Temporary Overburden Stockpile Facility Design for Tronox Namakwa Sands East OFS Project

Report Prepared for

Tronox Mineral Sands (Pty) Ltd

Report Number 548215/OB

Report Prepared by

December 2020

Temporary Overburden Stockpile Facility Design for Tronox Namakwa Sands East OFS Project

Tronox Mineral Sands (Pty) Ltd

SRK Consulting (South Africa) (Pty) Ltd
SRK Consulting (South Africa) (Pty) Ltd.
The Administrative Building
Albion Spring
183 Main Rd
Rondebosch 7700
Cape Town
South Africa

e-mail: capetown@srk.co.za
website: www.srk.co.za

Tel: +27 (0) 21 659 3060
Fax: +27 (0) 21 685 7105

SRK Project Number 548215/OB

December 2020

Compiled by:

BM Engelsman, Pr. Eng Pr CPM
Principal Engineer

Peer Reviewed by:

J Brown, Pr Sci Nat
Partner

Email: bengelsman@srk.co.za

Authors:

Bruce Engelsman

Table of Contents

Appendices

List of Tables

List of Figures

Disclaimer

The opinions expressed in this Report have been based on the information supplied to SRK Consulting (South Africa) (Pty) Ltd (SRK) by Tronox Mineral Sands (Pty) (Ltd) (henceforth referred to as Tronox). The opinions in this Report are provided in response to a specific request from Tronox to do so. SRK has exercised all due care in reviewing the supplied information. Whilst SRK has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this report apply to the site conditions and features as they existed at the time of SRK's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this Report, about which SRK had no prior knowledge nor had the opportunity to evaluate.

List of Abbreviations

EOFS	East Orange Feldspathic Sand
EMPR	Environmental Management Plan Report
FoS	Factor of Safety
OS	Overburden Stockpile
RAS	Red Aeolian Sand
RSF	Residual Storage Facility
SRK	SRK Consulting (South Africa) (Pty) Ltd
SWMP	Stormwater Water Management Plan

1 Objectives and Scope of Report

1.1 Introduction and Objectives

Tronox Mineral Sands (Pty) (Ltd) (Tronox) mines heavy mineral sands at the existing Namakwa Sands Mine at Brand se Baai, using open-cast strip-mining methods at the East Mine and West Mine, in accordance with approved Environmental Management Programmes (EMPrs) and within an authorised mining area (see Figure 1-1).

The East Mine is currently a shallow mine, where mining of only the top Red Aeolian Sand (RAS) layer occurs. Mined material (sand ore) is processed at the Primary Concentration Plant at the East Mine (PCP East) to produce a heavy mineral concentrate (HMC). Waste products from the PCP East include sand tailings (coarser material) and (finer) residue called fines. Sand tailings are backfilled into the mining void(s), and residue slurry is disposed of in Residue Storage Facilities (RSFs).

Tronox is authorised to also mine and process the deeper Orange Feldspathic Sand (OFS) resource underlying the RAS material at the East Mine (known as the EOFS Project). For the EOFS Project to proceed, Tronox must modify the approved residue disposal plan (this project): this entails a single RSF to accommodate all fine residue from the project (as opposed to three smaller RSFs as per the current EOFS Project authorisation), backfilling that will change the topography of the area (shallow deposition area with trucks and deep deposition areas via conveyors (Sand Tailings Facilities (STFs)) and the upgrade of infrastructure. As part of the overall project, an overburden stockpile (OS) is required to initially access the ore body, but the overburden material temporarily stored in the OS will later be used to close the RSF.

SRK Consulting (South Africa) Pty Ltd (SRK) has been appointed by Tronox to design the OS, and the design is detailed in this report.

1.2 Study Area and Project Background

This section provides a summary of the proposed modification of the EOFS Residue Disposal Plan and focuses on elements that are relevant to the Environmental Impact Assessment (EIA) and particularly the Surface Water Impact Assessment. A more detailed project description is provided in the EIA Report for the project.

The Mine is located at Brand se Baai which lies in the magisterial district of Vanrhynsdorp, in the Matzikama Local Municipality (MLM) and West Coast District Municipality (WCDM) of South Africa. The Mine is ~63 km north west of Lutzville by road on the R363. The mine locality is shown in Figure 1-1. This project is associated with operations that take place within Tronox's East Mine only, within an active mine and in an area authorised for further mining.

The currently approved method of coarse residue (tailings) management for the authorised EOFS Project entails hauling and backfilling all sand tailings into the EOFS pit and therefore mimicking the pre-mining topography (elevation). The following changes to the authorised EOFS Project and additional infrastructure are proposed and require authorisation (see Figure 1-2):

- **Establishing a ~50 ha OS with a capacity of 3.15 Mm^3 in an area approved for mining east of the proposed RSF** to initially access the ore body**;**
- Tipping (single stacking) overburden RAS tailings and/or fresh sand tailings to the (on average) 8 m deep pit by haul truck, to a minimum depth of 1 m; and
- Deep filling of identified areas with the use of conveyor systems (on average 14 m from mined out floor) as part of backfilling to the mined out void, namely STFs (sand tailings facilities), thereby ensuring there is sufficient capacity for all material to be returned to the void;

- Establishing a ~400 ha, 51.9 Mm^3 (volumetric capacity) RSF (RSF 6) for the controlled disposal of fine residue generated by the EOFS operations (as opposed to three separate, smaller fine residue facilities which were approved in the original application) and associated residue and return water pipelines and pumps;
- Installing two 3 400 m of fine residue pipelines and one 3 400 m return water pipeline on the south-eastern boundary;
- Expansion of the seawater intake by installing a new de-aeration sump;
- Installing a new 3.4 km long 22 kV overhead powerline; and
- Demolishing three buildings (houses and out-buildings / structures) within the East OFS pit, each more than 60 years old.

The RAS resource in the East Mine will deplete in mid-2024, and therefore the EOFS Project must come online by this date. The planned detailed design and construction will take three years and four months.

The OS material will be used to close the RSF at LOM (= 31 years). It is acknowledged that this facility is perceived as a permanent facility with a lifetime of 31 years, and the design takes this into account.

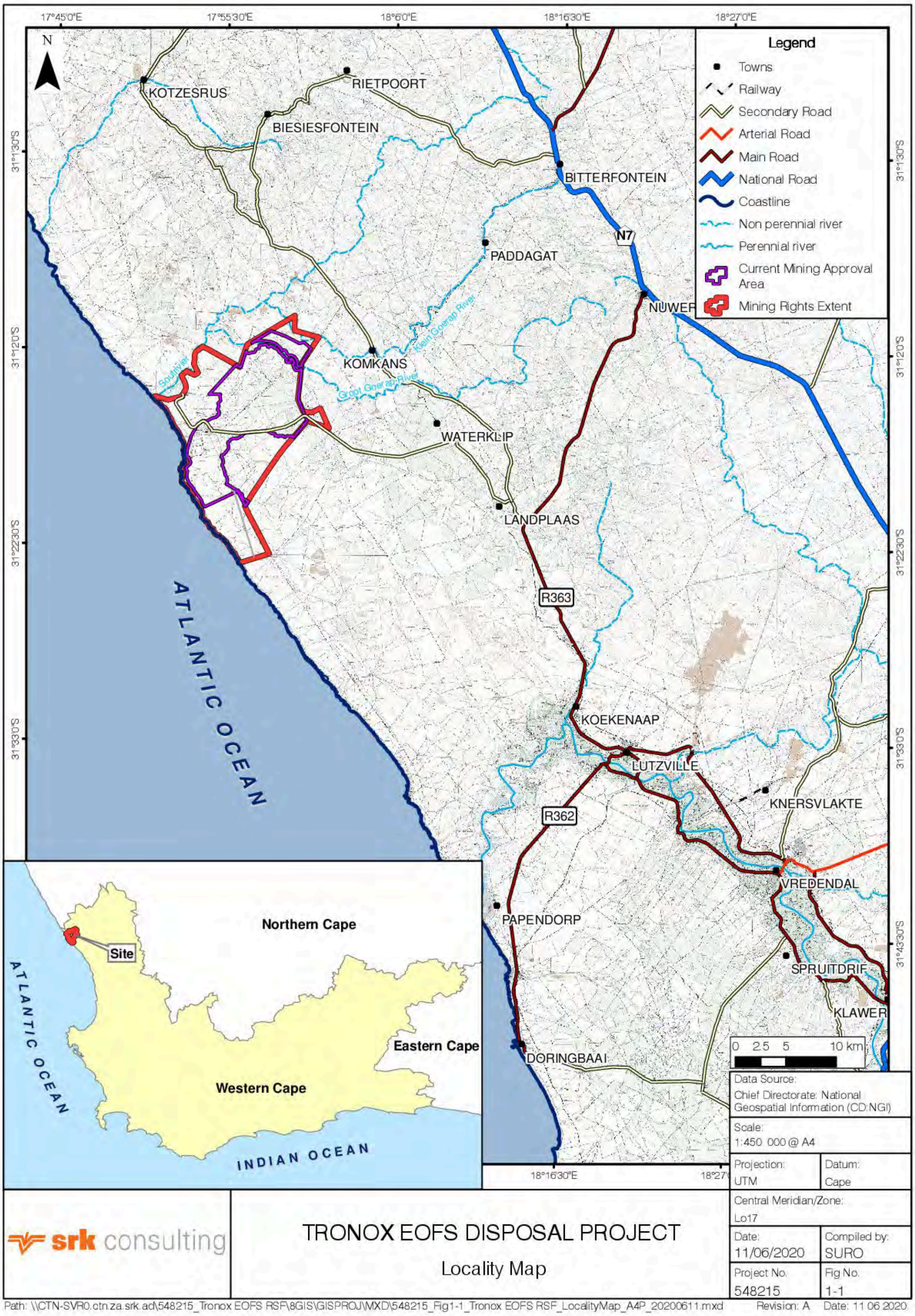
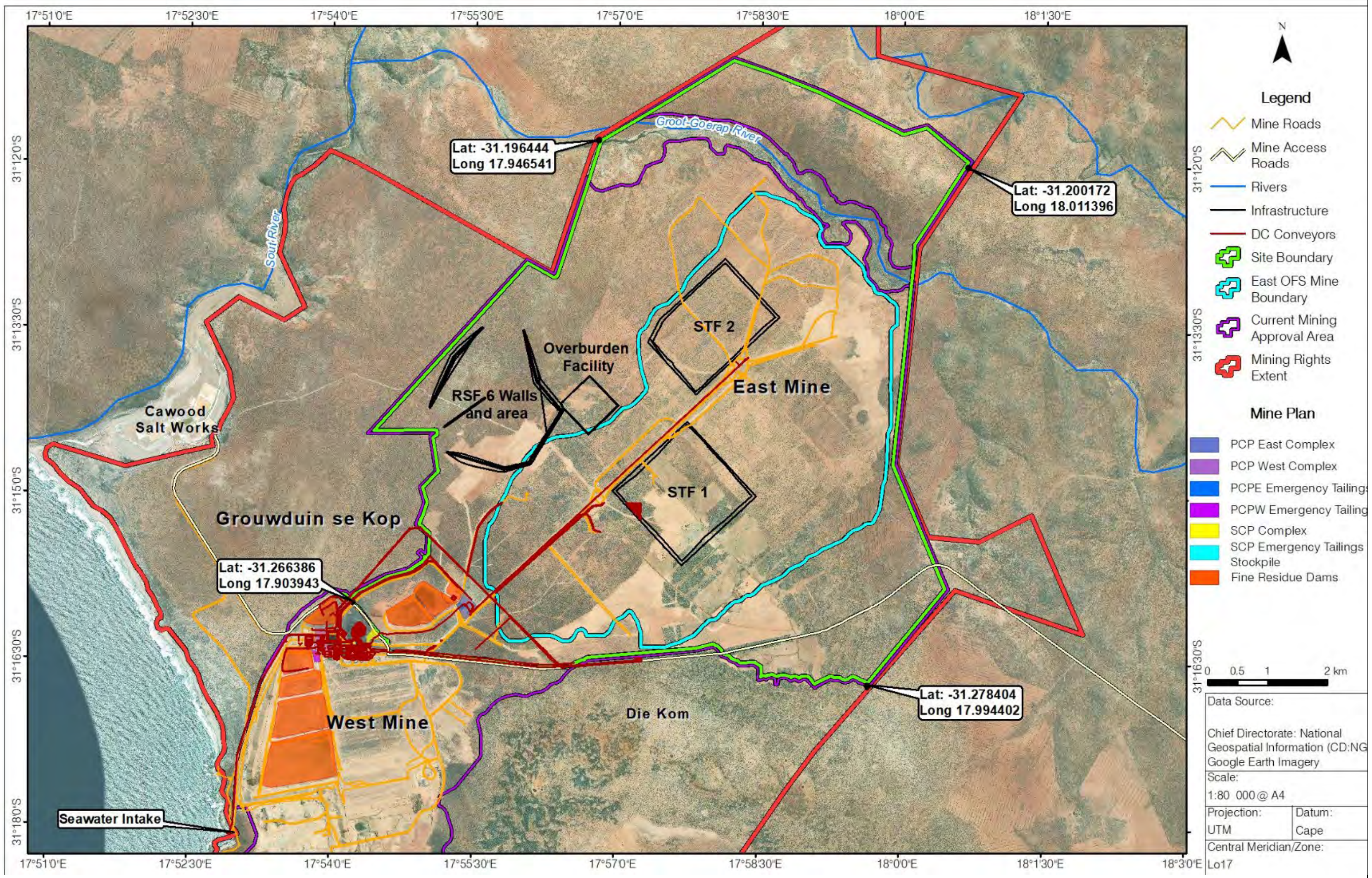


Figure 1-1: Locality map



srk consulting

TRONOX EOFS DISPOSAL PROJECT
INFRASTRUCTURE AND LAYOUT

Project No. 548215

Figure 1-2: Proposed East OFS Infrastructure and Layout

2 TOF Conceptual Design

This section outlines the information sources, design criteria and design elements of the TOF Design.

2.1 Information Sources

Information sources are listed in Table 2-1.

Table 2-1: Information sources

Information or data	Source	Quality of data
Contour Data	Supplied by Tronox	1 metre contours (and sometimes finer) delineated by a registered surveyor.
Mined out floor data (i.e. the base level of the TOF)	Supplied by Tronox	Extracted in ArcGIS from mine plan data supplied by Tronox.
Overburden material shear strength parameters	Supplied by Tronox (ex Wits Enterprise Report titled "Tronox Namakwa Sands Stability Assessment 2013" dated April 2013	Detailed study including laboratory testing of materials from the East mining operation.
Stormwater Management Requirements	SRK Report 548215SW_rev2 Titled "Surface Water Impact Assessment and Stormwater Management Plan for Tronox Namakwa Sands East OFS Project" dated October 2020	Specialist Report for the EIA
Waste Classification	SRK Report 548215 Titled "Tronox Namakwa Sands, EOFS Waste Classification Study" dated June 2020	Specialist Report for the EIA

2.2 Design Criteria

The design criteria for the TOF design is as shown in Table 2-2.

Table 2-2: Design Criteria

Design Criteria	Units	Value	Source
Life of Facility – Operational (TOF)	years	31	Tronox
Footprint Area of TOF	ha	≤ 50	Tronox
TOF Slope geometry	V:H H:V	1:1.43 1:0.7	Tronox
Material Shear Strength parameters: Friction angle Cohesion Dry Density	° kPa kN/m^3	35<φ<42 0 15.7	Wits Enterprises Report, April 2013
Required Factor of Safety (FoS)	–	shallow (1.3) deep seated (1.5)	Regulation 632 of the National Environmental Management: Waste Act 59 of 2008 – Regulations Regarding the Planning and Management of Residue Stockpiles and Residue Deposits, 2015

The design criteria takes particular cognisance of the requirements as set out in the Regulations Regarding the Planning and Management of Residue Stockpiles and Residue Deposits (GN R632 of 2015 as amended by GN R990 of 2018) published in terms of the National Environmental Management: Waste Act 59 of 2008, and in particular, Regulation 7 that regulates the design of these facilities. In particular, the following aspects of Regulation 7 were a primary design drivers:

- Ensuring that assumptions are correct pertaining to the geotechnics of the stockpile footprint (Regulation 7.2);
- Ensuring that all phases of the stockpile lifecycle are assessed (acknowledging that this is a proposed temporary stockpile) and that stockpile construction, rate of development and material characteristics of the stockpile are incorporated in the design along with requisite attention to including a pollution control barrier (Regulation 7.3);
- Integrating the design with the stormwater management plan already developed and ensuring clean and dirty water segregation (Regulation 7.4);
- Developing a design report (including an operating manual (OM)) – Regulation 7.5.

2.3 TOF Geometry and Layout

The OS position relative to the nearby proposed EOFS Residue Storage Facility is shown in drawings 548215-100 to 548215-102 (Appendix A). With reference to these drawings, the following is noted:

- The OS footprint measures 454 800 m^2 (45.48 ha) in extent;
- The OS is designed with an outer slope angle of 30° (See Section 2.5);
- A servitude of 10 m has been left between the OS toe and the proposed RSF stormwater management infrastructure (ref SRK Report 548215/SW_Rev2);
- The OS is founded on the mined out surface = underside of RAS;
- The OS final levels are designed to be ~ 7 m above the underside of RAS level.

2.4 TOF Capacity

The geometric arrangement described in Section 2.3 allows a capacity of 3 285 607 m^3 (3.29 Mm^3). This is slightly in excess of the required 3.15 Mm^3, but is designed marginally conservatively to ensure sufficient capacity.

2.5 TOF Stability

2.5.1 Stability Analysis

2.5.1.1 Tronox Proposed Angle of Repose

The design criteria (Table 2-2) were used to run a limit equilibrium analysis of the OS slope stability. It is noted that the Wits Enterprises study (April 2013) reports a range in friction angle resulting from laboratory testing ($35° < \varphi < 42°$) of the RAS tailings / overburden material in the East Mine. Tronox have proposed constructing the OS with an outer slope angle = angle of repose. These factors considered, the following stability analyses were run:

- 'Low' depicting the lower range of friction angle reported in the Wits (2013) study as follows:
  - $\Phi = 35°$
  - c = 0 kPa;

  - dry density = 15.7 kN/m^3.
- ‘High’ depicting the upper range of friction angle reported in the Wits (2013) study as follows:
  - Φ = 42°
  - c = 0 kPa;
  - dry density = 15.7 kN/m^3.
- ‘’Mean’ depicting the mean friction angle reported in the Wits (2013) study as follows:
  - Φ = 38°
  - c = 0 kPa;
  - dry density = 15.7 kN/m^3

The results are shown in Figure 2-1 to Figure 2-2.

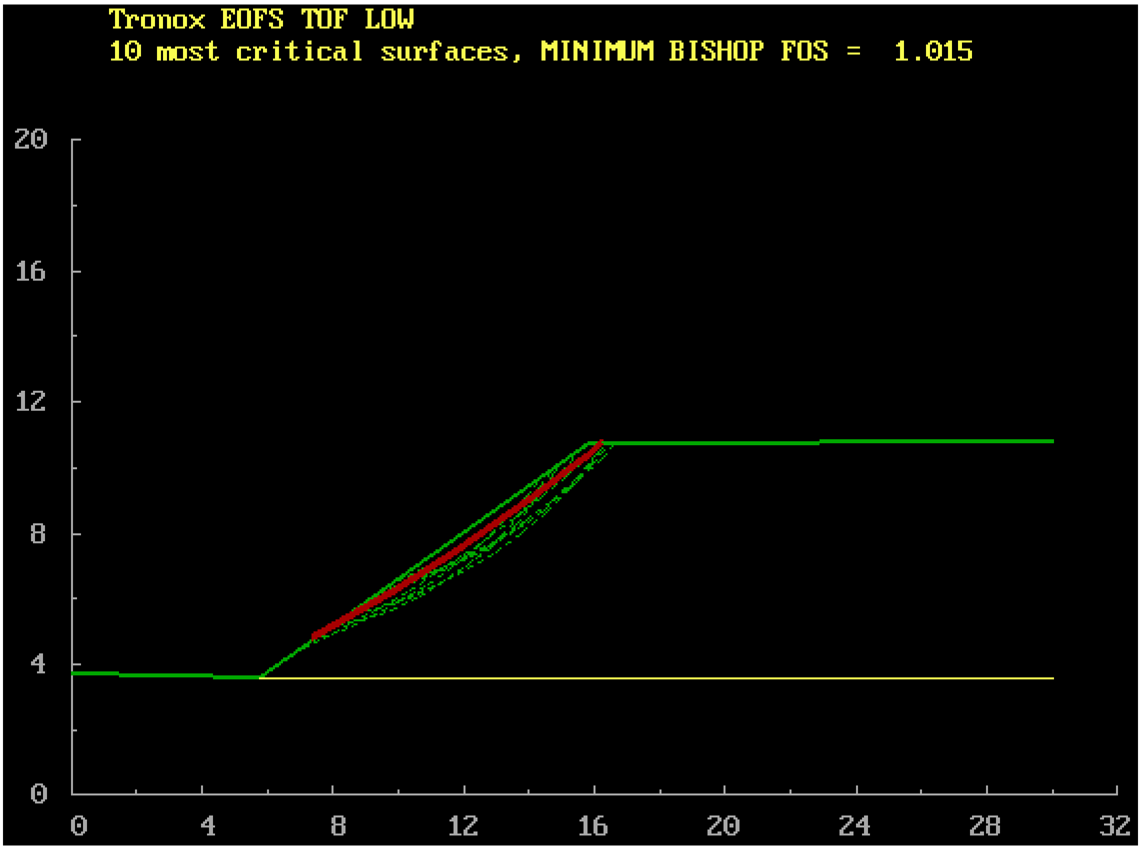


Figure 2-1: Stability Run Depicting Lower Range φ (35°)

The 10 most critical failure surfaces’ FoS range from 1.015 to 1.115.

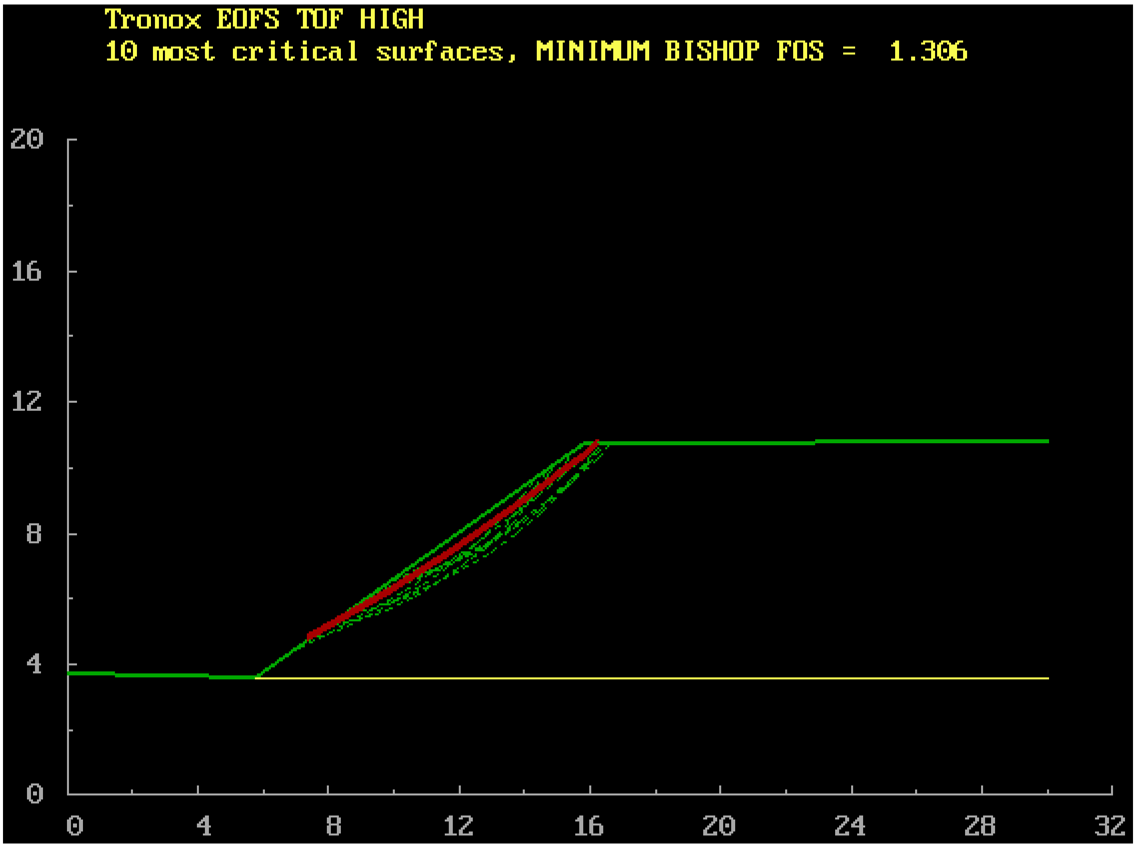


Figure 2-2: Stability Run Depicting Higher Range φ (42°)

The 10 most critical failure surfaces' FoS range from 1.306 to 1.434.

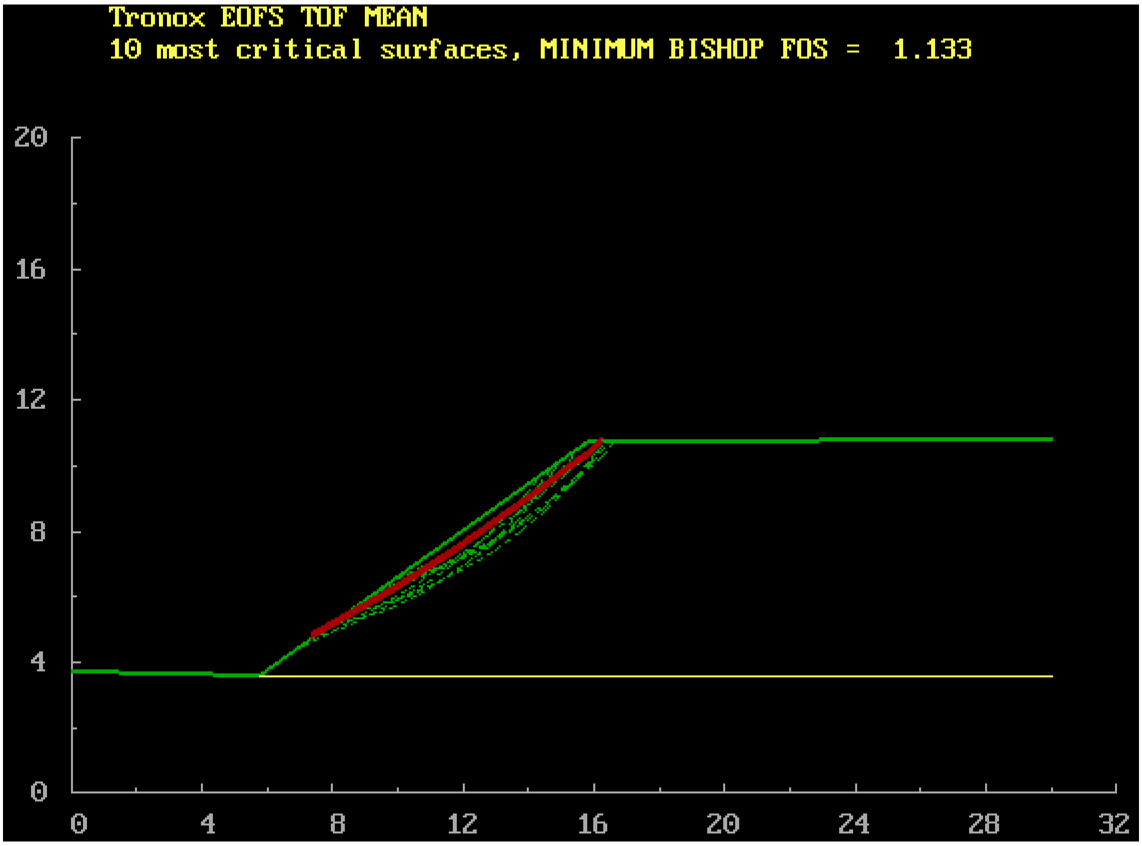


Figure 2-3: Stability Run Depicting Mean Range φ (38°)

The 10 most critical failure surfaces' FoS range from 1.133 to 1.244.

The following is noted from the above results:

- FoS:
  - 'Low' φ value: FoS ranges between 1.015 and 1.115;
  - 'High' φ value: FoS ranges between 1.306 and 1.434;
  - 'Mean' φ value: FoS ranges between 1.133 and 1.244; and
  - The FoS for a temporary structures (and for shallow failure planes) is only acceptable (> industry norm of 1.3) for the higher φ value.
- Shape of Failure Surfaces:
  - It is noted that across the scenarios run in Figure 2-1 to Figure 2-3, the critical failure surface is shallow, indicating a propensity for the slope surface to 'creep' or 'ravel'; and
  - The critical failure surfaces do not indicate catastrophic slope failure in any of the scenarios.
- These results, in our opinion, accurately indicate slope stability for slopes constructed at the angle of repose, and it is our opinion that the shear strength parameters emanating from the Wits Enterprises study (April 2013) accurately describe the overburden materials.

For further clarity on stability, particularly related to catastrophic slope failure, a fourth scenario was run using a mean φ value to calculate the FoS were the failure surface to be deep seated (into the slope). Figure 2-4 shows these results.

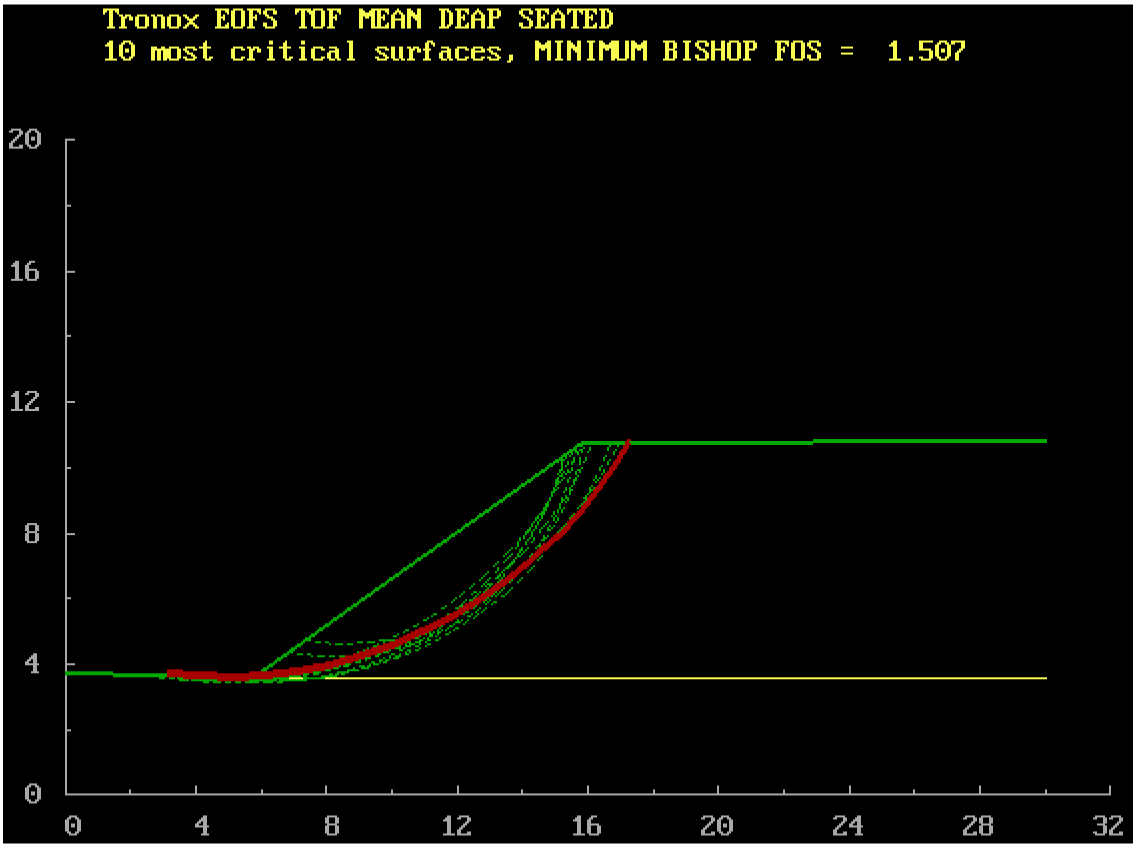


Figure 2-4: Deep Seated Stability Run Depicting Mean Range φ

It is noted that for catastrophic (deep seated) failure, the FoS is > 1.5 (ranging from 1.507 to 1.578 for the 10 most critical failure surfaces shown).

2.5.1.2 Recommended Design

Considering the low FoS values derived for TOF slopes at the proposed angle of repose, it is probable that migration of material down slope will occur. It is noted that such material migration will not take the form of a catastrophic slope failure, but rather as gradual creep/ravelling of the slope with time. Risks related to this material migrating into stormwater management infrastructure is deemed high, and SRK recommend a flatter slope for the TOF considering that it will be in place for ~31 years. Additional stability analyses were therefore performed to prove stability of a TOF with a 30° outer slope angle. The following inputs were used:

- Φ = 38° (i.e the mean)
- c = 0 kPa;
- dry density = 15.7 kN/m^3

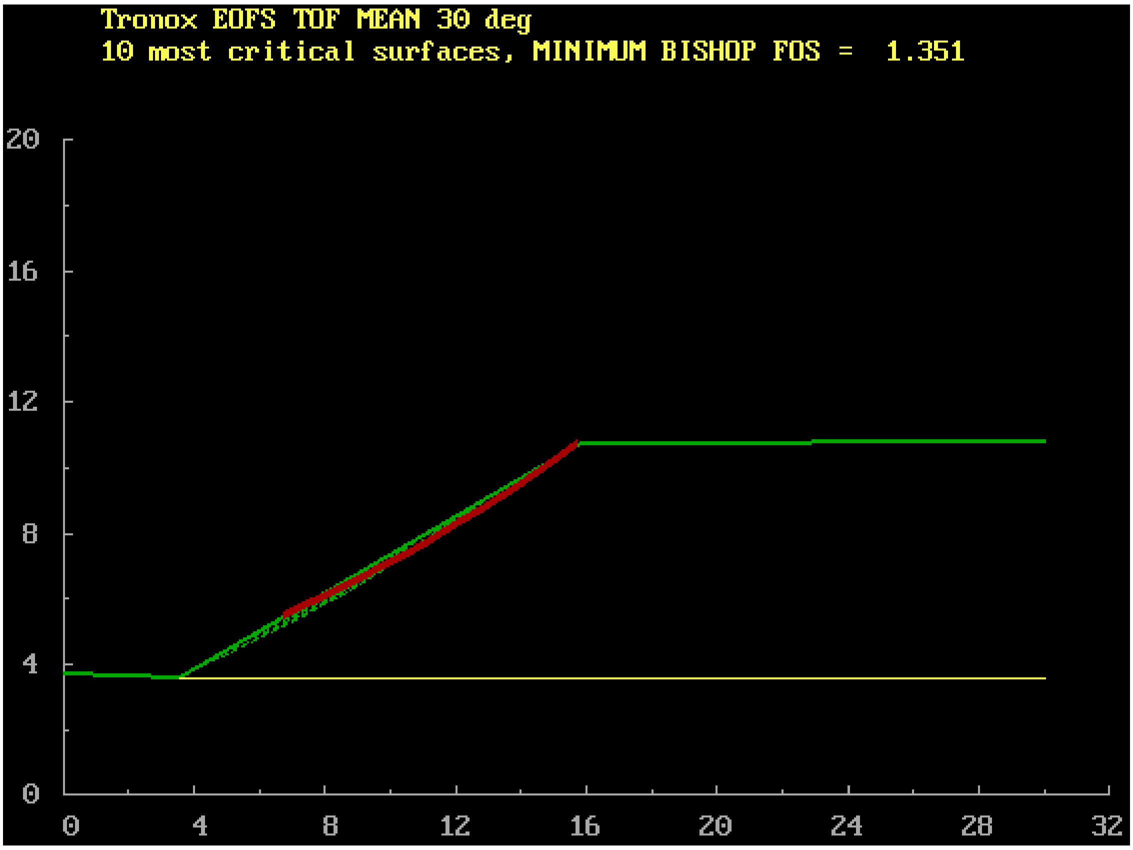


Figure 2-5: Stability Run Depicting Mean Range φ (38°) at a 30° Slope Angle

Clearly, superficial failure governs the most likely failure mode, but importantly, the FoS > 1.3 (ranging from 1.351 to 1.358). It is necessary to assess deep seated failure (see Figure 2-6).

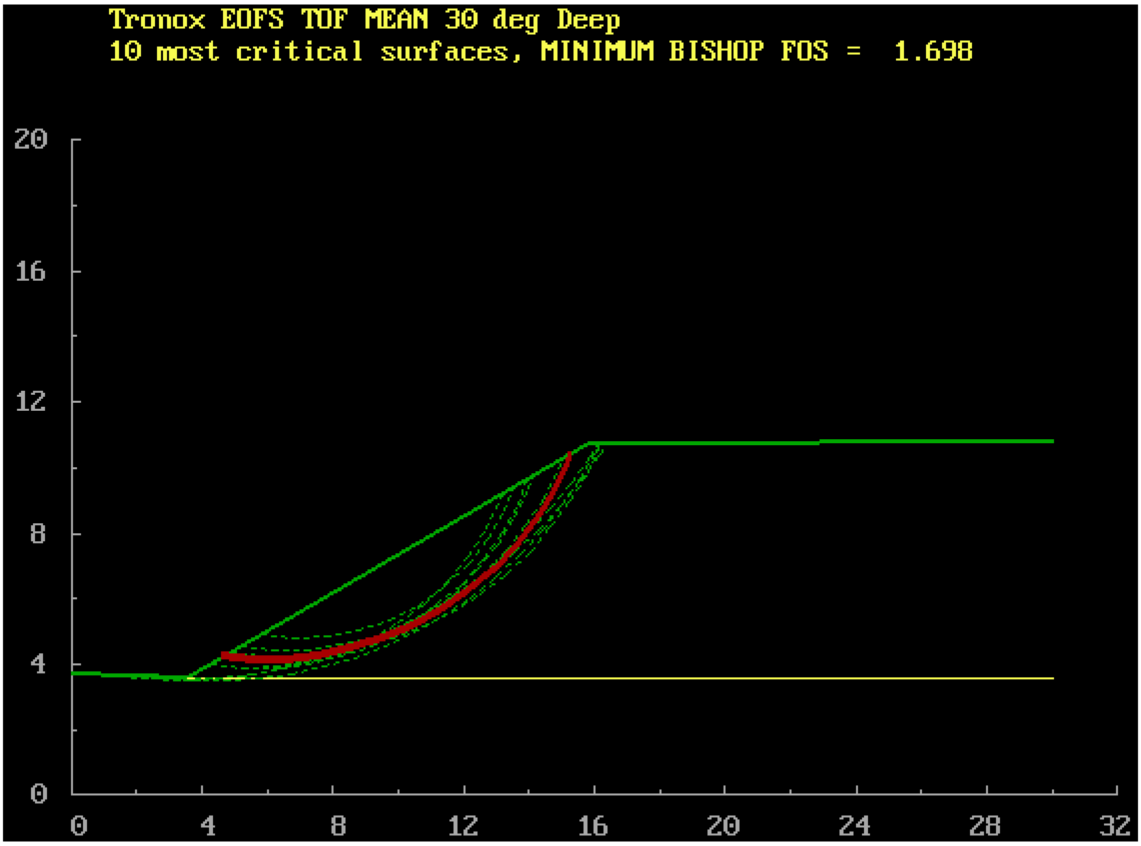


Figure 2-6: Deep Seated Stability Run Depicting Mean Range φ (38°) at a 30° Slope Angle

The FoS is > 1.5 (ranging from 1.698 to 1.735 for the 10 most critical failure planes shown in Figure 2-6).

2.5.2 Discussion

Stockpiling of materials on mining sites, practically by default, results in slope angles at the angle of repose as material is end tipped by dump trucks and spread by bulldozers. The stability analysis performed in Section 2.5.1.1, in our professional opinion, confirms that the OS material shear strength parameters are accurate as the stability analysis depicts FoS values that can be expected of materials stockpiled at angle of repose.

At angle of repose, the stability analysis shows that surface creep and/or ravelling failure with a shallow (into the slope) failure surface is likely. In our professional opinion, and for a facility that will be in service for LOM = 31 years, the FoS for an angle of repose facility are low and migration of materials can be anticipated.

SRK therefore recommends that the TOF be constructed with outer slopes at a 30° angle (i.e. a FoS of 1.698) for the following reasons (see Section 2.5.1.2):

- The facility will be in service for LOM = 31 years, and if constructed at angle of repose, migration of materials is almost a certainty over this extended time period – although this will not pose a catastrophic risk, clogging of stormwater management infrastructure is probable;
- The FoS for shallow failure for an outer slope angle of 30° is > 1.3 satisfying industry norms;
- The FoS for deep seated failure for an outer slope angle of 30° is > 1.5 satisfying industry norms.

2.6 Other Modes of Failure

Erosion by wind and/or water is a common challenge at the Namakwa Sands mining operation. When material is temporarily stockpiled on the OS, it will be unconsolidated and prone to erosion. Referencing the specialist Surface Water Impact Assessment for this project (SRK Report 548215/SW_Rev2), in particular Section 6.1 of that report, it is noted that some concerns related to water erosion are mentioned for high rainfall events, and various mitigation measures are proposed in this regard, including:

- Ensuring that stormwater is guided to diversion channels and that detailed design of these channels aims to keep stormwater flow velocities < 1m/s.
- Including energy dissipation from defined channels to natural ground.
- Continue the practice and use of netting (already standard practice for wind erosion) as this will aid in dissipating energy of flows and reduce the risk of erosion, this should be done as soon as possible upon completion of the deposition on the OS side slopes
- Regular inspection of the site for erosion (monthly) during construction and annually during operation and after storm events exceeding the 1 in 10 year event – this followed by remedial actions if necessary.

The philosophy that emerges from the specialist stormwater study is that erosion risks exist in larger rain events (see Figure 2-7). For this reason, it will be necessary that sediment loads migrating to stormwater management infrastructure from the OS are monitored as per the recommendations in the specialist stormwater study.

srk consulting	TRONOX EOFS DISPOSAL PROJECT Significant erosion on berms	Project No. 548215

Figure 2-7: Photo showing significant erosion on berms

2.7 Contamination Potential

With reference to SRK report 54215 Titled “Tronox Namakwa Sands, EOFS Waste Classification Study“ (June 2020), it is concluded in that report that, quote:

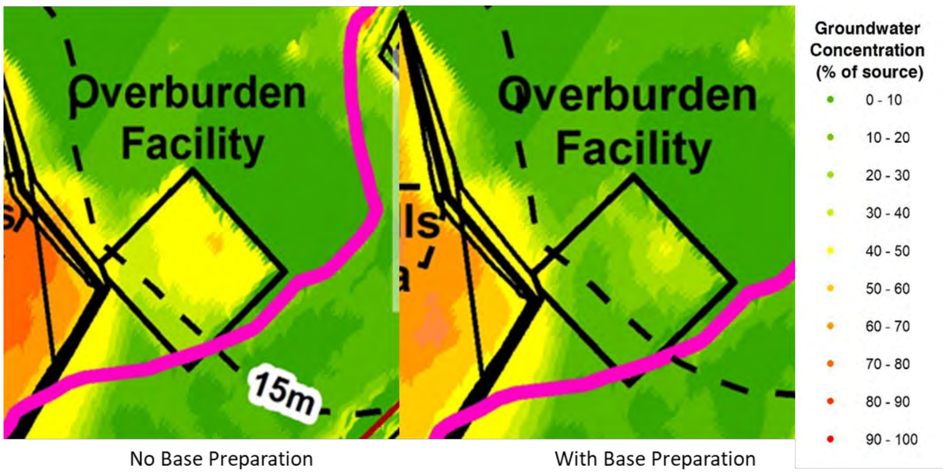
- The tailings material from the proposed EOFS expansion project is non-acid generating, inert, and classified as Type 4 waste.
- The tailings material needs to be disposed of to a Class D landfill (designed in accordance with sub regulation 3(1)(a) of GN 636), which does not require an engineered synthetic liner or compacted clay layer.

That said, it is acknowledged that the overburden material that will make up the OS stockpile is old RAS tailings backfill material that was processed with sea water in the past. In the EOFS project, this material will simply be removed from surface and stockpiled on the OS to expose the ore body.

A comparative assessment was conducted (Appendix D1 to the EIA) which assessed the effect with and without base preparation. The simulated results for the end of LoM are as follows:

- No base preparation/ “as is” overburden stockpile produces a maximum groundwater concentration of c.60% of source, with a mean of c.35% of source in the overburden facility footprint area;
- With base preparation, the facility produces a maximum groundwater concentration of c.40% of source, with a mean of *c.*20% of source in the overburden facility footprint area; and
- The contaminant plume does not migrate beyond 200 m from the facility in both base preparation options.

Both base preparation options have fairly low groundwater concentrations underlying the overburden stockpile. These low concentrations are attributed to the low moisture content of the Overburden (previously placed RAS tailings) (5%) as well as the short (three year) duration of RAS tailings disposal. Although lining the facility may improve local concentrations, this is deemed unnecessary as the contaminant plume does not migrate further than 200 m from the facility.



srk consulting	**East OFS Project Disposal Project** Overburden stockpile with and without base preparation	Project No. 548215

Figure 2-8: Overburden Stockpile with and without base preparation

2.8 National Environmental Management: Waste Act 59 of 2008 Considerations

As eluded to in Section 2.2, the OS design is driven by a number of requirements stipulated (primarily) in Regulation 7 of GN R 632 of 2015 (as amended). Critical items in Regulation 7 have been addressed as follows:

Requirement	How Addressed
Ensuring that assumptions are correct pertaining to the geotechnics of the stockpile footprint (Regulation 7.2);	Material parameters used from a reliable source (Wits Enterprises Report, April 2013)
Ensuring that all phases of the stockpile lifecycle are assessed and that stockpile construction, rate of development and material characteristics of the stockpile are incorporated in the design along with requisite attention to including a pollution control barrier (Regulation 7.3)	Section 2.5 and 2.7
Integrating the design with the stormwater management plan already developed and ensuring clean and dirty water segregation (Regulation 7.4)	Section 2.6
Developing a design report (including an operating manual (OM)) – Regulation 7.5	Section 3

Site selection for the OS is addressed in Section 3.8.1 the EIA as follows:

As process (sea) water has already leached from this material (and therefore groundwater impacts were considered to be benign) its proposed location was dictated by:

- Proximity to the start-up pit (and therefore lower cost of transportation);
- Its location within a mined out area, but outside of the authorised East OFS project footprint (i.e. in an area that will not entail vegetation clearance while also not sterilising the East OFS resource here);
- Its location in a low-lying area (which reduces the visibility); and
- Proximity to the RSF for use of the overburden material for capping of this facility at closure.

Therefore, the proposed site for the overburden facility is appropriate, and no other reasonable and feasible alternative sites for the overburden facility were considered in the EIA process.

3 Operating Manual

Overburden material will be removed from surface to expose the ore body, and this material will be stockpiled on the OS during initial phases of the project until enough air-space is available in the pit to accommodate backfilling of overburden material here. Overburden at the OS will later be used in closure of the proposed RSF (i.e. at the end of LOM). Is has been shown that constructing the OS at angle of repose will lead to materials migrating down slope (through wind/water erosion) over the proposed 31 year lifetime of the facility. The design takes cognisance of this and recommends constructing the OS at an outer slope angle of 30°.

From an operation and maintenance perspective, the following must underpin the construction (and later removal) of the OS:

i. **Preparation of the foundation layer**: The foundation of the TOF will be the underside of RAS level and will consist of competent (consolidated) material – no special preparation is therefore required, but it will be advantageous to the initial construction stages of the OS to leave the finished mined surface as a smooth undulating surface prior to deposition of the overburden material.

ii. **Construction of the TOF**:

a. The overburden material will be stripped from above the EOFS ore body, transported by trucks and end tipped to make up the TOF;

b. After end tipping, the material will be shaped with a bulldozer to ensure that the design geometry (Section 2.3) is achieved with special attention given to:

    i. Achieving the recommended 30° outer slope angle;

    ii. Ensuring that the TOF extends to no greater 7 m above the underside of RAS level;

    iii. Ensuring that the footprint adheres to the space restrictions between the TOF and the RSF, leaving sufficient space for access and stormwater management infrastructure.

iii. **Maintenance of the TOF:** it is acknowledged that wind and water erosion may displace materials from the TOF, and maintenance of stormwater management infrastructure will be an ongoing requirement – the impacts of sediment originating from the TOF must be monitored along with the stormwater infrastructure/management monitoring that will take place (ref SRK Report 548215/SW_Rev2).

iv. **Closure of the RSF:** detailed closure design will dictate methodologies linked to using the overburden material in the TOF for closing the RSF, and the footprint will be revegetated in line with existing closure commitments.

Prepared by

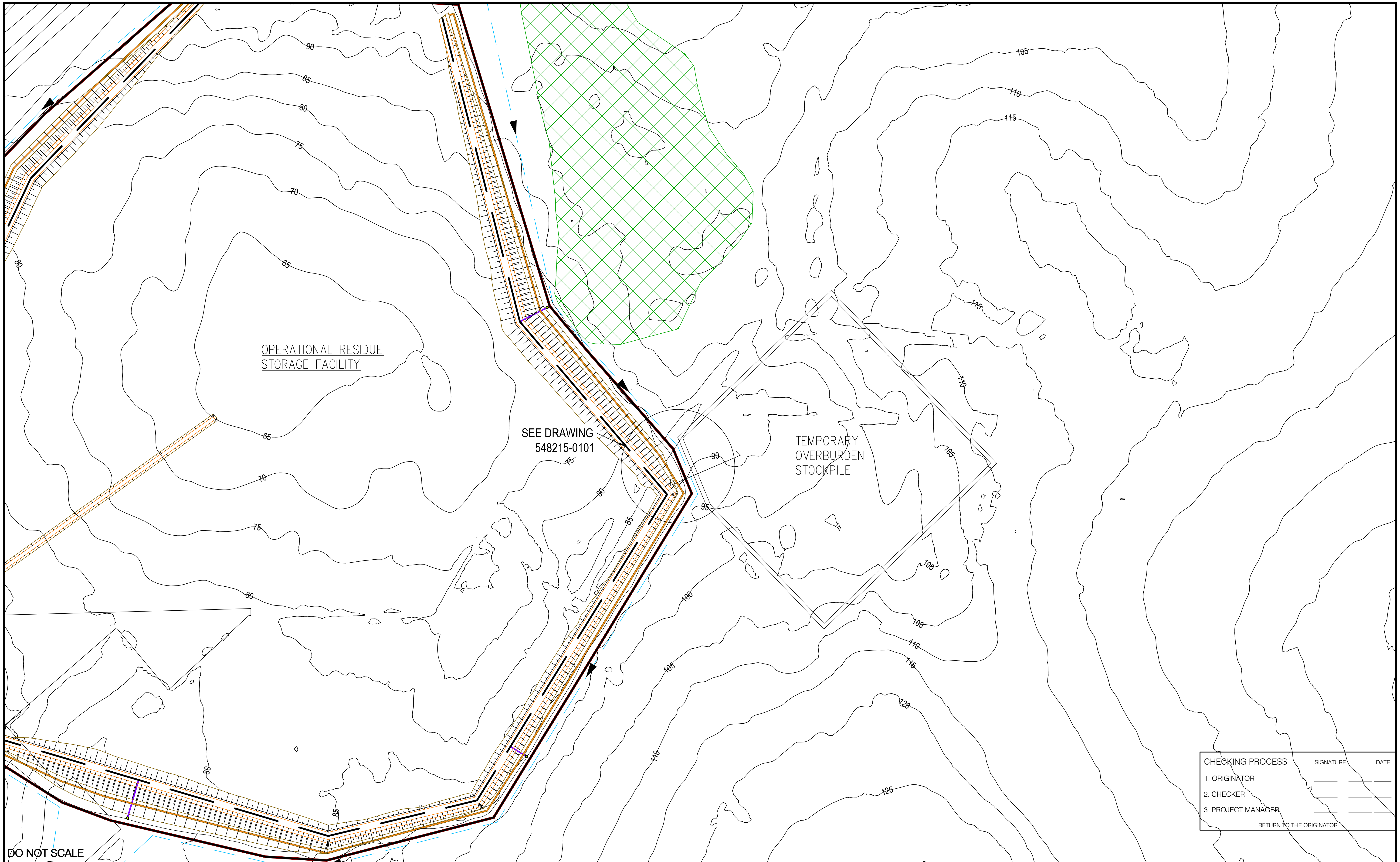
Bruce Engelsman, Pr. Eng, Pr. CPM
Principal Engineer/Partner

Reviewed by

M Law
Principal Environmental Consultant

All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices.

Appendix A: DRAWINGS



CHECKING PROCESS	SIGNATURE	DATE
1. ORIGINATOR		
2. CHECKER		
3. PROJECT MANAGER		
RETURN TO THE ORIGINATOR		

REV	DR	CH	DATE	REVISIONS

REFERENCE DRAWINGS	
548215-101	PROPOSED LAYOUT RELATIVE TO RSF
548215-102	CROSS SECTION ADJACENT TO RSF

NOTES

Datum:

Projection:

Central Meridian / Zone:

srk consulting

The Administrative Building
Albion Springs
183 Main Rd, Rondebosch
7700 Cape Town

Postnet suite# 206
Private Bag X18
7701 Rondebosch
South Africa

e-Mail: capetown@srk.co.za
www.srk.co.za

Tel: +27 (0) 21 659 3060
Fax: +27 (0) 21 685 7105

CESA
Consulting Engineers South Africa

TITLE
TRONOX EOFS DISPOSAL PROJECT
TEMPORARY OVERBURDEN FACILITY
PROPOSED LAYOUT

CLIENT
TRONOX MINERAL SANDS (PTY) LTD

		DATE	CHECKED
DESIGNED	ENGE	07 10 2020	BROW
DRAWN	ENGE	07 10 2020	BROW
A3	SCALE:	1 ; 10 000	

PROJECT No.	DRG No.	SHT	OF	REV
548215	0100	1	1	0

G:\New Proj\548215 Tronox EOFS RSF\4Project Work\Specialist Studies\Overburden Stock Design\Working\SRK Working 20200918.dwg

DO NOT SCALE

REV	DR	CH	DATE	REVISIONS

REFERENCE DRAWINGS	
548215-100	PROPOSED LAYOUT
548215-102	CROSS SECTION ADJACENT TO RSF

NOTES

Datum:

Projection:

Central Meridian / Zone:

srk consulting

The Administrative Building
Albion Springs
183 Main Rd, Rondebosch
7700 Cape Town

Postnet suite# 206
Private Bag X18
7701 Rondebosch
South Africa

e-Mail: capetown@srk.co.za
www.srk.co.za

Tel: +27 (0) 21 659 3060
Fax: +27 (0) 21 685 7105

CESA Consulting Engineers South Africa

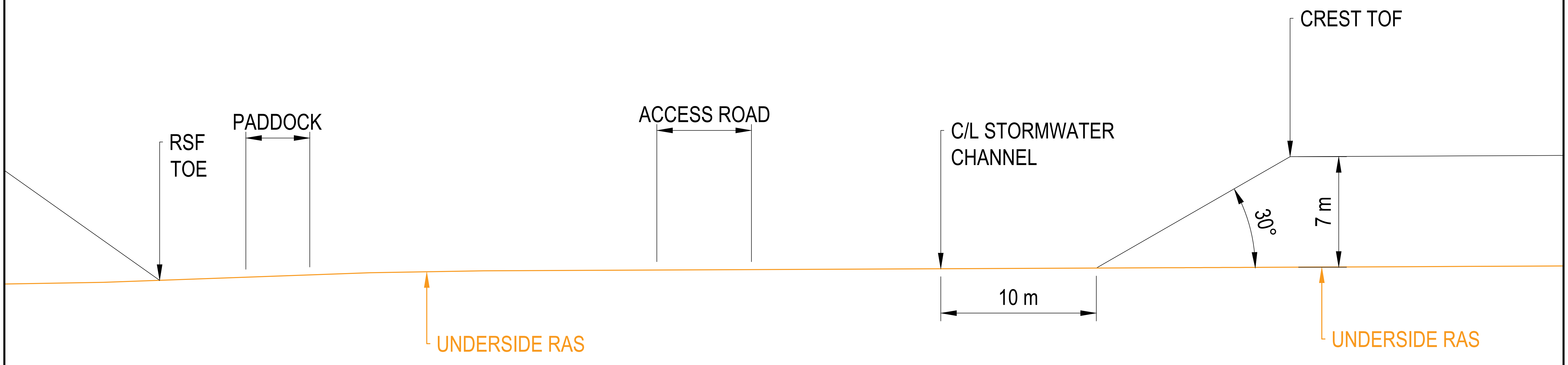
TITLE
TRONOX EOFS DISPOSAL PROJECT
TEMPORARY OVERBURDEN FACILITY
PROPOSED LAYOUT RELATIVE TO RSF

CLIENT
TRONOX MINERAL SANDS (PTY) LTD

		DATE	CHECKED
DESIGNED	ENGE	07 10 2020	BROW
DRAWN	ENGE	07 10 2020	BROW
A3	SCALE:	1 ; 10 000	

PROJECT No.	DRG No.	SHT	OF	REV
548215	0100	1	1	0

G:\New Proj\548215 Tronox EOFS RSF\4Project Work\Specialist Studies\Overburden Stock Design\Working\SRK Working 20200918.dwg



DO NOT SCALE

REV	DR	CH	DATE	REVISIONS

REFERENCE DRAWINGS	
548215-100	PROPOSED LAYOUT
548215-101	PROPOSED LAYOUT RELATIVE TO RSF

NOTES

Datum:

Projection:

Central Meridian / Zone:

srk consulting

The Administrative Building
Albion Springs
183 Main Rd, Rondebosch
7700 Cape Town

Postnet suite# 206
Private Bag X18
7701 Rondebosch
South Africa

e-Mail: capetown@srk.co.za
www.srk.co.za

Tel: +27 (0) 21 659 3060
Fax: +27 (0) 21 685 7105

CESA
Consulting Engineers South Africa

TITLE
TRONOX EOFS DISPOSAL PROJECT
TEMPORARY OVERBURDEN FACILITY
CROSS SECTION ADJACENT TO RSF

CLIENT
TRONOX MINERAL SANDS (PTY) LTD

		DATE	CHECKED
DESIGNED	ENGE	07 10 2020	BROW
DRAWN	ENGE	07 10 2020	BROW
A3	SCALE:	1 : 250	

PROJECT No.	DRG No.	SHT	OF	REV
548215	0100	1	1	0

G:\New Proj\548215 Tronox EOFS RSF\4Project Work\Specialist Studies\Overburden Stock Design\Working\SRK Working 20200918.dwg