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AN ESTUARINE COMPLIANCE STATEMENT FOR THE PROPOSED FAIRBREEZE MINE EXTENSION INTO HELEZA MOYA FARM, KWAZULU-NATAL.

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Prepared for: WSP Group Africa (Pty) Ltd

Date: 28 March 2024

Introduction

The Fairbreeze Mine, located south-west of Mtunzini, has been mined for nearly 10 years by Tronox KZN Sands (Pty) Ltd (Tronox). The mine is comprised of four approved mining areas (Pits A, B, C and C-Extension), an onsite Primary Wet Plant (PWP) and a fines Residue Storage Facility (RSF). Tronox is in the process of applying for authorization for the addition of a proposed extension of the Fairbreeze B orebody on the newly acquired 118-hectare (ha) Heleza Moya property (Remainder of Portion 3 of lot 88 Emoyeni no. 9105).

To extend mining activities to the Heleza Moya area, relocation of certain mining components, including pump stations and high-pressure water lines, will be necessary. Backfilling and rehabilitation of the mining pit will occur upon completing ore extraction in a designated area, ensuring a comprehensive restoration process for mined-out sections. Sand tails and return water pipelines will be installed in post-mining areas o the east of the property, often on previously mined terrain.

The draft Basic Assessment Report (DBAR) was made available for public review in November 2023, to provide the opportunity to Interested and Affected Parties (I&APs) to comment on the Project. As a commenting authority on the Draft BAR with regards to biodiversity impacts in the KZN province, Ezemvelo KZN Wildlife (EKZNW) considered the DBAR incomplete. In their response letter dated 19 January 2024 (No Ref. 30/5/1/2/2/123MR) they recommended that the DBAR be revised to include:

1. input from an appropriately qualified estuarine specialist, and
2. that an Estuarine Impact Assessment be undertaken for Siyaya Estuary which must take account of
   a) the findings of the wetland impact assessment,
   b) the classification and determination of water resources (currently being undertaken by the Department of Water and Sanitation, due to be complete in May 2024), and
   c) must assess the cumulative impacts to the estuaries.

Anchor Environmental Consultants (Pty) Ltd (Anchor) were appointed by WSP Group Africa (Pty) Ltd, an independent Environmental Assessment Practitioner (EAP) for the project, to undertake the Estuarine Specialist Report that considers the impacts of the Heleza Moya Pit Expansion on the Siyaya Estuary. This report represents a compliance statement and summary of the Estuary Impact Assessment undertaken as it is

our opinion that the expansion of the Fairbreeze B orebody will have Very Low impacts on the Siyaya Estuary. The full impact assessment, along with an assessment of what proportion of the cumulative impacts of all anthropogenic activities (mining, forestry and agriculture) this extension contributes, is provided in a separate report.

Assumptions and Limitations

The following list highlights the assumptions, limitations and knowledge gaps associated with this study which may influence the outcomes and the accuracy of the data collected.

- The following IA is specific to the plans for the Heleza Moya pit extension at the Fairbreeze Mine submitted to Anchor at Inception, any subsequent changes to the project proposal area and dimensions, will need to be reevaluated for environmental impacts.
- This assessment is largely a desktop exercise, although some of the information is based on real field sampling from 2011 through to present, combined with other available data and it is assumed that these data and understanding of current conditions remains relevant.
- In their comment on the Draft BAR (DBAR) Ezemvelo KZN Wildlife (eKZNW) requested that "the Classification and Determination of Water Resources report (currently being undertaken by the Department of Water and Sanitation, due to be complete in May 2024)" be included in the Estuarine Impact Assessment. Due to the timeline and the deadlines that Anchor was required to meet on behalf of WSP (Mid-March 2024), this was not possible, as the Classification and Determination of Water Resources report had not yet been published. This Estuarine Specialist Report does, however, make reference to the most recent report conducted by the Department of Water and Sanitation in 2022: "Classification of Significant Water Resources and Determination of Resource Quality Objectives for Water Resources in the Usutu to Mhlathuze Catchments: Estuary Survey Report", as well as other presently available literature.

Affected Environment

The Siyaya Estuary (a.k.a. Siaya, Siyani, Siyaní, Siyai) is a Small Temporarily Closed Estuary situated on the subtropical KwaZulu-Natal east coast within the provincially protected uMlalazi Nature Reserve. It is the northern-most estuary of this type along the KZN coastline and has in the past provided an important nursery function for estuary dependent marine species. The estuary is situated inshore of uThukela Marine Protected Area (MPA), which protects the unique ecological area of the Natal Bight (Figure 1).

The head of the estuary is approximately 3 km downstream of the proposed expansion site, a distance that would usually preclude it as a sensitive site in terms of the Department of Forestry, Fisheries and the Environment (DFFE) screening tool. However, the Siyaya is highly dependent on rainfall in the catchment/ wetland area for freshwater input and, as such, has been significantly impacted by historic land use changes in the catchment area. Catchment degradation, largely due to sugarcane and *Eucalyptus* plantations, as well as mining activities, and associated changes in water flow regimes, has resulted in significant changes in riparian vegetation and the annihilation of the estuarine aquatic invertebrate and vertebrate fauna. Therefore, despite its inclusion in uMlalazi Nature Reserve Protected Area (PA), the estuary has declined in ecological health from the 1970s through to now and is currently ranked as an "E" or "severely degraded" system. It is emphasised that smaller, sensitive estuaries tend to degrade to the lower health Categories (C to F) more rapidly than the larger, permanently open estuaries, which have a greater level of resilience and can generally maintain a boundary category if pressures are not increased (Van Niekerk et al. 2013, 2019a). Despite being

one of the only estuaries in KZN with formal Protected Area (PA) status, the Estuary is still one of the most degraded in the country. This is likely the reason the authorities have requested an Estuarine assessment which includes a focus on cumulative impacts.

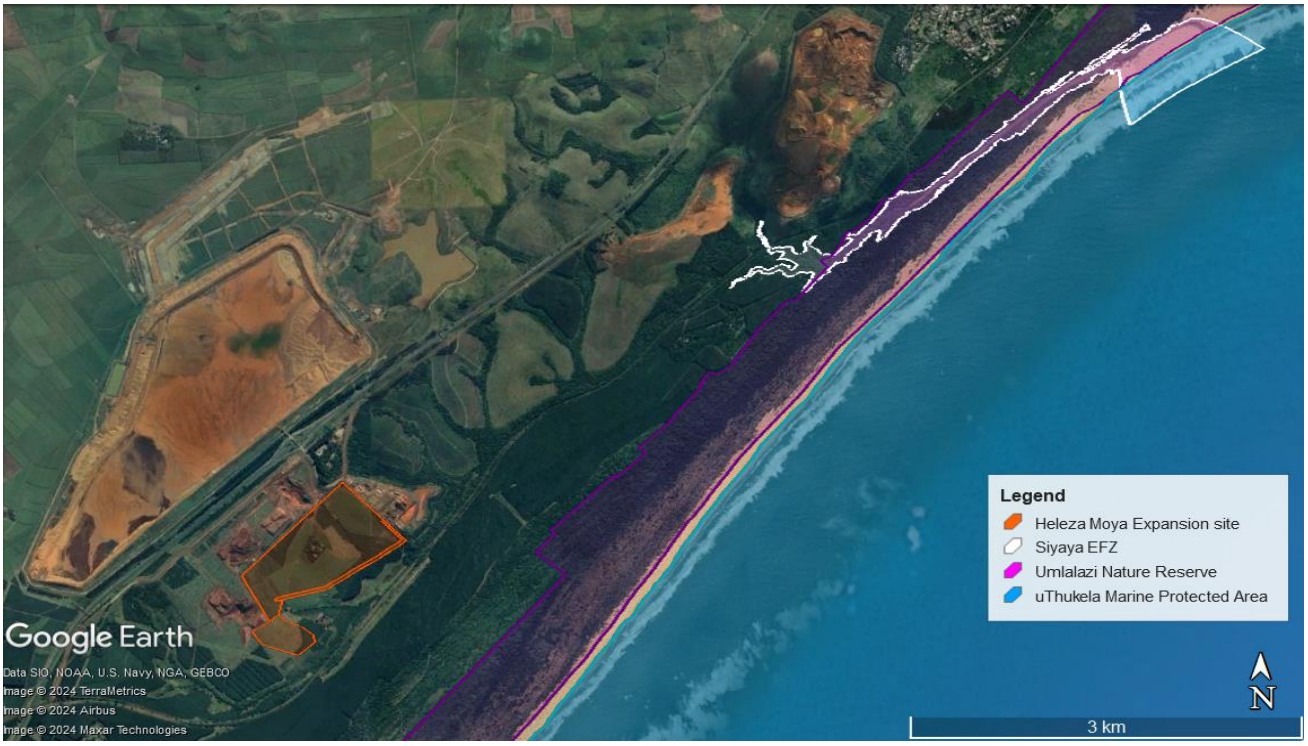

Figure 1. Overview of the proposed Fairbreeze Mine Expansion into the Heleza Moya Farm in relation to the Siyaya Estuarine Functional Zone (EFZ), uMlalazi Nature Reserve and uThukela Marine Protected Area.

Catchment rehabilitation

The Fairbreeze Mine has been operational for nearly 10 years and is presently being operated in a phased manner by Tronox KZN Sands, with the relevant activities subject to various Environmental Authorisation (EA). Four existing ore bodies form part of the Fairbreeze Mine, namely: Fairbreeze A (FBA); Fairbreeze B (FBB); Fairbreeze C (FBC); and Fairbreeze C Extension (FBCX). Mining operations at FBC began in 2016, and both the FBC and FBCX orebodies have now been mined out (Tronox KZN Sands (Pty) Ltd 2023). Subsequently, mining operations commenced at FBB which is scheduled to be decommissioned in 2025, at which point backfilling will begin. Mining operations at FBC began in 2016, and both the FBC and FBCX orebodies are mined out (Tronox KZN Sands (Pty) Ltd 2023). Subsequently, mining operations began at FBB and are expected to continue until 2030.

The mine has an existing Environmental Management Programme (EMPr dated February 2012) and an environmental team permanently on site. The EMPr includes specific requirements to implement manage and monitor biodiversity offsets and rehabilitation according to an offset management plan developed by Eco-Pulse and GroundTruth, which needs to be implemented as a condition of the EA. To offset the impacts of previous infrastructure development associated with the mine, such as the proposed Valley Return Water Dam (VRWD) extension and ERSF (Everglades Residue Storage Facility), Tronox has committed to numerous wetland and catchment rehabilitation actions.

The rehabilitation of land use in the catchment serves to address and reverse historical land use, such as forestry and sugar cane plantations, that may yet turn the trajectory and health status of this estuary around. The scenario provided by Eco-Pulse for the proposed catchment rehabilitation activities indicates potentially significant land use changes and consequent increases in water flow to the estuary. The removal of Eucalyptus plantations and rehabilitation of wetlands will impact mainly at the baseflow level of the hydrological abiotic component and thereby have the potential to improve the habitat scores. These variables, particularly wetland restoration, have the potential to contribute to habitat recovery in the catchment which would then feed through to the biotic components of the wetlands and the estuary. It is estimated that it would improve the function of the Siyaya estuary by 60% after an initial recovery period of 3-8 years. It must however be borne in mind that the historically occurring aquatic fauna of the estuary, both vertebrate and invertebrate, has been completely modified. There are, or have been, no refugia within the system from which a seed stock may emerge to re-populate the system. Migratory fish or birds may re-colonise the estuary, but the resident invertebrates may arguably have much more difficulty. However, specialists involved in the assessment predict a possible improvement to the estuary health score by potentially two or even three EHI Categories, lifting the estuary from an E (current assessment present ecological state) to a C or even a low B (Clark 2023). At the time of publishing this report, none of the offsets have yet been implemented. However, site rehabilitation has been initiated in mined areas.

Following the completion of mining activities in FBC and FBCX, rehabilitation measures have been undertaken at these sites. Rehabilitation at FBC is 100% complete with a total of 62 ha rehabilitated, while at FBC-Ext only 7 ha of the 107 ha mined has been rehabilitated (Pers. Comm. Sello Nzama Mar 2024). This includes the backfilling and topography reconstruction of the area to return it to pre-mined condition.

Impact assessment

In assessing potential impacts of the proposed Fairbreeze Mine Extension, consideration was given to the fact that although the Heleza Moya site is located approximate 3 km upstream of the head of the Siyaya estuary, it does fall within a feeder river catchment (the Manzamnyama), which is presently experiencing a considerable amount of anthropogenic disturbance. The Siyaya Estuary is considered a priority system from a biodiversity perspective and is already experiencing a 'Very High' Cumulative Pressure level (Van Niekerk et al. 2019). The delivery of ecosystem services by the system is dependent on the ecological wellbeing of the estuary, which is influenced by the quality and quantity of freshwater reaching the system from its catchment and the condition of the fauna and flora within the Estuarine Functional Zone (EFZ). The guidelines for biodiversity impact assessments in KwaZulu-Natal (EKZNW 2013) prescribe that in order to promote sustainable development and land-use change processes, there should be no net loss of biodiversity as a result of these actions. Any development affecting the estuary, irrespective of its current condition, is required to follow the mitigation hierarchy i.e., avoidance and/or minimisation of impacts, restoration, and offsetting of any residual impacts. Therefore, appropriate action to mitigate the impacts of the mining and closure/decommissioning phases of the proposed expansion should be undertaken to ensure that the Estuary Health does not drop and there is no loss of biodiversity.

Typically, the impacts of the construction phase and the operational phase of a development differ and are assessed separately. However, the proposed inclusion of the Heleza Moya site effectively represents an operational expansion of the existing Fairbreeze B orebody. Which means that there is, in essence, no construction phase for. Therefore, only a Mining operation and the Decommissioning Phase have been assessed.

Mining Phase impacts relate to the effects of increased activity in, and access to, the area upstream of the

estuary, the effects of earthworks and hydraulic mining operations on pollution, water quality and quantity, as well as the loss of vegetation (non-native). Several of the decommissioning impacts similarly relate to pollution impacts and effects of water flows and quality.

A total of 10 impacts were assessed, six in the mining phase, three in the decommissioning phase and the proportion the expansion contributes to the cumulative impacts affecting estuary health. The effect of general/ domestic waste generation and disposal was considered of 'Medium' significance prior to mitigation, becoming 'Very Low' with suitable controls and mitigations in place. The risk of hazardous spills (such oil spills from plant and earth moving vehicles) and the loss of vegetation/removal of the non-native plant cover currently growing on the proposes site both went from 'Low' significance to 'Very Low' after mitigation. The remaining three impacts were of 'Very Low' significance, following mitigation one of these remained 'Very Low' and the remaining two reduced to 'Insignificant' (Table 1).

During decommissioning the impacts of pollution on the Estuary were not expected to differ significantly from those in the mining phase and related to Impact 1, 2 and 4. Given the small size of the Heleza Moya extension area relative to the catchment, the impact of changes in flow regime in the Siyaya Estuary was considered of 'Low' significance, becoming 'Very Low' following mitigation. Because Fairbreeze Mine has an existing Environmental Management Programme (EMPr, dated February 2012) and an environmental team on site as permanent staff, which already monitor alien species, the impact of the spread of invasive plant species following the decommissioning of the mine was reduced from 'Medium' to 'Very Low' following appropriate mitigation measures. Collectively the direct impacts of the Heleza Moya extension on the Siyaya Estuary is 'Very Low'.

Sixty-nine percent (69%) of the Siyaya catchment is currently disturbed by anthropogenic activities. However, the Heleza Moya extension represents only a small proportion of this total anthropogenic disturbance within the catchment (6%), and a similarly small proportion of the total catchment area (only 4%). Therefore, before mitigation the cumulative impact of the extension is considered of 'Low' negative significance and 'Very Low' following the implementation of the prescribed mitigation methods (Table 1).

A complete list of mitigation measures has been provided for the protection of estuary health and biodiversity. Given that the mine already has an existing EMPr and environmental team on site, many of the mitigation measures for general good 'housekeeping' and sound environmental practice will already be standard practice. Therefore, if granted, additional measures listed here should be included in the EMPr for this extension and the environmental team should expand the reach of their inspections. monitoring and control measures to include this proposed extension site.

Table 1. Summary of potential impacts from the Mining and Closure/Decomissioning Phase of the Heleza Moya Pit Expansion

Phase	Impact identified	Consequence	Probability	Significance	Status	Confidence
Mining Phase	**Impact 1:** General/ domestic waste generation and disposal.	High	Possible	**MEDIUM**	-ve	High
	With mitigation	Low	Improbable	**VERY LOW**	-ve	High
	Impact 2: Hazardous Substance Spills during mining operations.	Medium	Possible	**LOW**	-ve	High
	With mitigation	Low	Improbable	**VERY LOW**	-ve	High

Phase	Impact identified	Consequence	Probability	Significance	Status	Confidence
Mining Phase	**Impact 3:** Loss of Vegetation in the Catchment Area	Low	Definite	**LOW**	-ve	High
	With mitigation	Very Low	Definite	**VERY LOW**	-ve	High
	Impact 4: Water Quality Impacts Associated with Hydraulic Mining	Low	Possible	**VERY LOW**	-ve	High
	With mitigation	Very Low	Improbable	**INSIGNIFICANT**	-ve	High
	Impact 5: Water Quality Impacts Associated with Sedimentation	Very Low	Probable	**VERY LOW**	-ve	High
	With mitigation	Very Low	Improbable	**INSIGNIFICANT**	-ve	High
	Impact 6: Reduction in Baseflows into the Estuary	Very Low	Definite	**VERY LOW**	-ve	High
	With mitigation	Very Low	Probable	**VERY LOW**	-ve	High
Closure/decommissioning Phase	**Impact 7:** Change in Flow Regime in the Siyaya Estuary	Low	Probable	**LOW**	-ve	High
	With mitigation	Very Low	Possible	**VERY LOW**	**+ve**	High
	Impact 8: Pollution Impacts	As per impacts 1,2 & 4 in the mining phase				
	With mitigation					
	Impact 9: Spread of High-Water Usage Alien Species	High	Probable	**MEDIUM**	-ve	High
	With mitigation	Low	Possible	**VERY LOW**	-ve	High
Cumulative	**Impact 10**: Cumulative impact of Heleza Moya Extension on the Estuary.	Low	Probable	**LOW**	-ve	High
	With mitigation	Low	Possible	**VERY LOW**	-ve	High

Mitigation Measures

Essential Mitigation Measures to be applied during the operational and decommissioning phases of the Heleza Moya Extension should include the following:

- Inform all staff about sensitive aquatic species and the responsible disposal of domestic waste.
- Suitable handling and disposal protocols must be clearly explained, and sign boarded.
- Domestic waste management and storage areas should be maintained on-site with appropriate controls to prevent wind and water dispersal of waste, as well as dispersal by monkeys.
- Reduce, reuse, recycle.
- Intentional disposal of any substance into the environment is strictly prohibited, while accidental spillage must be prevented, contained and reported immediately.
- A rigorous environmental management and control plan (as outlined in the EMPr) must be followed (including procedures for remediation).
- No fuel and oil must be stored on site and should instead be stored at existing offsite storage areas.
- Vehicle maintenance must occur offsite, and no leaking equipment or vehicles are permitted on site.

- Spill kits must be available on site at all times, and staff must be trained in their proposed use.
- Constrain spatial and temporal extent of operation to the minimum footprint required.
- The proposed expansion and the removal and storage of topsoil must occur as soon as possible following the clearing of vegetation.
- Avoid disturbance of remaining natural areas adjacent to Heleza Moya pit.
- Inform all staff about sensitive habitats.
- Active Invasive Alien Plant species control (as described in the EMPr and DBAR) should be implemented during the operational mining and decommissioning phase and follow up control procedures should also be implemented.
- Rehabilitate post-mining with indigenous vegetation.
- Prevent leakages from pipelines leading to the VRWD.
- Ensure that existing monitoring of water quality parameters during and post mining continues.
- Prevent erosion of loose sediment
- Increase berm height at long-term sediment stockpiles to reduce the impacts of wind.
- Cover small temporary stockpiles with textiles such as Hessian to avoid erosion.
- Minimise the duration in time between the removal of topsoil and the mining activities.
- Try to avoid exposing new ground on extremely windy days.

Recommended mitigation measures are suggestions that include:

- Continue to implement the rehabilitation of Fairbreeze C extension area as per the 'Siyaya Plantations Offset Area' plan to reduce overall/cumulative mining impacts.
- Work to initiate the implementation of the 'Siyaya Plantations Offset Area' offsets and rehabilitation methods as soon as possible to reduce overall/cumulative mining impacts.
- Investigate the potential for rehabilitation of the South Eastern portion of the Heleza Moya property – the area which was excluded from the mining extension and which includes wetland habitat, the rehabilitation of which could help improve estuary health.

Conclusions and Recommendations

Offsets, or the compensation of negative impacts on biodiversity, are only required if any of the impacts assessed by specialists are deemed residual impacts. Residual impacts are defined as those that have a 'Medium' or higher negative significance rating following the implementation of mitigation measures. If the essential mitigation measures listed above are appropriately followed, all impacts assessed here are rated as 'Low', 'Very Low' or 'Insignificant', suggesting that no offsets are required for the extension of the Fairbreeze B orebody into the Heleza Moya Property.

There are a number of legacy issues/ cumulative impacts acting on the catchment, which have subsequently resulted in the Estuary experiencing a high level of cumulative pressure. Cumulatively anthropogenic disturbance covers 66% of the catchment. The proposed Heleza Moya extension contributes only a small proportion of this cumulative disturbance (6%) and is of 'Very Low' negative significance when considering the direct impacts of the extension on the Siyaya Estuary after mitigation. The remaining Fairbreeze mining areas that fall within the catchment, contribute approximately 20% of the total disturbance. It is worth noting that 5% of this disturbed area has been rehabilitated in the form of FBC. Conversely, Eucalyptus and sugarcane plantations contributed 43 and 17% of the disturbed catchment area, respectively. The impacts of these have been discussed in more detail in a separate more comprehensive report (Jackson et al. 2024).

It is because of this high-pressure level that we recommended that the implementation of the Eco-pulse offsets proposed in the 'Siyaya Plantations Offset Area' be initiated in areas surrounding the four mine pits as soon as possible. Although the completion of rehabilitation on 62 ha of FBC (3% of the total catchment area) is a positive step towards improved catchment conditions, it will take time for natural vegetation and hydrological conditions to recover in this area. Therefore, although the offsets are not directly related to the Heleza Moya operation, these offsets which form part of existing environmental authorisations will help to reduce overall cumulative impacts acting on the estuary and it has been shown that once all proposed offsets have been implemented Estuary health could increase to as high as a B/C category: Moderately modified to Near Natural.

If suitably undertaken, it is possible that mitigations which improve the quantity and quality of water entering the system could potentially have a slight positive effect on estuary health and connectivity. Therefore, it could be recommended that the proposed development be permitted to go ahead provided that the essential mitigations are strictly implemented and that environmentally responsible practices are adopted.

Fairbreeze Mine has an existing Environmental Management Programme (EMPr, dated February 2012) and an environmental team permanently operating across the mine. As part of the EMPr Fairbreeze will undertake monthly surface and groundwater monitoring as well as quarterly estuarine physico-chemical and macro benthic invertebrate surveys (WSP 2023). It is important that the conditions within the system continue to be monitored as such to enable adaptive management. If conditions become detrimental to the ecosystem the impacts of operation need to be reassessed and adjusted mitigation measures applied.

References

EKZNW. 2013. Guideline: Biodiversity Impact Assessment in KwaZulu-Natal. 33pp.

Jackson M, Dawson J & BM Clack. 2024. Siyaya Estuarine Specialist Report: Direct and Cumulative Impact assessment for the proposed Fairbreeze Mine Extension into Heleza Moya Farm, Kwazulu-Natal. Report no. 2179/1 prepared by Anchor Environmental Consultants (Pty) Ltd for WSP Group Africa (Pty)

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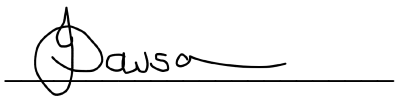
WSP. 2023. Environmental Management Programme Fairbreeze Mine Extension into Heleza Moya Farm.

Specialist Declaration

I, Jessica Dawson, as the appointed specialist hereby declare/affirm the correctness of the information provided as part of this report, and that:

- I act as the independent specialist in this matter;
- I do not have and will not have any vested interest (either business, financial, personal or other) in the undertaking of the proposed activity, other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2014;
- I performed the work relating to the application in an objective manner, even if it results in views and findings that are not favourable to the applicant;
- I declare that there were no circumstances that compromised my objectivity in performing such work;
- I have expertise in conducting the specialist assessment relevant to this application, including knowledge of the National Environmental Management Act (Act 107 of 1998) (NEMA), regulations and any guidelines that have relevance to the proposed activity;
- I comply with the NEMA Act, regulations and all other applicable legislation; and
- I disclosed to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I am aware that a person is guilty of an offence in terms of Regulation 48 (1) of the EIA Regulations, 2014, if that person provides incorrect or misleading information. A person who is convicted of an offence in terms of sub-regulation 48(1) (a)-(e) is liable to the penalties as contemplated in section 49B (1) of the National Environmental Management Act, 1998 (Act 107 of 1998).

Dated at CAPE TOWN on this the 28th day of March 2024.



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