attached. Where there are design changes, or change in the scope of works, an amended PSHSS may be issued and managed by the Pr. CHSA or the CHSO.

Where amended PSHSSs are issued, the PC will be required to ensure a resubmission of an amended H&S plan for approval. Further to this, the PC must ensure that a similar system is implemented between all their Contractors. All activities on the site and all appropriate documentation must be monitored and reported on to the Client, Engineer and the PC. Communication between the Pr. CHSA and the PC must be through the Engineer or Engineer's Representative (ER) as determined at the commencement of the project. If any person transgresses any CHS site rules, policies or procedures, the person shall be removed from site and their site access revoked.

The appropriate employer must follow a process of disciplinary action which must include re-training/inducting the employee (at the cost of the appropriate employer) and provide proof thereof to the JDA PM for review prior to allowing the person to resume duties. The Pr. CHSA, or CHSO may impose penalties on any other person where such transgressions were overlooked by colleagues and supervision. Each PC is to ensure their own and Contractors site organograms are kept up to date throughout the project.

### **3 HOURS OF WORK**

All work conducted on site must be in accordance with the Basic Conditions of Employment Act. The PC is required to timeously notify their JDA PM/Agent of any work that needs to be performed after hours. During weekends and holidays the site must be completely closed off to the public. It is the responsibility of the Contractor to ensure that the sites are closed off. Application forms for working after hours including breakdown/emergency projects can be acquired from the PM. Also refer to Environmental Authorisation Conditions (where applicable), as these may supersede any other document.

### **4 COMPLIANCE**

The following SANS standards shall apply:

SANS 1200 A : Preliminary and General

SANS 1200 AB : Engineer's Office

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SANS 1200 C	: Site Clearance
SANS 1200 D	: Earthworks
SANS 1200 DB	: Earthworks (Pipe Trenches)
SANS 1200 DK	: Gabions and Pitching
SANS 1200 GA	: Concrete (Small Works)
SANS 1200 LB	: Bedding (Pipes)
SANS 1200 MK	: Kerbing and Channelling
SANS 1982	: Reinforcement Code of Practice
SANS 1200 G	: Concrete (Structural)
SANS 1200 GE	: Precast Concrete (Structural)
SANS 1200 L	: Medium Pressure Pipelines
SANS 1200 LD	: Sewers
SANS 1200 LE	: Stormwater Drainage
SANS 1200 MJ	: Segmented Paving
SANS 2001 BE1	: Earthworks (General)
SANS 2001 BS1	: Site Clearance
SANS 2001 CC1	: Concrete Works (General)
SANS 2001 CM1	: Masonry Walling
SANS 2001 CM2	: Footings for Masonry Walling
SANS 2001 CS1	: Structural Steelwork
SANS 2001 DP1	: Earthworks for buried pipelines and prefabricated culverts
SANS 2001 DP2	: Medium Pressure Pipelines
SANS 2001 DP4	: Sewers
SANS 2001 DP5	: Stormwater Drainage
SANS 2001 EM1	: Cement Plaster

All parties on site are to comply with legal and other requirements as part of the contract. Expenses which result from non-compliance with this legislation as well as other requirements specific to the site, will be for the PC or Contractors account. Where there are major and / or

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repeat SHE deviations, the Client or Pr. CHSA will impose the necessary penalties as per the contract document and / or the PSHSS as described. Where the PC appoints a Contractor, the PC has the same duties and responsibilities in relation to the Contractors, in a similar way as the Client has in relation to the PC.

The requirements within this specification should not be considered to be exhaustive and the Client / Pr. CHSA reserves the right to add, delete or modify conditions where it is considered to be appropriate, including penalties and any amendments to legislation or appropriate standards. No claim will be accepted as a result of any costs or delays being incurred due to the Principal Contractor or its Contractors not complying with legislation, this PSHSS or their PSHSP approved by the Client / Pr. CHSA, or as noted by the PC, as it relates to their Contractors.

## **5 NON CONFORMANCES, PENALTIES AND WORK STOPPAGES**

Where non-conformances are issued, activities or the appropriate sections of the works will be stopped and parties will be penalized financially. No claims or standing time will be considered. The PC is to extend the same approach to its Contractors and provide evidence of such. Full investigations are to follow each non-conformance by the CHSO. Such aspects are to be reported to the PM, Pr. CHSA, RE and JDA OHS Manager. Full records of actions, disciplinary hearings, CHS Committee findings to be kept on file and reported at each site progress meeting.

Where non-conformances or incidents are noted by the Pr. CHSA or any other site personnel, the CHSO for the PC is to investigate and undertake corrective actions immediately, or as soon as possible. Any non-conformances/findings/observations found in these audits/inspections shall be reported at site progress meetings as an agenda item and in the weekly and monthly reports. The Contactor must provide a corrective action plan of addressing the non-conformances, with timeframes and responsible persons.

### **5.1 Penalties**

Authorised Client Representative observing an unsafe act or practice reserves the right to stop work, and issue non-conformances when SHE violations are observed, for both PCs and/or their Contractors. Expenses incurred as a result of such work stoppage will be for the PCs account. Penalties shall be enforced on the principal contractor for SHE related non-conformances identified for both the Principal Contractor and/or his/her sub-contractor(s) and/or supplier(s) pertaining to JDA's SHE requirements.

Penalties applied will be according to the following tables and where issued, the amount indicated on the non-conformance will be deducted from the certificate of the PC. Failure or refusal on the part of the PC or their Contractors to take the necessary steps to ensure the safety of workers

and the general public in accordance with these specifications or as required by statutory authorities or ordered by the engineer, shall be sufficient cause to apply penalties.

ITEMS ATTRACTING PENALTIES	Value of Contract (Excl. VAT.) in millions R				
	<1	≥1<5	≥5<20	≥20<50	≥50
a) SHE non-conformances, corrective and preventative actions not resolved within 5 days of the agreed target dates (Rands)	1,000	5,000	10,000	10,000	20,000
b) Repeat SHE non-conformances (Rands)	2,000	10,000	20,000	20,000	20,000
c) Non-reporting of a SHE incident to the Client within 24 hours/ non-submission of monthly statistics to Client (Rands)	1,000	5,000	10,000	10,000	30,000
d) Overtime Work without the required approvals (Rands)	2,000	10,000	20,000	20,000	30,000
e) Any serious health and safety non-conformance (Rands)	2,000	10,000	20,000	20,000	30,000

Failure to comply with any/all of the above will result in a penalty being issued as indicated in the table. The details of the penalty issued shall be recorded by the CHSA on the 'Notice to Penalise Contractor due to SHE Non-Conformances' form, and approved by the Project Manager.

## 5.2 Work Stoppages

Only authorized Client representative/s would be allowed to issue a work stoppage or notice (improvement, probation or contravention), and shall thereafter inform the PM. Failure or refusal on the part of the PC or their Contractors to take the necessary steps to ensure the safety of workers and the general public in accordance with these specifications or as required by statutory authorities or ordered by the engineer, shall be sufficient to trigger a work stoppage. The Contractor must implement a plan to manage work stoppages. After the activity/ plant/ personnel has been stopped, the Contractor must immediately cease the activities related to the activity/ plant/ personnel and only resume with the works after the remedial actions have been taken and to the satisfaction of the Client. All work stoppage aspects will link to legal non-compliance or risks identified in the PSHSS or work being done at the time, and expenses incurred as a result of such work stoppage will be for the PC's account.

A table below depicts an example of work stoppage triggers and categories.

<b>Minor: Stoppage: Person / Plant / Team</b>	<b>Medium: Stoppage: Team / Contractor / Activity /Area</b>	<b>Severe Stoppage: Main activity / Site (non-conformance)</b>
Non-use of PPE supplied	Facilities not supplied or regularly serviced; lack of drinking water	Contractors working without Health and Safety Plan / Safety File approval
Non-completion of registers for plant and equipment on site	Contractors not audited	Legal appointments not done or incorrect
Lack of H&S signage at work areas	Invalid Letters of Good Standing for contractors	Invalid Letter of Good Standing for Principal contractor
Tools and equipment identified in poor	Working without training or valid training certificates	Non-compliance with traffic accommodation requirements: layout or physical conditions

condition during inspections / audits		
DSTI"s not relevant, communicated, signed or filled in correctly	No or expired certificates of fitness for workers as required	Workers transported in contravention of the OHS plan or legal requirements
Alcohol or substance abuse	Working without site induction	No monthly OHS report at site meeting to report on
	Working without approved method statements	Excavations and barricading not correct
	Housekeeping, stacking and storage not safe or adequate	Fall protection plan not adequate or followed
	Electrical supply and COC's	Scaffolds and formwork not designed and signed by competent people (SANS code)
	Lifting devises or cranes not load tested	Emergency preparedness and response not adequate. (No fire fighters, first aiders)
	Legal non-conformances identified during the previous audit and not addressed within the agreed time frame	Working outside of working hours without permission
	Management of suppliers not according to the SSHSS	Access control and security not adequate

## 6 LEGAL COMPLIANCE

The following legislation and standards has been identified, but is not limited to, potentially having an impact on the project:

- Agricultural Pests Act 36 Of 1993;
- Basic Conditions of Employment Act No. 75 of 1997 (as amended);
- Constitution of the Republic of South Africa (Act 108 of 1996);
- Conservation of Agricultural Resources Act (Act 43 of 1983);
- COID Act 130 of 1993;
- Disaster Management Act (Act 57 of 2002);
- Employment Equity Act No. 55 of 1998 (as amended);
- Environment Conservation Act (Act 73 of 1989);
- Fencing Act (Act 31 of 1963);
- Hazardous Substances Act (Act 15 of 1973);
- Health Act (Act 63 Of 1977);
- Labour Relations Act No. 66 of 1995 (as amended);
- Mineral and Petroleum Resources Development Act (Act 28 of 2002);
- National Building Regulations and Building Standards Act 103 of 1977;
- National Environmental Management Act (Act 107 of 1998);
- National Environmental Management: Waste Act 59 of 2008;
- National Environmental Management: Air Quality Act 39 of 2004;
- National Environmental Management: Biodiversity Act 10 of 2004;
- National Environmental Management: Protected Areas Act 57 of 2003;
- National Forest Act (Act 84 of 1998);
- National Road Traffic Act (Act 93 of 1996);
- National Water Act (Act 36 of 1998);
- National Veld and forest fire Act (Act 101 of 1998);
- Occupational Health and Safety Act (Act 85 of 1993) and its Regulations;
- Water Services Act (Act 108 of 1997);

- Any other applicable South African legislation at a national, provincial and local authority level;
- Applicable South African National Standards (SANS);
- Applicable international standards;
- ISO 9001:2008 –Quality Management Systems requirements;
- ISO 14001:2015 –Environment Management Systems requirements;
- OHSAS 18001:2007 – Occupational Health and Safety Management Systems Requirements;
- Applicable By-laws.
- Applicable South African National Standards (SANS);
- Applicable international standards;
- ISO 9001:2008 –Quality Management Systems requirements;
- ISO 14001:2015 –Environment Management Systems requirements;
- OHSAS 18001:2007 – Occupational Health and Safety Management Systems Requirements;
- Applicable By-laws.

The Contractor must compile its own list of all applicable legislation and standards that may have an impact on the scope of work that they are performing on the construction project. The list must be updated on a regular basis.

## **7 SHE POLICY (SECTION 7)**

The PC must have a SHE Policy authorised by their OHS Act Section 16(1) appointee that clearly states overall SHE objectives and commitment to improving Safety, Health, Environment and Quality performance in the PSHSP. A copy must be in the site office and included in induction programmes. A zero tolerance approach must be taken to any non-conformances or non-compliance throughout the project. This is to ensure that every person who works on or visits JDA work site returns home safely to their families.

## **8 TRAINING (CONSTRUCTION REGULATION 7)**

Training of site personnel in CHS is to be on-going, and where formal training is deemed necessary, is to be provided, where available, by SETA and DoL accredited training service providers. The CHSO is to determine training requirements and to report on needs or completed training in their reports and audits. Records of all training, and acknowledgement of such training by attendees must be kept. Comprehensive records of all employees under the PC control attending induction or any other training throughout the project must be included. Amendments to statutes, the PSHSS, PSHSP, policies, procedures, method statements etc. shall require that all those affected undergo the relevant re-training.

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## 8.1 General Training

All site personnel (at all levels) must be adequately trained in the type of work/tasks to be performed. The training must extend to, but not be limited to include relevant method statements, hazard identification and risk assessments, procedures, rules and regulations, and other related aspects. The induction should also include identification of high risk areas or rules. The CHSO is expected to use discretion and apply their minds to what is appropriate.

## 8.2 Ongoing, Pre-Task Training

The PC is required to ensure that Daily Site Task instructions (DSTIs) are completed daily by supervisors and team leaders for each team. DSTIs could be done multiple times during the day if different tasks or activities are done. The CHSO is to ensure that records are kept of each team and DSTIs completed. The DSTIs are to include relevant method statements, HIRAs, SWPs and Tool box talks as they apply to the activities or tasks.

## 8.3 Site Induction

The PC must ensure that all employees, visitors, and Contractors have undergone the project and site specific induction programme. Appropriate time must be set-aside for training (induction and other) for all employees. Induction is valid for six months from the date it was conducted and thereafter refresher induction must be re-scheduled at least one month before the induction period expires.

### **Note:**

- ***No work shall commence without the required inductions provided by the Contractor, and***
- ***The Pr. CHSA will re-evaluate and approve the SHE File where Contractor is not on site for more than 1 month.***

## 8.4 Other Training

All Operators, Drivers and users of construction vehicles, mobile plant and other equipment must be competent and in possession of valid proof of training, appropriate for the type of vehicle being operated. Proof of all training must be kept in the personnel files and must be updated where and when necessary.

## 8.5 Visitors to Site

The Visitors who visit the site for a period less than 8 hours, must undergo a short Visitors induction by the Contractor. The parents of children (minors) visiting the site must sign a consent form issued



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by the Contractor prior to them being granted access to the site. Visitors must be made aware of any legal environmental authorisations that exist on site and any relevant aspects that relate to the nature of the visit. All visitors must remain in the care and custody of a person (Host) who has been properly inducted. No visitors are permitted to undertake any construction work, of any nature.

## **9 SITE FACILITIES** *(FACILITIES REGULATIONS)*

All personnel are to be afforded decent, clean, hygienic facilities at all times. Respect for people irrespective of status is to be afforded to all at all times. General housekeeping, stacking and storage are to be the responsibility of each team supervisor for indicated areas, which are to be noted on a site map or the drawings for the facilities. The responsibilities are to be updated as necessary. Fixed ablution facilities are to be in accordance with statutory or generally acceptable standards. Separate facilities (sanitary and changing) are required for each gender. All facilities to be kept clean, hygienic and in a good state of repair.

The input of the ECO may be required or there may be stipulations regarding where such facilities are to be placed. Temporary toilets moved around site are not to use formaldehyde, and alternative bacterial products are to be used.

Temporary toilets must not be more than 50m from the team they are allocated for, and must be for each gender. The ratio of worker to chemical toilet must be 1:10 ratio for same sex employees. Dining areas are to be made available, that are sheltered, accessible to all, be kept clean, hygienic and in a good state of affairs. Where work is on site, away from the fixed site facilities, temporary facilities that are hygienic, clean and in good state must be available for all to use. No living quarters are allowed within the site, in line with the ILO conventions.

Suitable living quarters are to be found for those who are required to be accommodated. Such sites could be inspected by the Pr. CHSA and CHSO for hygienic assessment. Temporary works must be managed by a competent person, all designs must be signed off by the designer and erected and maintained by competent appointed persons. The SANS 10085 is to be applied for all access scaffolding and any other Standards where appropriate. Temporary ablution facilities are not to include formaldehyde products, and a ration of 1:10 is advised. It is preferable that a bacterial product is used.

### **9.1 Temporary Facility Layout Plan**

Drawings indicating all facilities at the site camp and potential remote sites are to be provided with the amended PSHSP. The ECO and the EMP must be cross referenced regarding waste management and particular environmental factors to be considered, and the placement of waste skips and other forms of waste. Emergency showers may be provided if the risk warrants. Such drawings are to include the following but are not limited to

- 
- Dining room facilities;
  - Change rooms (indicating gender);
  - Ablution facilities (indicating gender);
  - Site Offices and Amenities;
  - Lay down and Storage;
  - Site Access, and
  - Temporary Site Services.

No accommodation of Contractor employees will be permitted on site.

## **10 ACCESS CONTROL TO THE CONSTRUCTION SITE**

All those who access site are required to strictly adhere to all security requirements on the premises, as laid down by the Client/ Contractor.

### **10.1 Security and Site Access**

Security requirements must be included at PC induction training, and following induction, all employees must be registered on the site access system. The PC is to provide security controls at the site camp and construction site if necessary. Outsourced security services are to be treated as Contractors. The security guards should be fully trained and knowledgeable about the company and its assets. Security guards on site to be accredited with the Private Security Industry Regulatory Authority (PSIRA) and hold an identification card from PSIRA at all times.

The project/site security arrangements that are to be included in the PSHSP include, but are not limited to:

- The provision of shelter, with access to ablution facilities;
- The management of the Visitor's register and Occurrence book;
- The provision and maintenance of an appropriate communication system between patrols and to contract the relevant authorities in an emergency;
- Professional and neat uniform;
- Ensuring that Personal Protective Equipment is to be provided for patrolling guards, and all other CHS activities appropriate to limit their exposure.

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## **10.2 Project Site Access**

The PC must ensure that proper access control is in place and functional at all times on and off the construction site, by posting a notice at every entrance, prohibiting entry of unauthorised person/s. The PC is to take all necessary steps to control the entry and movement of non-employees into or onto a construction site or any other workplace and to ensure that persons outside the workplace are not detrimentally affected by the workplace activities.

## **11 PROJECT SPECIFIC RISKS IDENTIFIED (CONSTRUCTION REGULATION 5)**

Internal regulations and procedures of JDA and relevant legislation are to follow the principles of a zero harm approach to workers and the environment. These rules must be specific to the Project. For the purposes of this amendment to the PSHSS the PC must take cognizance of the requirements and ensure that method statements, risk assessments and appropriate aspects of the organizational documentation are added. The additional information that may be required from time to time is to be submitted following further amendments prior to activities being able to commence.

The aspects included herein include the residual risks, related to the activities noted in the tender documentation, and project specifications. The items noted and included have been simply quantified, and are deemed, if applied, to reduce the risks identified by between 50-75% where the extra control measures are applied. The PCs are to note the extra control measures and expand upon them when considering their own activity and the appropriate risk mitigation.

### **11.1 Design Hazards**

Significant design hazards include soil conditions, existing nearby structures, existing nearby services, water environments, etc.

### **11.2 Site Establishment**

The Contractor must provide a site establishment and de-establishment plan, which must include method statements and risk assessments required for each activity to be completed, linked to the construction programme. All symbolic safety signage is to conform to the requirements of SANS 1186, and be appropriate to the risks and activities on site and at the site camp. Equipment is to include the measured noise levels that are completed by an AIA.

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### 11.3 Excavations and Foundations (*Construction Regulations 13*)

There will be deep excavations (i.e. Circular weir with the foundation of between 6.0 and 8.0m below ground level). Slopes of excavations are to be carefully considered and close monitoring of conditions is required and consideration is required for cracks and the potential for collapsing sections of the excavation slopes. Excavations for pipes, cables or similar must not be open for more than a day. No danger tape is allowed to be used for excavation demarcation. During the day, the excavations must be protected using rigid fencing and / or snow netting or plastic mesh as necessary. Competent supervision is required, with experience in the type of excavations to be done. Registers and inspections are to be completed according to organisational standards and procedures. Appropriate signage and PPE as outlined in the HIRA are to be provided. Poor housekeeping will not be tolerated and a 'clean as you go' approach is to be adopted.

### 11.4 Hazardous Chemical Substances (*Hazardous Chemical Substances Regulations*)

The following list of substances is likely to be used, but the PC is to compile a list from the specifications provided by their Designers and Contractors and ensure the Safety Data Sheets (SDSs) are obtained and included in all HIRAs. The link to medical surveillance or health risks is to be included, and included in Occupational Risk Exposure Profile and the Annexure 3.

Product	Potential Health or Other Risks
Cement	Hand mixing may occur, may be used for structures, stabilizing. 50kg bags delivered on pallets, ergonomic risk from handling, dust exposure, chromates. Eye, skin and respiratory irritant
Shutter Oil	Usually hand application prior to placing formwork in position. Volatiles present. Skin and respiratory irritant.
Diesel/ Lubricants	Storage tanks/ bowsers on site. Fire, spillage, fumes
Superphosphate Fertilizers	Eye, respiratory and skin irritant

### 11.5 Ergonomics and Occupational Health

Ergonomic factors must be considered during all stages of design and construction. Lifting heavy loads, and repetitive work, while synonymous with construction, are to be considered a high risk and mechanical aids and the hierarchy of control are to be considered and applied. Heavy componentry confined working spaces and installation requirements are to be considered and mitigated where possible. Where a design issue exists, the client is to be approached to consider alternatives. Method statements, HIRA and DSTIs are to include ergonomic and health issues.

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## **11.6 General Items**

Where access to site involves routes through residential areas, the protection of the public is to be considered at all times, including dust suppression and traffic controls according to the SARTSM. Weather extremes may be experienced in winter and summer. Humidity levels are unlikely to be a concern, but the Discomfort Index (DI) is to be calculated and taken into consideration. Where a DI of 105 is likely, alternative working hours can be suggested to limit work during the hours of 11h00 and 14h00. Snow is unlikely, but temperatures may dip below zero in winter.

Working hours are to be within the labour relations legislative confines. Procedures for working overtime are to be available, and where extended concrete pours are likely or other such activities, these must be well planned, incorporate shift changes and any other aspects that will keep workers safe. No key staff may be removed during the decommissioning stages of work, snagging or site de-establishment. Competent supervision is required at all times, and on-going baseline and design risk assessments must be done by the PC as the work progresses.

## **12 RISK MANAGEMENT**

Risk management is to be co-ordinated as a team effort by the PC, as risks are identified. There must be method statements and written safe work procedures for all high risk activities. It is noted that Risk aspects are not be totally comprehensive, due to the nature of the method of procurement. It is the duty of the PC to ensure that all the hazards are identified, before and during the project, and the necessary activity-based risk assessments are carried out. These risk assessments must form part of the PSHSP.

## **13 SAFE WORK PROCEDURES AND PRACTICES**

There must be written safe work procedures (SWPs) for all key activities. Method statements and Risk Assessments should refer to the SWPs. SWPs are to be used in all DSTI activities. Records for all activities are to be kept and will be verified during auditing processes.

## **14 MANAGEMENT OF ALCOHOL AND SUBSTANCE ABUSE**

No person (employees, Contractors, consultants, visitors) must report for duty or continue with his/her duties, if under the influence. No person may consume or have in possession alcohol or drugs/controlled substances while on the project site. Employees, Contractors, consultants or visitors must comply with any reasonable request to undergo random or specific alcohol testing.

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## **15 COMPENSATION ISSUES (COID Act)**

The PC must submit proof of registration and letter of good standing (LoGS) with the compensation fund or with a licensed compensation insurer for its company and each of its Contractors'. Record of validity must be maintained. Work is to be stopped where Contractors are identified with expired LoGS. The Letter of Good Standing must reflect the name of the Principal Contractor and/or Contractor Company and the relevant nature of business. No one organization may carry the liability or cover for another.

## **16 OCCUPATIONAL HYGIENE MONITORING**

The requirement to measure and monitor levels of hazards that affect the health of workers. The PC is to identify the occupational hygiene monitoring requirements that is relative to the products and processes, and risks created by work. Monitoring is to be in line with the legal framework, and use the Approved Inspection Authority (AIA) as defined, and the CHSO will be required to coordinate the measuring and monitoring. The PC must monitor dust, noise, vibration, lighting, and any other risks caused by mobile equipment, generators and other equipment used during construction. Factors such as weather can affect the intensity to which these impacts are experienced.

The use of dampening of noise and vibration produced by equipment or processes is to be applied. Other appropriate mitigation measures are to be implemented as required / agreed upon with the JDA PM, ECO and Pr. CHSA. All plant and equipment is to come to site pre monitored, irrespective of source. Evidence of the use of an AIA to have done the measuring is to be available. Dust suppression measures must be in place to reduce the dust caused by the movement of heavy vehicles and plant. Gravel roads in use are to be watered a minimum of twice a day.

## **17 MEDICAL SURVEILLANCE PROGRAMME (CONSTRUCTION REGULATION 7)**

The PC must submit details of their employee Health as part of their PSHSP which must include a Medical Surveillance Programme. The PC must ensure that all persons coming to site to work, including designers, must be in possession of a valid medical certificate of fitness. The CoF is also required that is relevant to the type of work (risk based) that the employee will be conducting in the form of Annexure 3, based an occupational risk exposure profile for each category of work. Periodic or Annual medicals to be conducted and as it relates to the exposure until completion of the project unless otherwise advised by the Occupational Health Practitioner.

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Medical examinations must be completed before commencing construction work on site and exit medicals before employee(s) leave record the health status of each worker. The CoF must be placed in the PSHSP and be able to at all times cross reference lists of those working on site. An employer must not permit an employee who has been certified unfit for work to enter the site until deemed fit by the OHP.

***Note: JDA will only accept medical certificates of fitness issued by an Occupational Health Practitioner (means an occupational medical practitioner or a person who holds a qualification in occupational health recognized as such by the South African Medical and Dental Council as referred to in the Medical, Dental and Supplementary Health Service Professions Act, 1974 (Act 56 of 1974), or the South African Nursing Council as referred to in the Nursing Act, 1978 (Act 50 of 1978).***

## **18 EMERGENCY PREPAREDNESS AND RESPONSE (GENERAL SAFETY REGULATION 3)**

The PC must develop their own emergency response plan and must ensure that employees and Contractor employees are trained on the emergency plan on a regular basis. The plan is to detail how emergencies will be managed, taking into account the risk of the works emergency cover and responses. First aiders and fire fighters need to be involved with key employees responsible on the project and the Principal Contractor must initiate its own emergency drills quarterly.

### **18.1 Fire Hazards and Management**

No open fires are allowed on site. The contractor must ensure that operations are in compliance with statutory requirements at all times. The emergency plan is to ensure fire management is included. Workers are to be trained in firefighting, and appropriate equipment is available for the work being done at the various stages of the project. The designation and organization of site personnel to carry out fire safety duties, including fire watch service. High risk products and processes such as using gas, and activities such as cutting, grinding, or any possibility of explosions or fire are to utilise a system of hot work permits and appropriate controls.

## **19 ENVIRONMENTAL MANAGEMENT**

All hazardous waste to be disposed of at a registered waste site and records kept. The PC and Contractors working on site must ensure that oil, fuel, and chemicals are confined to specific and secure areas throughout the construction period and stored in the appropriate manner. Contractors must ensure that sufficient waste bins / containers are made available for waste control.

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## 20 FORUMS FOR SHE COMMUNICATION

The PC must provide a communication strategy outlining how they intend to communicate SHE issues to their staff, the mediums they must employ and how they must measure the effectiveness of their SHE communication. H&S must be included as an agenda item at every meeting conducted on site. Attendance registers, Agendas and Minutes of all meetings must be available. Outcomes and decisions made regarding H&S are to be followed through and evidence of same available. Monthly progress and technical meetings must be attended by the Pr. CHSA (either); CHSO who must report on H&S during the meetings, and advice regarding H&S issues. Other CHS meetings may be held as required by JDA.

## 21 SHE AUDITS AND INSPECTIONS *(CONSTRUCTION REGULATION 5)*

JDA, including government authorities and the Pr. CHSA reserve the right to conduct unannounced audits or inspections on PC or their Contractors. Generally, audits and inspections will be done bi-monthly, but more frequently if deemed required. Results will be available within 7 days of the audit or inspection, but critical issues will be recorded immediately and non-conformances issued.

## 22 COMPLIANCE AND APPROVAL OF PSHSPs

The PC PSHSP must be audited against the PSHSS, construction activities and programme; to verify compliance to the requirements in the PSHSS before approval must be provided. The PSHSP must be approved by the Pr. CHSA.

### Contractor SHE Performance Evaluation

JDA shall evaluate their Contractor H&S performance on an on-going basis against the legislative and project standards as appropriate to the activities and level of risk.

### Contractor Internal Audits

The PC is required to conduct internal audits and do audits on their Contractors on at least a monthly basis, or more frequently if high risk activities, or when the scope of work changes. An executive summary of the findings that includes the proposed corrective actions must be submitted to the JDA PM within 7 days of completion.

An evidence of regular site inspections must be kept, and at least daily site visits to ensure compliance, including unannounced 'spot checks' on activities are to be done.



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### Third Party Legal Compliance Verification Audits

Where third party legal compliance verification audits are conducted on the PC or Contractors, a copy of the summary of the findings and corrective actions must be submitted to JDA PM. The written report must be submitted within 7 days of completion of the audit.

## **23 SHE INCIDENT MANAGEMENT (SECTION 24 & CONSTRUCTION REGULATION 9)**

A procedure for reporting, investigation and recordkeeping of incidents and accidents is to be provided. The PC must report all incidents/accidents including near hits incidents. Incident must be reviewed by the H&S committee and the members of the Project Progress meeting notified of corrective actions taken. All corrective action must be close within 30 days. If this is not a practicable time frame, then it is to be submitted at a later date agreed to by the CHSA.

***Note: Providing the accident/incident investigation report does not exempt the PC from providing accident reports required by Statutory Authorities, in particular, the PC's responsibility for reporting accidents in accordance with the requirements of the OHSA and COID Act. The Client and Pr. CHSA shall participate in any accident/incident investigation if the accident/incident is directly linked to any activity within the scope of the construction project. JDA further reserves the right to conduct an independent investigation in any incident.***

## **24 STATISTICAL AND GENERAL REPORTING**

The PC is to submit a weekly report each Monday morning on the previous week's activities, and a monthly report by the 2nd of each month. The focus of the reports must be on leading indicators (near hits), man-hours, incidents, non-conformances, plant & vehicles, audits, good practices, new risks, subcontractors, SHE meetings, inductions, training, awareness's, A summary of the reports submitted are to be reported, recorded and discussed on at H&S Committee meetings and the site progress meetings.

## **25 OPERATIONAL CONTROL REQUIREMENTS**

The PC is to ensure that all operational aspects are controlled according to policies and procedures, JDA standards where required. All records, registers, appointments and other applicable aspects are to be kept up to date in the H&S file. Filing is to be kept current.

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## **25.1 Health and Safety Management System**

The Principal Contractor and its Subcontractors must develop, implement and maintain a construction health and safety system that includes procurement management, cost management, hazard identification and risk assessment, risk management, incident and accident management, legislative framework, occupational health, hygiene and environmental management, health and safety communication, emergency preparedness and response, internal audits, etc.

## **25.2 Protection of Services**

The Contractor must take all reasonable precautions to prevent damage all known services during the construction. Services left exposed must be suitably protected from damage to ensure it doesn't pose a risk to the public and or livestock. Unless otherwise instructed by the Engineer, no services must be left exposed after its exact position has been determined and all excavations carried out for the purpose of exposing underground services must be promptly backfilled and compacted

## **25.3 Plant and Equipment (*Construction Regulation 23*)**

All plant and equipment, vessels under pressure, on site is to include specific markers that identify the PC's organisation. Appropriate forms of plant and equipment are to be used, with appropriate registers and maintenance programmes. Registers of all plant and equipment on site are to be kept. Stores and storage to be properly controlled, with competent supervision and in good repair. Maintenance to be completed by the appropriately competent person and operated by trained workers. Identification is required on all of site vehicles entering the site.

All Plant Operators who drive on the public roads must be in possession of valid driver's licences for the relevant vehicle class. The speed limit within the boundaries of the construction site is 30 km/h, and is weather dependent. No drivers or operator may talk on cell phones or two way radios whilst driving, unless a hands free kit is used, and carry no passengers unless so designed. The PC shall be solely responsible for the safety and security of any of its vehicles (including private vehicles) on the premises.

## **25.4 Fall Protection (*Construction Regulation 10*)**

Focus on limiting fall risks is to be the focus on all structures requiring workers to work at fall risk positions. Well-designed access using temporary works are to be utilized where necessary, and

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limit the need for workers to use fall arrest equipment. A fall protection plan is required and is to be kept up to date where appropriate. Fall protection equipment to be implemented where fall prevention is not possible and must comply with SANS Standards, SANS 503 & 508, and 10085 Series or other recognised international standards are to be strictly implemented.

#### **25.5 Housekeeping, Stacking and Storage** (*Construction Regulation 27*)

The PC must maintain a high standard of housekeeping within the site. Lay down areas agreed upon and on plan are to be maintained. Excessive material, plant and equipment is discouraged. Materials/objects must not be left unsecured in elevated areas and must be managed by site supervision at all times. A 'Clean as you go' approach is required, and must be monitored daily by the CHSO.

#### **25.6 Lifting Devices and Cranes** (*Driven Machinery Regulation 18*)

All lifting/crane machine operators must be competent to operate such machines with valid permits and training certificates. Load testing certificates for lifting devices, slings and chains in line with the statutory requirements are to be kept on record.

No person is to walk or work under suspended loads, including excavators, and between a load and a solid object where they might be crushed if the load should swing or fall. Guide ropes and banks men to be used to prevent loads from swinging. Rigger requirements are to conform with the statutory and industry standards.

#### **25.7 Excavations and Barricading** (*Construction Regulation 13*)

Excavations for pipes, cables or similar must not be open for more than a day. The shoring, battering or step method must be adopted to safe guard the excavation must be compatible with the excavating, backfilling and pipe laying method and must cause minimum restrictions to the laying of the pipes. Shores must be designed to withstand the earth pressures exerted upon them from the trench side which must include the superimposed loading of pipe laying equipment with pipes working at the side of the trench.

No danger tape is allowed to be used for excavation demarcation. During the day, the excavations must be protected using rigid fencing and / or snow netting or plastic mesh as necessary. No material to be within 1,5m of the excavation edges. No work must commence in an unsafe excavation. Whilst work is being performed in an excavation, there must be an appointed excavation supervisor in attendance. All excavations must be on register and inspected daily

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before work commences and after inclement weather by the contractor's appointed competent person, declared safe and his/ her findings noted in the register.

Access ladders are needed with each team within the excavation to ensure egress and easy access. If an excavation or trench endangers the stability of buildings or walls, shoring, bracing, or underpinning must be appropriately designed and be provided. Excavations and trenches that are adjacent to backfilled excavations or trenches, or which are subject to vibrations from traffic, or the operation of machinery (e.g., shovels, cranes, trucks), must be secured by a support system, such as shoring, or bracing. Warning signs and flashing warning lights at must night be displayed in suitable positions to warn any persons approaching the area of the location and extent of any excavation, if needed. Barricades must be provided at all unguarded openings in guard railing or floors, and must be maintained in position at all times until the hazard no longer applies.

#### **25.8 Electrical Supply and Equipment** (*Electrical Installation Regulations*)

Electrical distribution boards used must be fitted with suitable earth leakage protection. Leads must be properly and firmly connected and on register. All electrical equipment must be kept in a good and safe condition and checked daily prior to use.

All electrical apparatus, other than electrical hand tools, must have a physical "lock out" system which must prevent any operation other than that authorized by a supervisor. A "lock out" sign must be displayed when the apparatus is not in use.

A lock out system is required when systems are installed to protect workers doing maintenance operations. Method statements and safe work procedures will be required for all work involving electrical apparatus including competent operators, supervision, registers are to be in place. Certificates of Compliance (CoC's) by the appropriate Electrical AIA are to be available for temporary and permanent installations, including the appropriate inspections.

#### **25.9 Radioactive Sources** (*CoP - Use of Soil Moisture and Density Gauges Containing Radioactive Sources*)

Where equipment containing radioactive sources is used, it must be stored, used and transported in line with the relevant legislation and standards. Areas where such work is being conducted must be cordoned off to ensure access is only for relevant people, and signage, cones and flags must be used at all times to prevent incidents.

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## **25.10 Waste Water Environments**

There might be existing sewer pipelines, and the Contractor must ensure that provision is made for:

- Preventing persons from falling into the trenches
- The rescuing of persons in danger of drowning
- Potential sewer seepage into the pits/trenches

A contractor must ensure that the person is provided with and wears a lifejacket where there is the risk of drowning.

## **26 COST OF HEALTH AND SAFETY**

The Contractor must allow and make provision for the SHE related items in their pricing.

## **27 OMISSIONS FROM THE PSHSS**

Every endeavour has been made to address the most critical aspects relating to H&S issues in order to assist the contractor in adequately providing for the H&S of employees on site. However, the PC is required to ensure they stay compliant with statutory requirements and construction programmes and processes and include such aspects in their H&S file.

## **28 H&S FILE**

The H&S file must commence once the PC is on site and be maintained. The H&S file must be kept on site and must be available on request for audit and inspection purposes. Regular scanning of documents and records is required as a form of archiving for inclusion in the consolidated H&S file at the end of the project. A list of critical information to be included in the H&S file on completion of the project will be provided. On completion of the project, all records including the project information should include:

- Information about removal or dismantling of installed plant and equipment;
- H&S information about equipment needing cleaning and maintenance, for O&M management;
- As-built drawings, including nature, location and markings of services.

The H&S file (i.e. hard and soft copy) is to be handed over to the JDA PM, and include all the close out H&S files for Contractors. Further requirements regarding the content of the consolidated H&S files will be provided to PC during the project.

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## **29 PSHSP PROCESS AND SUBMISSIONS**

The Pr. CHSA will provide a letter and report after the file has been assessed, with amendments to be made if needed prior to approval.

<b>Document:</b>	Baseline Risk Assessment
<b>Client:</b>	JDA
<b>Project Site:</b>	Oval Park - Browning Street, Jeppestown, Johannesburg.
<b>Project Description:</b>	Construction of the Eastern Gateway Precinct - Oval Park.
<b>Date Compiled:</b>	06-Nov-20
<b>Compiled by:</b>	MT Ledikwa
<b>Issued by:</b>	MD Letsoalo

Tolerable Risk (0 - 3)	Medium Risk (3.1 - 24.9)	High Risk (25 - 100)
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Risk No.	Site	Activity	Sub Activity	Hazard / Risk	Risk Context	Impact		Exposure		Likelihood		Inherent Risk
					Risk Category	Rating	Basis Points	Rating	Factor	Rating	Basis Points	Basis Points
1	OVAL PARK	EARLY WORKS	Authorizations	Project delays	Financial	Major	50	High	0.80	Very Likely	0.82	33
2	OVAL PARK	EARLY WORKS	Application for Wayleaves	Project delays	Financial	Major	50	High	0.80	Very Likely	0.82	33
3	OVAL PARK	SITE ESTABLISHMENT	Securing Site	Access by unauthorized personnel	Health & Safety	High	25	High	0.80	Very Likely	0.82	16
4	OVAL PARK	SITE ESTABLISHMENT	Clearing and Grubbing/ Removal of Vegetation	Unknown underground services, electrocution, flooding, gas leaks, property damage, third party claims, environmental impacts, unauthorized personnel, noise, dust	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
5	OVAL PARK	SITE ESTABLISHMENT	Surveying and Underground Service Detection/ Exposing	Unknown underground services, electrocution, flooding, gas leaks, property damage, third party claims, environmental impacts, unauthorized personnel, noise, dust	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
6	OVAL PARK	SITE ESTABLISHMENT	Material Transportation	Suspended loads, incompetent drivers and operators, unroadworthy vehicles	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
7	OVAL PARK	SITE ESTABLISHMENT	Welfare Facilities	Inadequate ablution/eating,/showering facilities	Health & Safety	High	25	High	0.80	Very Likely	0.82	16

8	OVAL PARK	SITE ESTABLISHMENT	Loading and Offloading	Suspended loads, incompetent drivers and operators, unroadworthy vehicles, sub-standard lifting equipment and tackle	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
9	OVAL PARK	SITE ESTABLISHMENT	Manual Excavation	Unknown underground services, electrocution, flooding, gas leaks, property damage, third party claims, environmental pollution, ergonomics, dust, sub-standard hand tools	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
10	OVAL PARK	SITE ESTABLISHMENT	Electrical Installations	Incorrect usage of voltage, incompetent personnel, failure to follow procedure, incorrect usage of equipment	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
11	OVAL PARK	SITE ESTABLISHMENT	Services Connection	Unknown underground services, electrocution, flooding, gas leaks, property damage, third party claims, environmental pollution, unauthorized personnel, ergonomics, dust, sub-standard hand tools	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
12	OVAL PARK	SITE ESTABLISHMENT	Barricading of the Work Area	Manual handling, substandard hand tools, theft, traffic interruptions	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
13	OVAL PARK	DELIVERY OF MATERIAL & CULVERTS	Transportation & Stacking	Unsecured culverts, inadequate stacking, inadequate laydown area, improper loading/ offloading	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
14	OVAL PARK	EARTHWORKS	Trenching	Moving machinery, noise, vibration, dust, unstable side walls, services not identified, defective equipment and machinery, trench depth, incorrect use of ladder, drowning, incorrect stacking of paving	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
15	OVAL PARK	EARTHWORKS	Backfilling	Moving machinery, noise, vibration, dust, unstable side walls, defective hand tools, dust, services not identified, defective equipment and machinery, trench depth, incorrect use of ladder, underground water	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
16	OVAL PARK	EARTHWORKS	Material Testing	Dust, unstable side walls, inadequate compaction of material, incorrect use of troxler machine, incorrect use of ladder, underground water	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
17	OVAL PARK	PIPING & STRUCTURES	Laying of Stormwater & Water Pipes, Culverts, etc.	Misuse of cranes, defective lifting tackle, inclement weather, unstable ground & side walls, walking on the pipe, excessive weights, drowning/ flooding	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
18	OVAL PARK	PIPING & STRUCTURES	Working with Mobile / Construction Plant	Inclement weather, unstable ground & side walls, excessive weights, speeding, uneven roads, adverse weather conditions, incompetent personnel, faulty mobile plant, medical unfit, unauthorised mobile plant on site, fatigue, inadequate maintenance	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
19	OVAL PARK	CONCRETE WORKS	Casting Concrete/ Attenuation Pond	Misuse of concrete pump truck, concrete vibrator noise, skin irritation	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
20	OVAL PARK	CONCRETE WORKS	Steel Reinforcing and Fixing	Lifting of heavy steel, sharp edges	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33



21	OVAL PARK	CONCRETE WORKS	Hazardous Chemical Substances	Inhalation, indigestion, congestion, spillages	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
22	OVAL PARK	BRICKLAYING	Bricklaying	Working at heights, pinching, confined spaces, HCS, misuse of ladders, defective scaffolding	Health & Safety	High	25	High	0.80	Very Likely	0.82	16
23	OVAL PARK	CONCRETE WORKS	Construction of Manholes	Working at heights, pinching, confined spaces, HCS, use of ladders, scaffolding	Health & Safety	High	25	Very High	1.00	Very Likely	0.82	21
24	OVAL PARK	PIPING WORK	Using a Hydraulic Power Equipment	Incliment weather, unstable ground & side walls, excessive weights, speeding, uneven roads, adverse weather conditions, incompetent personnel, faulty mobile plant, medical unfit, unathorised mobile plant on site, fatigue, inadequate maintenance, confined spaces,	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
25	OVAL PARK	CONCRETE WORKS	Use of Pneumatic Jack Hammers	Whole body/ hand arm vibrations, noise, dust	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
26	OVAL PARK	CONCRETE WORKS	Drilling	Unknown underground services, electrocution, flooding, gas leaks, property damage, third party claims, environmental impacts, unathorized personnel, noise, dust	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
27	OVAL PARK	CONSTRUCTION WORKS	Using LP Gas	Toxic fumes, burns, gas bottle explosion, fire.	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
28	OVAL PARK	CONSTRUCTION WORKS	Construction of Synthetic Soccer Fields	Collision with plant, equipment, pedestrians, flying particles, machinery vibrations, faulty portable plant and equipment	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
29	OVAL PARK	CONSTRUCTION WORKS	Landscaping	Hazardous chemical substances, sharp corners of paving bricks, throwing paving bricks to each other,	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
30	OVAL PARK	CONSTRUCTION WORKS	Paving& Kerbing	Unsafe rigging operations, cementitious products, unroadworthy vehicles, public disturbance, manual lifting	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
31	OVAL PARK	CONSTRUCTION WORKS	Fencing	Defective ladders, faulty tools, sharp edges	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
32	OVAL PARK	CONSTRUCTION WORKS	Storing Flammable and Hazardous Substances	Poor storage facility, fire, spillage, fumes	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
33	OVAL PARK	WORKS EXECUTION	Traffic Accomodation	Obstraction of roads, fast moving vehicles, public interference,high volume of traffic, lack of signage, narrow lanes	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
34	OVAL PARK	WORKS EXECUTION	Traffic Accomodation	No safe roadway for pedestrians to move on.	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
35	OVAL PARK	WORKS EXECUTION	Key Project Team Personnel on Site	Incompetent Construcion Manager/Supervisors/Safety Officer appointed. Construction Safety Officer appointed on a part time basis, Unregistered Construction Safety Officer.	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
36	OVAL PARK	WORKS EXECUTION	Environmental Rehabilitation	Faulty equipment & machinery, substandard handtools, defective ladders, abnormal activities and emergencies, manual handling, hazardous chemicals and pesticides	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33

37	OVAL PARK	WORKS EXECUTION	High Water Table/ Water Environmets	Drowning arising from increased water level/sudden water release and flooding, over flowing, water contamination, environmental contamination, soil condition	Health & Safety	Major	50	Very High	1.00	Very Likely	0.82	41
38	OVAL PARK	WORKS EXECUTION	Overtime/ Emergency Work	Long working hours/ working at night, flooding, inadequate emergency coordination, incompetent personnel, insufficient/ excessive lighting	Health & Safety	Major	50	High	0.80	Almost Certain	1.00	40
39	OVAL PARK	WORKS EXECUTION	Working Next to Powerlines	Falling, contact with powerlines, lack of knowledge, incorrect interpretation of design, natural disasters, theft	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
40	OVAL PARK	WORKS EXECUTION	Restricted Areas	Congestion, public disturbances, confined spaces	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
41	OVAL PARK	WORKS EXECUTION	Driving on Site	Speeding, uneven roads, adverse weather conditions, incompetent personnel, faulty vehicles, medical unfit, unauthorised vehicles on site, fatigue	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
42	OVAL PARK	WORKS EXECUTION	Working in Confined Spaces	Engulfment, lack of oxygen, failure to follow procedure, lack of knowledge, poor air monitoring, inadequate PPE, insects and reptiles, restricted movement, poor illumination	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
43	OVAL PARK	WORKS EXECUTION	Working under Extreme and Adverse Wheather Conditions	Exposure to extreme temperatures,	Health & Safety	Major	50	High	0.80	Almost Certain	1.00	40
44	OVAL PARK	WORKS EXECUTION	Emergency Preparedness/Response	Inadequate emergency procedure, failure to communicate to employees, inadequate signage, poor coordination, emergency threats, inadequate warning	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
45	OVAL PARK		Nearby Businesses	Close proximity to construction activities	Social	Major	50	High	0.80	Very Likely	0.82	33
46	OVAL PARK	WORKS EXECUTION	Community Unrest, Riots/Strikes	Injuries to employees/ third parties, damage to property	Social	Major	50	High	0.80	Very Likely	0.82	33
47	OVAL PARK	WORKS EXECUTION	Natural Disasters	Flooding, earth tremors, Lightning	Health & Safety	Major	50	High	0.80	Likely	0.59	24
48	OVAL PARK	WORKS EXECUTION	Working with HCS	HCS, confined space, fumes, misuse of ladders, spray gun misuse, compressed air, incliment weather	Health & Safety	Major	50	High	0.80	Very Likely	0.82	33
49	OVAL PARK	WORKS EXECUTION	Protection of Personnel, Assets and Equipment	Robberies, property damage	Financial	Major	50	Very High	1.00	Very Likely	0.82	41
50	OVAL PARK	WORKS EXECUTION	Animals	Dogs, bees, wasps, snakes	Health & Safety	Major	50	Very High	1.00	Very Likely	0.82	41
51	OVAL PARK	WORKS EXECUTION	Transport to and from the Site	Employees transported in open trucks with no seats or seat betls	Health & Safety	Major	50	Very High	1.00	Very Likely	0.82	41
52	OVAL PARK	WORKS EXECUTION	Managing Waste	Hazardous and non-hazardous waste, oil spillages	Environmental	Major	50	High	0.80	Very Likely	0.82	33
53	OVAL PARK	WORKS EXECUTION	Work on Scaffolds and Ladders	Openings in the toe boards, tripping hazards, substandard/ defective scaffolding,	Health & Safety	Major	50	Very High	1.00	Very Likely	0.82	41



### Factors used in Key Risk Analysis

Each risk is evaluated in terms of potential loss, likelihood of occurrence and the effectiveness of controls in place to manage the risks according to the criteria set out below

IMPACT SCALE							
	Level	Outcome description (Business Risk)	Impact Values(Basis points)	Safety	Health	Environment	Quality
1	Extreme	Extreme event with the potential to lead to collapse of business and is fundamental to the achievement of objectives. Non achievement of Rand Water mandate	100	Multiple Fatalities , Very serious irrevesable injury from 10 people and above	May cause multiple deaths	Transboundary/National environmental disaster with long term or irreversible ecological impacts with high risk of legal and public liability.	Total system failure
2	Major	Major event which can be endured but which may have a prolonged negative impact and extensive consequences.	50	Fatality, Multiple Major injuries or disability, Significant irrevesable injuries to up to 10 people	Life threatening affects	National environmental disaster with long term ecological impacts with high risk of legal and public liability.	Repeat non-conformance
3	High	High impact events, which can be managed but requires additional resources and management effort.	25	Single major injury or disabling reportable	Irreversible significant health effects	Event that leads to environmental contamination (failure to manage appropriately, but contained within Rand Water boundaries)	Needs immediate corrective action within 2 weeks
4	Moderate	Event which can be managed under normal operating conditions.	13	Minor injuries, lost time,	Reversible significant health effects	Event which can be contained. Is limited to immediate area of occurrence associated with short term ecological disturbances, and/or is a transgression of internal standard	Needs immediate corrective action within 1 month
5	Minor	Events of which consequences can readily be absorbed under normal operating conditions.	6	Minor injuries, no lost time	Reversible minor health effects	Minor negative impact, no corrective action necessary. Must be monitored.	Corrective action not required but monitored
6	Insignificant	Frequent minor risks that do not disrupt buiness, or with no adverse health effect or injuries.	3	No Health effects	Negligible	Negligible	Does not require corrective action

QUALITATIVE ASSESSMENT OF PROBABILITY/ LIKELIHOOD OF OCCURRENCE		
Likelihood/ Probability rating	Description	Percentage
Almost certain	The event is expected to occur in most circumstances	100%
Very likely	The event will probably occur in most circumstances	67% -96%
Likely	The event should occur at sometime	51% -66%

QUALITATIVE ASSESSMENT OF CONTROLS		
Level	Description	Factor
Very good	Controls are totally effective, efficient and implemented.	81% - 99%
Good	Most risks are effectively controlled and mitigated	66% - 80%
Satisfactory	There is room for some improvement in	41% - 65%

Unlikely	The event could occur at sometime	34% -50%
Very unlikely	The event may occur only in exceptional circumstance.	2% - 33%
Almost impossible	The event may never occur	1%

Weak	Some risks appear to be controlled but	21%-40%
Unsatisfactory	The control system is ineffective	<20%

		RATING MATRIX					
		1%	2% to 33%	34% to 50%	51% to 66%	67% to 96%	97% to 100%
		Almost Impossible	Very Unlikely	Unlikely	Likely	Very Likely	Almost Certain
	Basis Points	1%	18%	42%	59%	82%	100%
Extreme	100	1.0	17.5	42.0	58.5	81.5	100.0
Major	50	0.5	8.8	21.0	29.3	40.8	50.0
High	25	0.3	4.4	10.5	14.6	20.4	25.0
Moderate	13	0.1	2.3	5.5	7.6	10.6	13.0
Minor	6	0.1	1.1	2.5	3.5	4.9	6.0
Insignificant	3	0.0	0.5	1.3	1.8	2.4	3.0

Exposure							
Factor	Rating	Prescribed legal limits (PLL)**	Frequency	Duration	Extent	Environment	Quality
1.00	Very high	>200%	2 X per Shift	<40Hrs	over 101m	Extensive	Extensive
0.80	High	101%-200%	1 X per Shift	<8hrs>40Hrs	51-100m	Widespread	Widespread
0.60	Medium	75%-100%	Weekly	<2hrs>8 Hrs	11-50m	Significant	Significant
0.40	Low	50%-75%	Monthly	<1Hrs>2Hrs	6-10m	Restricted	Restricted
0.20	Insignificant	< 50%	Annually	> 1 hr	1-5m	Negligible	Negligible

Colour Code	Detail	Basis Point Range
	Tolerable risk	0 to 3
	Medium risk	3.1 to 24.9
	High risk	25 to 100