



RA-031 – Geotechnical Core Drilling

RISK ASSESSMENT NUMBER: RA-031

BTE Document Number:

RISK ASSESSMENT SCOPE: Geotechnical Core Drilling

MEHTOD STATEMENT NO & DESCRIPTION: Geotechnical Core Drilling

BRIEF DESCRIPTION OF WORK THAT WILL BE PERFORMED: Geotechnical Core Drilling and Underground Investigation

AREA THE WORK WILL BE PERFORMED IN:

CONTRACT NUMBER:

RISK ASSESMENT DATE: 27/02/2019

REVISION NUMBER: 01

REVIEW DATE: 27/02/2019

NATURE OF REVISION: Initial Submittal

Revision and Approval Block

Rev	Date	Nature of Revision	Prepared by	Reviewed	Approved



RA-031 – Geotechnical Core Drilling RISK ASSESSMENT RECORD

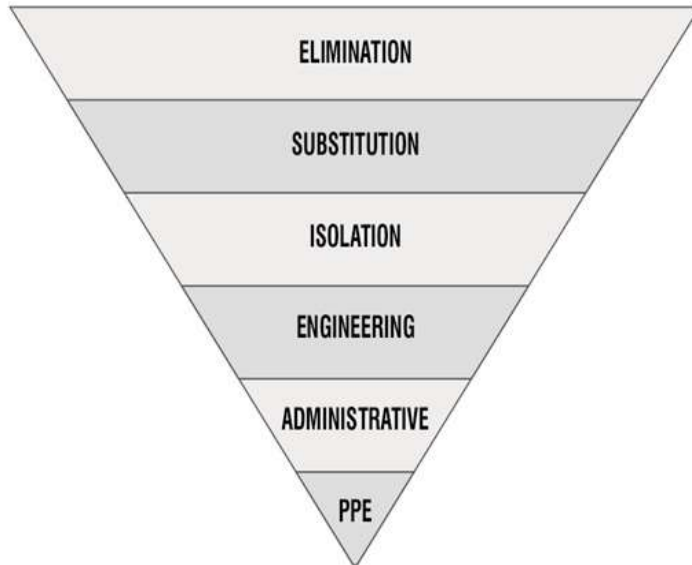
RISK ASSESSMENT NUMBER		RISK ASSESSMENT SCOPE	Geotechnical Core Drilling
CONTRACT NUMBER		AREA WORK WILL BE PERFORMED IN	
RISK ASSESSMENT DATE	27/02/2019	METHOD STATEMENT NO & DESCRIPTION	Geotechnical Core Drilling
REVISION NUMBER	01	BRIEF DESCRIPTION OF WORK	Geotechnical Core Drilling and Underground Investigation

PREPARED BY:				Reviewed	Yes	No		
Initials and Surname	Principle Contractor	Designation	Signature	Communicated	Yes	No		
G Prinsloo	Earthtech Geotechnical Services	Administrator		Risk Assessment team:				
				Comments:				
REVIEWED BY:								
Initials and Surname	Owner	Designation	Signature		AVAILABLE	AQEQUATE		
				Method Statement	Yes	Yes		
				Procedures	Yes	Yes		
				Training	Yes	Yes		
APPROVED BY:								
Initials and Surname	Client	Designation	Signature	Expected Review date:	Transmittal:			
				All activities covered?			Yes	No
				All activities risk ranked?			Yes	No

* REQUIRED AND EXISTING CONTROL MEASURE/S - SUBMIT AND ATTACH TO RISK ASSESSMENT

* ALL RELEVANT PROCEDURES TO BE ATTACHED

HIERARCHY OF CONTROLS



The most satisfactory method of dealing with hazards is to get rid of it. Once the hazard has been eliminated, the potential for harm has gone.

This involves substituting a dangerous process or substance with one that is not as dangerous.

Separate or isolate the hazard from the people

Introduce or substitute an engineered device to eliminate or reduce the risk.

Administrative solutions usually involve modification of the likelihood of an accident happening. Do this by reducing the number of people exposed to the hazard, and by ensuring that those who must remain exposed know about the hazard and how best to manage it.

Provision of personal protective equipment should only be considered when all other control methods are impractical. They provide a means to increase control, and offer a last line of defence when used with another method higher up the hierarchy.

RISK RANKING / MATRIX

STANDARD RISK MATRIX		HAZARD EFFECT / CONSEQUENCE				
Loss Type		1 Insignificant	2 Minor	3 Moderate	4 Major	5 Catastrophic
Timeline		No impact on overall project timeline	May result in overall project timeline overrun of less than 5%	May result in overall project timeline overrun of between 5% and less than 20%	May result in overall project timeline overrun of between 20% and less than 50%	May result in overall project timeline overrun of 50% or more
Budget		No impact on the budget of the project	May result in overall project budget overrun of less than 5%	May result in overall project budget overrun of between 5% and less than 20%	May result in overall project budget overrun of between 20% and less than 50%	May result in overall project budget overrun of 50% or more
Investment Return – NPV loss		Less than R5m	R5m to less than R50m	R50M to less than R500m	R500m to R5b	R5b or more
Quality		No impact on quality	Minimal quality issues that can be addressed in a short timeframe with minimal interactions	Some quality issues that requires immediate management action	Significant quality issues that requires senior project management interaction	Significant quality issues that requires sponsorship intervention with significant resource and cost implications for rework
Safety / Health		First aid case / Exposure to minor health risk	Medical treatment case / Exposure to major health risk	Lost time injury / Reversible impact on health	Single fatality or loss of quality of life / Irreversible impact on health	Multiple fatalities / Impact on health ultimately fatal
Environment		Minimal environmental harm - L1 incident	Material environmental harm - L2 incident remediable short term	Serious environmental harm - L2 incident remediable within LOM	Major environmental harm - L2 incident remediable post LOM	Extreme environmental harm - L3 incident irreversible
Legal & Regulatory		No legal impact	Minor legal concerns with minor impact	Some legal concerns with manageable level of impact	Serious legal concerns and significant impact on operations	Legal non-compliance with risk of shutdown of operations with significant cost impacts
Reputation / Social / Community		Slight impact - public awareness may exist but no public concern	Limited impact - local public concern	Considerable impact - regional public concern	National impact - national public concern	International impact - international public attention
LIKELIHOOD		RISK RATING				
5 Almost Certain	The unwanted event has occurred frequently; has a 90% and higher probability of reoccurring	11 Medium	16 Significant	20 Significant	23 High	25 High
4 Likely	The unwanted event has a probability of between 60% and less than 90% of occurring	7 Medium	12 Medium	17 Significant	21 High	24 High
3 Possible	The unwanted event has a probability of between 30% and less than 60% of occurring	4 Low	8 Medium	13 Significant	18 Significant	22 High
2 Unlikely	The unwanted event has a probability of between 1% and less than 30% of occurring	2 Low	5 Low	9 Medium	14 Significant	19 Significant
1 Rare	The unwanted event has never occurred, has a probability of less than 1% of occurring	1 Low	3 Low	6 Medium	10 Medium	15 Significant

Risk Rating	Risk Level	Guidelines for Risk Matrix									
21 to 25	(H) – High	Eliminate, avoid, implement specific action plans/procedures to manage & monitor									
13 to 20	(S) – Significant	Proactively manage									
6 to 12	(M) – Medium	Actively manage									
1 to 5	(L) – Low	Monitor & manage as appropriate									
No.	Task / Activity (Step by Step description of tasks)	Hazard (Potential Danger)	Risk (Possible Consequence/ Unwanted Event)	L	C	RR	Controls and further action to reduce the risk	L	C	RR	Responsible persons
1	Delivering equipment to site and Offloading rods and other	Man / machine interface	Injuries Fatalities	2	4	14	• Driver must be escorted on site	1	4	10	Foreman Supervisor Driver

	equipment from the truck by hand						<ul style="list-style-type: none"> • All delivery drivers must do induction before going to site. • High visibility vests and safety boots must be worn. • Vehicle must drive with his headlights on. • Drivers will go through site induction 				
		Machine VS Machine interface	Injuries Property Damage Fatalities	2	4	14	<ul style="list-style-type: none"> • Only 40km/h is allowed on site • Vehicle must drive with his headlights on. 	1	4	10	Foreman Supervisor Driver
		Dropping Equipment from truck or from hand height	Injuries Property Damage Fatalities	2	3	13	<ul style="list-style-type: none"> • The stacking integrity of the load to be inspected by the stacking inspector prior to straps and ropes being loosened. • Employees to work in teams of 2 • Each team member to be properly instructed in his/her task prior to offloading • Correct PPE to be worn by all staff members – steel capped boots, gloves, eye protection, hard hat, high vis boilersuit or vest • DSTI to include instruction for correct lifting procedure – Hold back / Straight Legs 	1	4	10	Foreman Supervisor Driver Stacking Inspector
2	Digging of holes for settling sumps	Strike underground cables or pipes	Damage to equipment	2	3	9	<ul style="list-style-type: none"> • Client / farmer to declare area safe or issue permit prior to digging • Client / farmer to point out underground cables and pipes • Supervision 	1	3	9	Client / MR Foreman Supervisor Workers

		Use of hand tools (picks, shovels and gwalas)	Hand and body injuries	2	3	9	<ul style="list-style-type: none"> • Ensure tools are in good condition (tool inspections) • Use trained people (toolbox talks and safe observations) • Ensure adequate workspace between workers • Wear safety glasses, safety boots and overalls/jacket for visibility • Supervision 	2	2	5	Foreman Supervisor General worker
		Unattended open holes	Leg injuries to humans or animals	2	3	9	<ul style="list-style-type: none"> • Barricade work area. • Mark holes with danger tape • Inform people on toolbox talks. 	2	2	5	Foreman Supervisor General worker Visitors
		Snakes and scorpions	Poisoned	3	2	8	<ul style="list-style-type: none"> • Emergency contact numbers will be available on site. • Injured will be taken immediately to the hospital for serum treatment 	2	2	5	Foreman Supervisor General Worker
3	Setting up the rig on its position	Uncontrolled Movement of the Rig	Injuries Property Damage Fatalities	2	4	14	<ul style="list-style-type: none"> • Only trained people to be involved in maneuvering the rig into position • Wherever possible, all additional staff to stand well clear of rig while it is being moved • Supervisor to be specific in task allocations, DSTI to cover tasks and risks • All PPE to be worn by all staff members in the area • Anchor points to be attached to rig as soon as possible to prevent further movement • All equipment to be in good condition and inspected 	2	2	5	Supervisor Foreman General Worker

		Spills	Contamination	3	2	8	<ul style="list-style-type: none"> • Drilling position to be covered with plastic, rig to be set up on bunding. • Settling sumps to be lined with bunding • All fuels and oils to be carried to the position in sealed containers and stored in demarcated area, or stored on the truck, attached via strap to the frame in the bin 	2	2	5	Supervisor Foreman General worker
4	Drilling	Loose Clothing being caught in the gears or fanbelts	Injury Damage to Equipment	2	4	14	<ul style="list-style-type: none"> • No loose clothing to be work on or around the site • Supervisor to inspect that no loose clothing is worn 	1	3	9	Supervisor General worker
		Noise	Damage to Hearing	2	3	9	<ul style="list-style-type: none"> • Hearing protection to be worn • All additional staff to stand clear of rig while in use 	2	2	5	Foreman General worker
		Man / machine interface	Injuries Fatalities	2	4	14	<ul style="list-style-type: none"> • Drilling rig operator to maintain line of sight with crew members. • No one to stand under hoist or elevated cable at any time • Drill rig operator to maintain clear communication with team • High visibility vests, gloves, hard hats, eye protection, hearing protection and safety boots must be worn. • All additional staff to stand clear of working area • No unauthorised entry to working area 	1	4	10	Foreman General worker Visitors

5	Changing Drill Rods	Accidental activation of levers	Injury Damage to Equipment	2	3	9	<ul style="list-style-type: none"> • Drill rig operator to maintain clear communication with team while rods are being pulled • Only trained staff to participate • High visibility vests, gloves, hard hats, eye protection, hearing protection and safety boots must be worn. • All additional staff to stand clear of working area • No unauthorised entry to working area 	2	2	5	Foreman Trained person
		Drill rods slipping	Injury Damage to Equipment				<ul style="list-style-type: none"> • Gloves with rubber finish to be work for grip • Only trained staff to handle rods • Rod rack to be in place to receive rods 	1	3	9	Foreman Trained person
		Hoist Cable or shackle failure	Injury Damage to Equipment				<ul style="list-style-type: none"> • Hoist cable to be inspected by lifting equipment inspector and signed off • Lifting equipment to be properly stored between use to avoid damage or deterioration 	1	3	9	Foreman Trained person
		Dropping rods	Injury Damage to Equipment	2	3	9	<ul style="list-style-type: none"> • Gloves with rubber finish to be work for grip • Only trained staff to handle rods • Rod rack to be in place to receive rods 	2	2	5	Foreman Trained person
6	SPT Testing	Accidental activation of levers	Injury Damage to Equipment	2	3	9	<ul style="list-style-type: none"> • All staff to be mindful of their positions around the machine – DSTI to include this • No one to stand in wet ground or in ground that has plastic covering while 	2	2	5	Foreman Trained person

							<ul style="list-style-type: none"> handling the equipment, to avoid loosing balance • Drill Rig operator to remain in control of levers while test is being carried out • Operator to keep line of sight on team members at all times 				
		Man / machine interface	Injury Damage to Equipment	2	4	14	<ul style="list-style-type: none"> • All non-essential staff to stand well clear while test is being carried out Drill rig operator to maintain clear communication with team while rods are being pulled • Only trained staff to participate • High visibility vests, gloves, hard hats, eye protection, hearing protection and safety boots must be worn. • No visitors near the area when test is being carried out 	1	3	9	Foreman Trained person
		Loose clothing being caught in cable	Injury Fatality	2	4	14	<ul style="list-style-type: none"> • No loose clothing to be work on or around the site • Supervisor to inspect that no loose clothing is worn 	1	3	9	Supervisor Foreman Trained person
7	Clearing the Site	Uncompacted Backfill of Sumps	Leg injuries to humans or animals Vehicles getting stuck	2	3	9	<ul style="list-style-type: none"> • Ensure refilled holes are properly filled and compacted • Mark holes with danger tape if needed 	2	2	5	Foreman Supervisor General worker Visitors
		Spillage and Waste	Contamination	3	2	8	<ul style="list-style-type: none"> • All oily rags to be collected and marked for disposal to SpillTech • All drums and containers to be closed correctly before moving from site • All bunding to be carefully lifted, folded in such a way that spills are contained, 	2	2	5	Foreman Supervisor General workers

							and marked for disposal to SpillTech				
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RISK ASSESSMENT COMMUNICATION

I/we, the undersigned, hereby declare that the responsible person in charge has made us familiar with the work-related hazards and risk and the measures that must be taken to eliminate, control and minimise those hazards.

Activity Task: Geotechnical Core Drilling Risk Assessment number: EXWF-RA-031

PRINT NAME IN FULL	ID NUMBER	SIGNATURE

Training performed on this the _____ day of _____, 20____

Training Facilitated by (Name, Surname & Designation): _____

Signature of Facilitator: _____

Translator (If needed): _____