# Environmental Processes For The Proposed Nyanza 80 000 tpa Titanium Dioxide ($TiO_2$) Pigment Plant Within The Richards Bay Industrial Development Zone (RBIDZ) Phase 1F, KwaZulu Natal Province

*Environmental Review Committee Introductory Meeting*

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## Background

- Nyanza Light Metals (Pty) Ltd (Nyanza) is proposing to construct and operate a plant that will produce 80 000 tonnes per annum (tpa) of Titanium Dioxide ($TiO_2$) pigment.
- The project will be located within Phase 1F of the Richard's Bay Industrial Development Zone (RBIDZ) in Alton.
- Conventional slag, ilmenite from Richards Bay Minerals (RBM) and waste slag from the Highveld Steel site (Highveld Steel Slag (HSS)) will be used as feedstocks.
- Design provision is made for a blend of any proportion of these feedstocks.
- The expected life of the proposed plant is 60 years.
- The total area of the site is about 69 ha and includes:
  - 15825 – a wetland area and not to be developed
  - 16786 – largely wetland off-set area not to be developed
  - 16787
  - 16788
  - 16789 – with a stormwater servitude of 30m on the eastern side
  - 16817 – east of the stormwater servitude and is to be developed as a 'green industry' area



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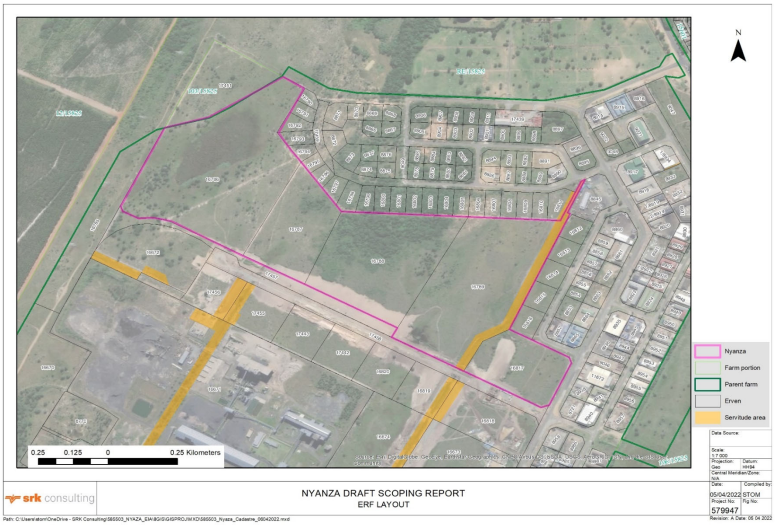
# Project Location








# Project Description: 80 000tpa $TiO_2$ Pigment Plant

The key stages in the manufacture of $TiO_2$ through sulfate technology include:

- Milling of the feedstock to the optimal size fraction;
- Digestion of the feedstock with sulfuric acid ($H_2SO_4$);
- Reduction of the ferric iron, $Fe^{3+}$ in the titanyl sulfate solution ('black liquor') to $Fe^{2+}$ with iron (Fe) if needed;
- Formation of adequate titanium ions ($Ti^{3+}$) in the black liquor by further reduction with Fe if needed;
- Oxidation of excess $Ti^{3+}$ in the black liquor if needed;
- Separation of solid impurities from the black liquor;
- Removal of excess Fe from the black liquor and/or removal of excess aluminium from the black liquor and re-concentration of the black liquor (if necessary);
- Preparation of seed crystals ('nuclei') for precipitation in hydrolysis and reutilisation in the calciner;
- Hydrolysis of the titanyl sulfate to form an insoluble hydrous $TiO_2$ precipitate;
- Washing and bleaching of remaining impurities;
- Conditioning of the hydrous $TiO_2$ precipitate prior to calcination; and
- Calcination to drive off water and acid and to grow the $TiO_2$ crystals, yielding pure dry $TiO_2$.

# Project Description

- Ancillary processes at the site will include:
  - ✓ Scrubbing of digestion off-gas;
  - ✓ Recovery of titanyl sulfate solution from digester solid residues and neutralisation of the digester solid residues;
  - ✓ Re-concentration of strong waste acid for recycling to the main process;
  - ✓ Neutralisation of remaining waste acid to pH 7.2;
  - ✓ Dewatering of gypsum;
  - ✓ Scrubbing of the calciner off-gas;
  - ✓ Preparation of the surface treatment and calciner additioning chemicals; and
  - ✓ Buffer storage facilities in the main $TiO_2$ plant for copperas and ammonium aluminium sulfate and handling facilities for loading and dispatch of these.



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# Project Description

- Other Processes
  - ✓ A sulfur-burning sulfuric acid plant;
  - ✓ A water demineralisation plant;
  - ✓ A compressed air plant for plant air and instrument air;
  - ✓ Vacuum generation plant;
  - ✓ A lime slaking plant;
  - ✓ Water cooling plant(s); and
  - ✓ A steam boiler(s).



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## Services and Utilities

- The required services and utilities include:
  - ✓ water supplied ‘over-the-fence’ to on-site water storage facilities;
  - ✓ electricity supplied ‘over-the-fence’ with on-site pressure reduction and distribution;
  - ✓ gas supplied ‘over-the-fence’ with on-site pressure reduction and distribution;
  - ✓ neutralised waste liquid settling and buffer storage on-site – for discharge through a sea outfall pipeline which is out of scope;
  - ✓ a railway siding with loading and off-loading facilities on-site – shunting facilities will be provided off-site.



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## Project Description: Green Park

- Approximately 5.7 ha of erf 16789 will be set aside for the “Green Park” which includes air-to-water installations, a bottling plant as well as a ground-mount solar plant.
- The air-to water installation’s purpose is to supply the Nyanza with water and to create a business opportunity to involve a local entrepreneur to extract atmospheric moisture and bottle this water for sale into the local Richards Bay market
- Approximately 0.3 ha is used for the water and bottling plant, leaving approximately 4.6 ha for the ground-mount solar panels.
- Approximately 4.5 MW ground-mounted solar panels will be installed.



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# Proposed Location and Layout




# NEMA Listed Activities Triggered

- The proposed plant triggers activities listed in Listing Notice 1, 2 and 3 of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) as follows:

| Government Notice | Activity Number as per the project description that relates to the applicable listed activity |
|---|---|
| Listing Notice 1 (GNR 327 of NEMA) | Activity 25 |
| Listing Notice 2 (GNR 325 of NEMA) | Activity 1, Activity 4, and Activity 6. |
| Listing Notice 3 (GNR 324 of NEMA) | Activity 2, and Activity 14. |

- The project therefore requires an Environmental Authorisation from the KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs (EDTEA).
- A Full EIA (scoping and impact assessment) process will be followed as per the requirements of GNR982 (as amended by GNR326 of 7 April 2017 and 21 June 2022).

# NEM: WA Listed Activities Triggered

- The HSS Slag to be used in the process was classified as hazardous waste.
- The proposed plant triggers activities listed in Category B and C of the National Environmental Management: Waste Act, 2008 (Act 59 of 2008) (NEM: WA) as follows:

| Category | Activity |
|---|---|
| Category B | Activity 3, Activity 4 and Activity 10 |
| Category C | Activity 2 (does not require a Waste Management Licence but will comply to GN 921) |

- The project therefore requires a Waste Management Licence from the Department of Forestry, Fisheries, and the Environment (DFFE).
- The project triggers category B activities and will require a full EIA process to be followed.
- An Integrated EA and WML process will be undertaken where the EA application will be submitted to EDTEA and the WML application to DFFE.
- One Scoping Report and one EIA report will be compiled that take into account the requirements of both Acts



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# NEM: AQA Listed Activities Triggered

- The proposed plant triggers activities listed in the National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004) (NEM: AQA) as follows:

| Subcategory | Activity |
|---|---|
| Subcategory 1.2 | Liquid Fuel Combustion Installations |
| Subcategory 1.4 | Gas Combustion Installations |
| Subcategory 4.1 | Drying and Calcining |
| Subcategory 4.20 | Slag Processes |
| Subcategory 7.2 | Production of Acids |

- The project therefore requires an Air Emissions Licence (AEL) from the King Cetshwayo District Municipality.



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# NWA Water Uses Triggered

- The proposed project activities constitute water uses in terms of the National Water Act, 1998 (Act 36 of 1998) as follows:

| Water Use | Example |
|---|---|
| Section 21 | (a)Taking water from a water resource;<br>(b) Storing water;<br>(c) Impeding or diverting the flow of water in a watercourse;<br>(i) Altering the bed, banks, courses or characteristics of a watercourse; and<br>(j) Removing, discharging or disposing of water found underground if it is necessary of the efficient continuation of an activity or for the safety of the people |

- The project therefore requires a Water Use Licence from the Department of Water and Sanitation (DWS).
- Any other required authorisations and licences will be identified once the specialist studies have been finalised.



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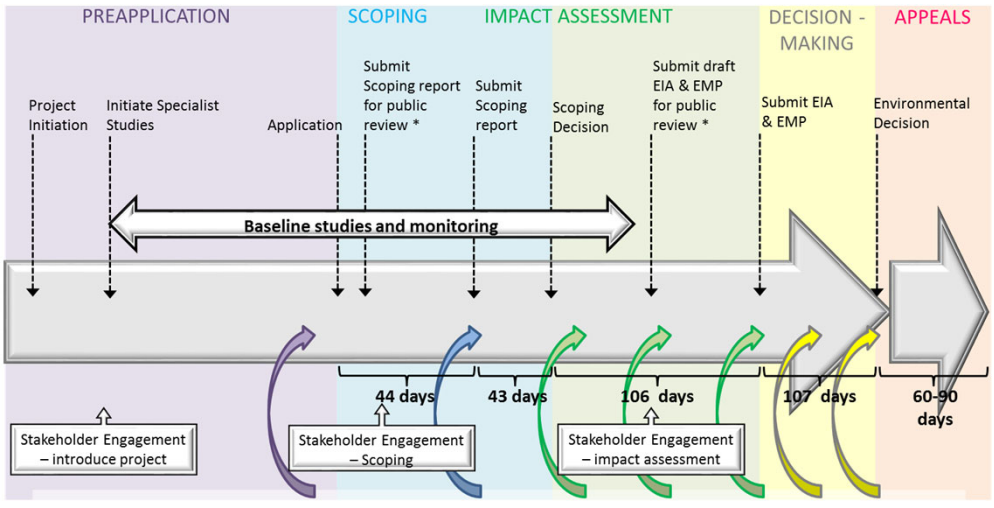
# EA/WML Application process to be followed



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## Specialist Studies

- Terrestrial Biodiversity Impact Assessment;
- Wetlands and Aquatic Biodiversity Impact Assessment;
- Soils and Land Use Capability;
- Air Quality Impact Assessment;
- Noise Impact Assessment;
- Hydrology and Stormwater Management;
- Geotechnical;
- Traffic Impact Assessment;
- Hydropedology;
- Geohydrology Impact Assessment; and
- Heritage Impact Assessment.



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## Stakeholder Engagement

- The stakeholder engagement will be conducted per the requirements of Chapter 6 of the NEMA:
  - Verification of the identified stakeholders, creation and maintenance of the stakeholder database;
  - Project Announcement (newspaper advertisement, on-site notices, notification letter);
  - A 30-day public comment periods for stakeholders on all draft reports, including commenting authorities; and
  - Compilation of the Comments and Responses Report (CRR).
- Stakeholder meetings where required.



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# Thank You

**Presented by:**

**Ndomupei Masawi**

srk consulting

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Minutes of Meeting

H366974

2 February 2022

# Nyanza Light Metals
# Nyanza 80,000 tpa Rutile Pigment Plant

## KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs Pre-Application Meeting

DATE: 26 January 2022

LOCATION: Virtual - MS Teams

ATTENDEES:

| Name | Organisation |
|---|---|
| Muzi Mdambam (MM) | KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs |
| Nolwazi Tetyana (NT) | Nyanza Light Metals |
| Frank Thema | Nyanza Light Metals |
| Percy Langa (PL) | Richards Bay Industrial Development Zone |
| Ntando Khuzwayo (NK) | Hatch |
| Yolandi Robbetze (YR) | Hatch |
| Paula Tolksdorff (PT) | Hatch |
| Susan Abell (SA) | Hatch |

APIOLOGIES: Not Applicable

PURPOSE: Environmental Impact Assessment Pre-Application Meeting

| ITEM | | Action By | Due Date |
|---|---|---|---|
| **1.** | **Welcome and Introduction** | | |
| 1.1 | PT welcomed the attendees to the Authorities Pre-Application Meeting for the Integrated Environmental Application Process for the 80,000 tpa Rutile Pigment Plant. The agenda for the meeting was communicated to the attendees and accepted. PT noted that the meeting would comprise a PowerPoint Presentation (Appendix A). The presentation would provide background on the Nyanza $TiO_2$ Product Testing and Development Facility, followed by the Integrated Environmental Application Process for the Nyanza 80,000 tpa Rutile Pigment Plant Development. | | |
| 1.2 | PT noted that Hatch commence each meeting with a Manifesto or Safety share and that today's share by NK would be on Cyber Security. | | |
| **2.** | **Manifesto Share** | | |
| 2.1 | NK presented Tips for Cyber Security in the Workplace. NK noted five tips for Cyber Security:<br>1. Use Two-face Authentication – If a hacker can guess your password this authentication will provide an additional security measure<br>2. Look out for Phishing Scams - Avoid emails from unfamiliar | | |

| | | |
|---|---|---|
| | senders<br>3. Keep Up with Updates - Consider software updates as the lesser of two evils when weighing up rebooting your device versus putting yourself at risk for malware and other types of computer infection<br>4. Secure Your Mobile Device - Use strong passwords and biometric features, ensure you turn off your Bluetooth, don't automatically connect to any public Wi-Fi, and download with caution<br>5. Beware of Social Engineering -This type of attack is more of an attack on the mind of the user, rather than on the device, to gain access to systems and information. Especially with the information publicly available online and over social media. | |
| **3.** | **Nyanza $TiO_2$ Product Testing and Development Facility** | |
| 3.1 | NT ran through the history of the Nyanza $TiO_2$ Product Testing and Development Facility (PTDF). She explained how Nyanza would like to change the name in the Environmental Authorisation (EA) from Pilot Plant to Product Testing and Development Facility. | Note |
| 3.2 | NT continued to explain that the term "Pilot Plant" implies to potential investors that Nyanza is still testing and developing technology, which poses a risk to investment initiatives. | |
| 3.3 | NT explained to the attendees that the PTDF would be producing samples for potential customers to test at their own facilities. NT noted that the PTDF would further be used as a training centre. | |
| 3.4 | NT stated that Nyanza are planning to submit a Part 1 Amendment Application for the name change from Pilot Plant to PTDF. | |
| **4.** | **Nyanza 80,000 tpa Rutile Pigment Plant** | |
| 4.1 | YR explained the process description, process flows and ancillary processes to the attendees. She gave a description of the key components that shall occur for the production of the $TiO_2$ pigment. YR referred to diagrams in the presentation to illustrate the various process units. | Note |
| 4.2 | YR presented a map which illustrated the location of the proposed plant, she explained that the plant would be located within the Richards Bay Industrial Development Zone (RBIDZ) Phase 1F. | |
| ***4.3*** | YR presented photos of the proposed development site. The images showed various views of the site as well as the PTDF. | |
| **5.** | **Current Environmental Authorisations held by the RBIDZ over the Nyanza Property** | |
| 5.1 | NK ran through the current EAs held by the RBIDZ. The authorisations are as follows:<br>• Environmental Authorisation (14/12/16/3/3/2/665) - Richards Bay Industrial Development Zone Phase 1F: Bulk Infrastructure components<br>• Environmental Authorisation (14/12/16/3/3/1/1382) – Extension of the Alton South Railway Line to Richards Bay IDZ Phase 1F | Note |
| 5.2 | NK presented the different activities authorised by the RBIDZ for the two approved EAs as well as their applicability to the proposed Nyanza 80,000 tpa Rutile Pigment Plant Development. | |
| **6.** | **NEMA - Potential Listed Activities - Listing Notices 1, 2 and 3** | |
| 6.1 | NK discussed the listed activities that would be applicable to the National Environmental Management Act 107 of 1998 (NEMA) for the proposed development by describing the | Note |

| | | |
|---|---|---|
| | activity as well as the applicability to the proposed Nyanza 80,000 tpa Rutile Pigment Plant Development. NK explained that the listed activities that fall in Listing Notices 1, 2 and 3 presented in italics (Appendix A, slides 17 to 19) would not be applicable to the application, as they fall under activities currently authorised in the approved EAs, held by the RBIDZ. The following listed activities were identified as applicable to the current application:<br>• Listing Notice 2 - Activity 4<br>• Listing Notice 2 – Activity 6<br>• Listing Notice 3 – Activity 14<br>*NOTE – subsequent to the meeting the following listed activities have been identified for inclusion:*<br>• *Listing Notice 1 – Activity 2*<br>• *Listing Notice 1 – Activity 25*<br>• *Listing Notice 3 – Activity 2.* | |
| **7.** | **NEMA:QA – Potential Listed Activities** | |
| 7.1 | NK presented the listed activities identified under the National Environmental Management: Air Quality Act 39 of 2004 (NEMA:QA) for the proposed Nyanza 80,000 tpa Rutile Pigment Plant Development by describing the activity as well as their applicability to the proposed development. The following listed activities were identified as applicable to the current application:<br>• Subcategory 1.2- Liquid Fuel Combustion Installations<br>• Subcategory 1.4 - Gas Combustion Installations<br>• Subcategory 4.1- Drying and Calcining<br>• ~~Subcategory 4.2 - Combustion Installations*~~<br>• Subcategory 4.20 - Slag Processes<br>• Subcategory 7.2 - Production of Acids<br>• Subcategory 8.1 - Thermal Treatment of General and Hazardous Waste<br>**NOTE – subsequent to the meeting Subcategory 4.2 - Combustion Installations was found not to be applicable but Subcategory 5.6 – Lime Production has been identified for inclusion.* | Note |
| **8.** | **NEM:WA - Potential Listed Activities** | |
| 8.1 | NK presented the listed activities identified under the National Environmental Management: Waste Act 59 of 2008 (NEM:WA) for the proposed development by describing the activity as well as their applicability to the proposed development. The following listed activities were identified as applicable to the current application:<br>• Category B - Activity 3<br>• Category B - Activity 4<br>• Category B - Activity 10<br>• Category C - Activity 2 (does not require a Waste Management Licence but will comply to GN 921) | Note |
| **9.** | **NEM:ICMA – Potential Discharge Permit** | |
| 9.1 | NK presented the potential for the need of a discharge permit under the National Environmental Management: Integrated Coastal Management Act 24 of 2008 (NEM:ICMA). The listed activity identified, falls under section 69(1) which would be applicable to the project for the discharge of effluent into an estuary through a pipe. | Note |

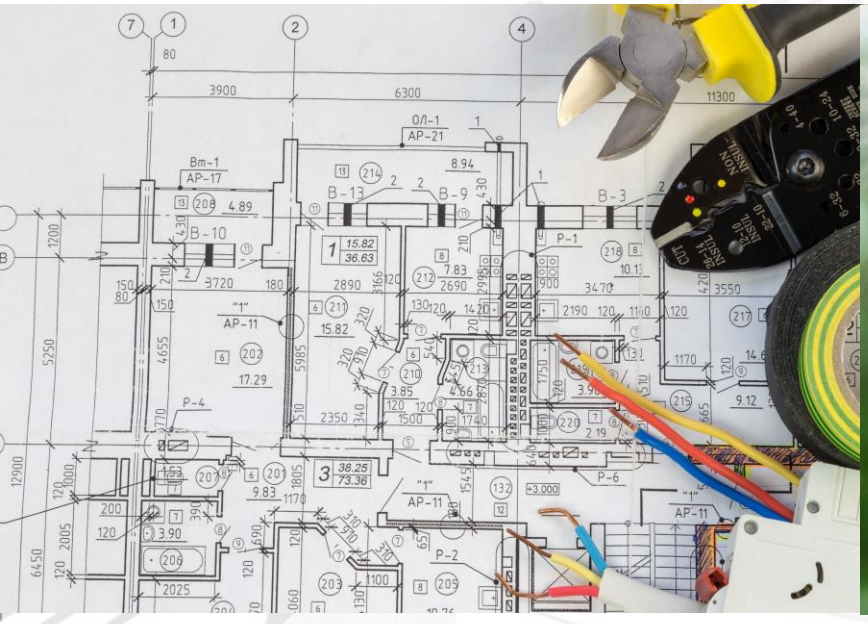
| | | |
|---|---|---|
| | *NOTE – subsequent to the meeting it was found that a discharge permit is not applicable and will not be applied for.* | |
| **10.** | **NWA - Potential Water Uses** | |
| 10.1 | NK discussed the potential water uses that would require an application as prescribed by the National Water Act of 36 of 1998 (NWA). NK described the associated activities as well as their applicability to the proposed development. The following water uses were identified as applicable to the current application:<br>• 21 (a) -Taking water from a water resource<br>• 21 (b) - Storing water<br>• 21 (c) - Impeding or diverting the flow of water in a watercourse<br>• ~~21 (f) - Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit~~ *<br>• ~~21 (g) - Disposing of waste in a manner which may detrimentally impact on a water resource~~ *<br>• 21 (i) - Altering the bed, banks, course or characteristic of a watercourse<br>• 21 (j) - Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people<br>**NOTE – subsequent to the meeting water use 21 (f) and 21 (g) were found not to be applicable and will not be applied for.* | Note |
| **11.** | **Environmental Application Process** | |
| 11.1 | NK stated that an Integrated Environmental Application Process will be undertaken by Hatch. | Note |
| 11.2 | MM enquired if an Integrated Environmental Authorisation (in terms of NEMA and NEM:WA) will be applied for? | |
| 11.3 | PT explained that individual applications will be made, however the process as in the Scoping and Environmental Impact Assessment (S&EIA) will be integrated. Each application would be submitted to the relevant department for consideration, namely:<br>• Environmental Impact Assessment - KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs<br>• Waste Management Licence - Department of Forestry, Fisheries and the Environment<br>• Water Use Licence - Department of Human Settlements, Water and Sanitation<br>• Atmospheric Emissions Licence - King Cetshwayo District Municipality. | |
| **12.** | **Proposed Specialist Studies** | |
| 12.1 | YR provided an overview of the proposed specialist studies to be undertaken, namely:<br>• Socio-Economic Assessment<br>• Heritage Impact Assessment<br>• Noise Impact Assessment<br>• Air Impact Assessment<br>• Groundwater Assessment<br>• Ecological and Wetland Assessment. | Note |
| **13.** | **Timeframes** | |
| 13.1 | YR ran through the scheduled timeframes (Appendix A - slide 27). | Note |

| | | | |
|---|---|---|---|
| **14.** | **General** | | |
| 14.1 | MM requested Hatch provide an overview of the public participation process (PPP) that would be followed. | Note | |
| 14.2 | PT stated that:<br>• The stakeholder database created during the Pilot Plant PPP will be used as a start and shall be updated as the S&EIA progresses<br>• A Background Information Document (BID) will be circulated to the I&AP, including a registration form<br>• Emails will be distributed to existing stakeholders to inform them of the project and their opportunity to comment on such<br>• Hatch will identify additional stakeholders and them to participate<br>• A newspaper advert will be placed in a local newspaper<br>• Site notices will be placed<br>• Focus group meetings will be held. | | |
| 14.3 | MM requested clarity on how many listed activities under the NEMA Listing Notices are being applied for. PT referred back to Section 6.1 and a discussion was held. | | |
| 14.4 | MM enquired as to the size of the proposed development. PT stated that the project footprint will span over a site that is approximately 49 hectares. | | |
| 14.5 | MM enquired about dangerous goods on site and if information is currently available on the storage and transportation of these goods. PT responded that a Basis of Design Report is being drafted, this report will detail storage and transportation of | | |
| 14.6 | MM asked if a traffic impact study will be conducted. PT responded that Grinaker LTA (G-LTA) shall be undertaking the traffic impact study for the proposed development. | | |
| 14.7 | MM queried if a study had been undertaken to assess if any neighbouring properties have Major Hazard Installations (MHI) and whether the proposed development activities could impact on such. PT requested YR obtain details from the RBIDZ as to MHI in the area. | YR | To be undertaken as part of the S&EIA |
| 14.8 | MM queried if the PTDF would continue to run whilst the proposed Nyanza 80,000 tpa Rutile Pigment Plant is being constructed. NT explained that the facility would continue to test products and develop technology as required by the Nyanza customers even if the main manufacturing plant is operational. | | |
| 14.9 | MM made a comment about the stressed electrical supply in the Richards Bay area. PT explained that the engineers are investigating alternative energy such as solar, natural gas and others. | | |
| 14.10 | PT requested MM assist in expediate approval timeframes. MM acknowledged this and committed to expediting timeframes where possible. | | |
| 14.11 | PT thanked the attendees and closed the meeting. | | |

Ntando Khuzwayo

## Appendix A – Presentation of the 26 January 2022 - Authority Pre-Application Meeting

# Nyanza 80,000 tpa Rutile Pigment Plant Development



## Authority Pre-Application Meeting

Date: 26 January 2022

HATCH

# Overview

- Welcome and Introductions
- Safety Share
- Nyanza $TiO_2$ Product Testing & Development Facility
- Nyanza 80,000 tpa Rutile Pigment Plant Development
  - Process
  - Location
  - Current Environmental Authorisations held by the RBIDZ over the Nyanza Property
  - Potential listed activities
  - Environmental application process
  - Proposed specialist studies
  - Timeframes
- Open discussion



HATCH

# Welcome and Introductions

# Safety share

# Tips for Cyber Security in the Workplace

- **Use Two-Factor Authentication** -This method provides two layers of security measures so if a hacker can accurately guess your password, there is still an additional security measure in place to ensure that your account is not breached.
- **Look Out for Phishing Scams** -The best way to be on the lookout for phishing scams is by avoiding emails from unfamiliar senders, look for grammatical errors or any inconsistencies in the email that looks suspicious, and hover over any link you receive to verify what the destination is.
- **Keep Up With Updates** - Software patches can be issued when security flaws are discovered. If you find these software update notifications to be annoying, you're not alone. But you can consider them the lesser of two evils when weighing up rebooting your device versus putting yourself at risk for malware and other types of computer infection.
- **Secure Your Mobile Device** - Security doesn't end at your desktop. It's important to get into the habit of securing your presence through your mobile device as well. Use strong passwords and biometric features, ensure you turn off your Bluetooth, don't automatically connect to any public Wi-Fi, and download with caution.
- **Beware of Social Engineering** - This type of attack is more of an attack on the mind of the user, rather than on the device, to gain access to systems and information. Especially with the information publicly available online and over social media.



HATCH

# Nyanza $TiO_2$ Product Testing & Development Facility



HATCH

# Nyanza $TiO_2$ Product Testing & Development Facility

- History, Purpose and Status of Construction
- Environmental Authorisation (EA) was approved on 21 Feb 2020
- Atmospheric Emissions Licence (AEL) application is imminent
- Part 1 – Amendment is to be made
  - The Amendment: ”**Pilot Plant**” to ”**Product Testing and Development Facility**”
  - Why: References to a Pilot plant are hampering Nyanza’s efforts to raise funds
  - What the **Product Testing and Development Facility** will do
    - Produce samples for customers to enable sign off on main offtake agreements
    - Train operators
    - On board new pigment grades when new paint formulations
  - What Pilot Plant means to Bankers and consequences for Nyanza



HATCH

# Nyanza 80,000 tpa Rutile Pigment Plant Development

HATCH

# Nyanza 80,000 tpa Rutile Pigment Plant

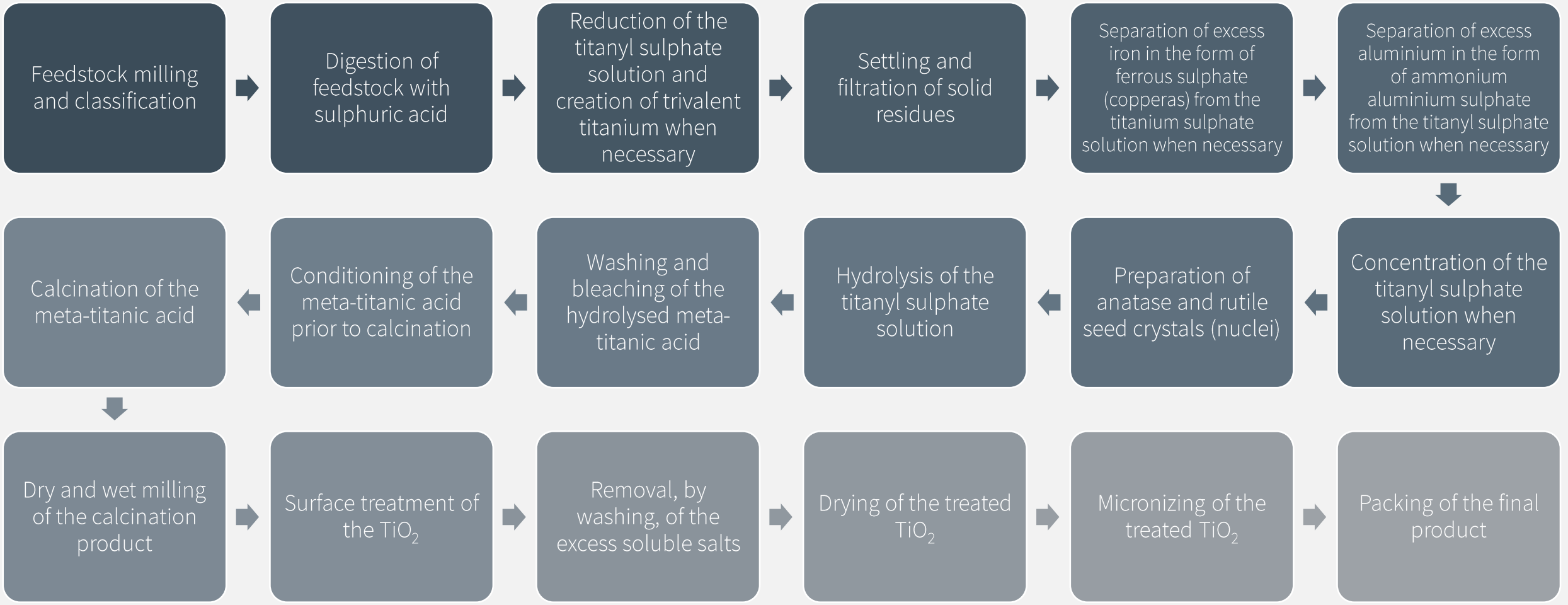
Nyanza's manufacturing plant will produce 80, 000tpa TiO2 pigment and it will have the following key aspects:

- Ability to process multiple feedstock (raw material): Ilmenite, conventional sulphatable slag and Highveld Steel Slag (HSS)
- Multiple manufacturing streams to allow for production of multiple variants of $TiO_2$ pigment
- Utilisation of the different slags will be done in phases, starting with the more conventional material until plant processes are imbedded and stable
- Plant construction can be done in phases due to the modular nature of the plant design



HATCH

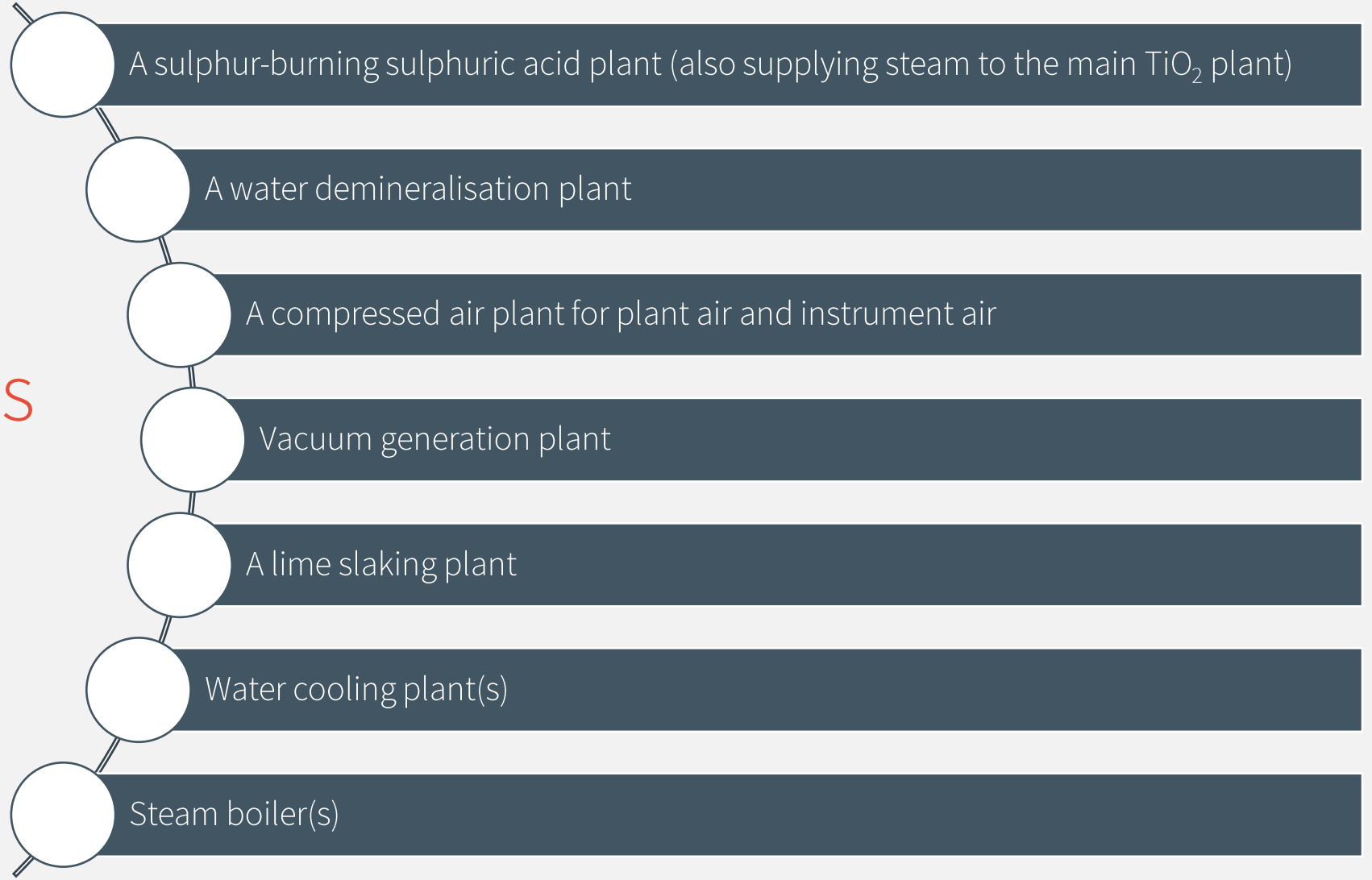
# Process – Main titanium dioxide pigment production



# Ancillary process units

| |
|---|
| Scrubbing of digestion off-gas |
| Recovery of titanyl sulphate solution from digester solid residues and neutralisation of the digester solid residues |
| Re-concentration of strong waste acid for recycle to the main process |
| Neutralisation of remaining waste acid to pH7.2 |
| Dewatering of gypsum |
| Scrubbing of the calciner off-gas |
| Preparation of the surface treatment and calciner additioning chemicals |
| Buffer storage facilities in the main $TiO_2$ plant for copperas and ammonium aluminium sulphate and handling facilities for loading and dispatch of these |

# Other process units



# Location


Legend
Wetland coordinated points
Nyanza Boundary
Conservation area not included in EIA (excluded from Environmental Application Process)
Product Testing and Development Facility
Helium Height Road
Hydrogen Line Street
Ferrogang Street
Ceramic Curve
Alumina Aire
Hitte Court
Designated erf 18575
Erf 16817
NYANZA
LOCALITY MAP
INTEGRATED ENVIRONMENTAL APPLICATION
CLIENT:
NYANZA
CONSULTANT:
HATCH
Projection: GCS
0 0.05 0.1 0.21 Kilometers
Scale 1:7,000
ESWATINI
Newcastle
Pietermaritzburg
Durban
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# Location – Site Photos

Northern view of site

Eastern view of site

South to the site – Not Nyanza's development area

Western view of site

Natural Stormwater drain on site

Product Testing and Development Facility

# Current Environmental Authorisations held by the RBIDZ over the Nyanza Property

| Environmental Authorisation | Activities Authorised |
|---|---|
| Environmental Authorisation (14/12/16/3/3/2/665)<br><br>Richards Bay Industrial Development Zone Phase 1F: Bulk infrastructure components:<br>• Water<br>• Sewer<br>• Stormwater<br>• Roads<br>• Electrical services<br>• Including the infilling of wetlands (to enable the development of the site for industrial purposes) | GNR 544 Item 9 – for water pipelines / stormwater pipes<br>The construction of facilities or-infrastructure exceeding. 1 000 metres in length for the bulk transportation of water, sewage or storm water -<br>(i) with an internal diameter of 0,36 metres or more; or<br>(ii) with a peak throughput of 120 litres per second or more.<br>GNR 544 Item 11 – for the development within 32m from the edge of a watercourse<br>The construction of:<br>(iii) bridges;<br>(x) buildings exceeding 50 square metres in size; or<br>(xi) infrastructure or structures covering 50 square metres or more<br>where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.<br>GNR 544 Item 18 – for Wetlands to be infilled (roads and site platforms)<br>The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock from (i) a watercourse<br>GNR 545 Item 15 – for development of approx. 102 ha of land for industrial use<br>Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more<br>GNR 546 Item 13 – a portion of the site is located within a Level 3 CBA / approx.102 ha will be developed<br>The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for:<br>1. the undertaking of a process or activity included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), in which case the activity is regarded to be excluded from this list.<br>2. the undertaking of a linear activity falling below the thresholds mentioned in Listing Notice 1 in terms of GN No 544 of 2010. |

# Current Environmental Authorisations held by the RBIDZ over the Nyanza Property

| Authorisation | Activities Authorised |
|---|---|
| Environmental Authorisation (14/12/16/3/3/1/1382)<br><br>Extension of the Alton South Railway Line to Richards Bay IDZ Phase 1F | GNR 544 Activity Number 11 – for channels<br>The construction of<br>(ii) channels;<br>Where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse<br>GNR 544 Activity Number 18 – for Wetlands to be infilled<br>The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic meters from<br>(i) a watercourse;<br>(ii) the sea;<br>(iii) the seashore;<br>(iv) the littoral active zone, an estuary or a distance of 100 metres inland of the high water mark of the sea or an estuary, whichever distance is the greater<br>GNR 546 Activity Number 4 – a portion of the site is zoned as conservation area<br>The construction of a road wider than 4 metres with a reserve less than 13.5 metres.<br>(a) In KwaZulu-Natal Province<br>iii. In urban areas, in:<br>(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose<br>GNR 546 Activity Number 19 – a portion of the site is zoned as conservation area<br>The construction of above ground cableways<br>(a) In KwaZulu-Natal Province<br>iii. In urban areas, in:<br>(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose<br>(cc) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined. |

# NEMA - Potential listed activities – Listing Notice 1

| Listed Activity | Description | Applicability |
|---|---|---|
| Activity 2 | The development and related operation of facilities or infrastructure for the generation of electricity from a non-renewable resource where—<br>(i) the electricity output is more than 10 megawatts but less than 20 megawatts; or<br>(ii) the output is 10 megawatts or less but the total extent of the facility covers an area in excess of 1 hectare. | Gas-fired boiler and turbine |
| *Activity 12* | *The development of—*<br>*(ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs—*<br>*(a) within a watercourse;* | *Not Applicable*<br>*RBIDZ Activity 11 applied for all infrastructure development in watercourses* |
| *Activity 19* | *The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;* | *Not Applicable*<br>*RBIDZ Activity 18 applied for all infrastructure development in watercourses* |
| Activity 25 | The development and related operation of facilities or infrastructure for the treatment of effluent, wastewater or sewage with a daily throughput capacity of more than 2 000 cubic metres but less than 15 000 cubic metres. | Waste acid neutralisation plant |

*Activities in *Italics* are not applicable as these have already been authorised in the RBIDZ EA's discussed in slide 15 and 16

# NEMA - Potential listed activities – Listing Notice 2

| Listed Activity | Description | Applicability |
|---|---|---|
| Activity 4 | The development and related operation of facilities or infrastructure, for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres. | Storage of the following on site:<br>• Titanium tetrachloride ($TiCl_4$)<br>• Titanium oxychloride ($TiOCl_2$)<br>• Calcium hydroxide [$Ca(OH)^2$]<br>• Sulphuric acid [$H^2SO_4$] (as 98.0%)<br>• Diesel<br><br>Combine storage of ~ 33 446 $m^3$ |
| Activity 6 | The development of facilities or infrastructure for any process or activity which requires a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent. | The need to apply for an Atmospheric Emissions Licence – for activities noted in the slide to follow.<br><br>The need to apply for a Water Use Licence - for activities noted in the slide to follow. |
| *Activity 15* | *The clearance of an area of 20 hectares or more of indigenous vegetation* | *Not Applicable*<br>*RBIDZ Activity 15 applied for 102 ha clearance* |

*Activities in *Italics* are not applicable as these have already been authorised in the RBIDZ EA's discussed in slide 15 and 16

# NEMA - Potential listed activities – Listing Notice 3

| Listed Activity | Description | Applicability |
|---|---|---|
| Activity 2 | The development of reservoirs, excluding dams, with a capacity of more than 250 cubic metres.<br>*KwaZulu-Natal*<br>viii. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans | Development of water reservoir of approximately 70 000$m^3$ |
| *Activity 12* | *The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.*<br>*KwaZulu-Natal*<br>*v. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;* | *Not Applicable*<br>*RBIDZ Activity 13 (a) applied for 102 ha clearance to be cleared* |
| Activity 14 | The development of infrastructure or structures with a physical footprint of 10 square metres or more within a watercourse<br>KwaZulu-Natal<br>*vii. Critical biodiversity areas or ecological support areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans* | Development of infrastructure with a physical footprint of more than 10 $m^2$ in a watercourse located in a critical biodiversity area |

*Activities in *Italics* are not applicable as these have already been authorised in the RBIDZ EA's discussed in slide 15 and 16

# NEMAQA - Potential listed activities

| Listed Activity | Description | Applicability |
|---|---|---|
| Subcategory 1.2: Liquid Fuel Combustion Installations | Liquid fuels combustion installations used primarily for steam raising or electricity generation.<br><br>All installations with design capacity equal to or greater than 50 MW heat input per unit, based on the lower calorific value of the fuel used. | Heat input will be greater than 50MW when the turbines are driven by steam arising from the production of sulphuric acid |
| Subcategory 1.4: Gas Combustion Installations | Gas combustion (including gas turbines burning natural gas) used primarily for steam raising or electricity generation.<br><br>All installations with design capacity equal to or greater than 50 MW heat input per unit, based on the lower calorific value of the fuel used. | Gas-fired boilers to supplement steam from the sulphuric acid plant |
| Subcategory 4.1: Drying and Calcining | Drying and calcining of mineral solids including ore.<br>Facilities with capacity of more than 100 tons/month product. | Drying of a slurry via a gas-fired spin flash drier and Calcination to drive off water and acid to grow the $TiO_2$ crystals |
| Subcategory 4.20: Slag Processes | The processing or recovery of metallurgical slag by the application of heat.<br><br>All installations | Richards Bay and Highveld Steel Slag will be used in the process |

# NEMAQA - Potential listed activities

| Listed Activity | Description | Applicability |
|---|---|---|
| Subcategory 5.6: Lime Production | Processing of lime, magnesite, dolomite and calcium sulphate.<br>All installations. | Lime Slaker |
| Subcategory 7.2: Production of Acids | The production, bulk handling and or use in manufacturing of hydrofluoric, hydrochloric, nitric and sulphuric acid (including oleum) in concentration exceeding 10%.<br>Processes in which oxides of sulphur are emitted through the production of acid sulphites of alkalis or alkaline earths or through the production of liquid sulphur or sulphurous acid.<br><br>Secondary production of hydrochloric acid through regeneration.<br>All installations producing, handling and or using more than 100 tons per annum of any of the listed compounds (Excluding metallurgical processes related activities regulated under category 4). | The sulphuric acid plant will be sized to produce the total steam requirement for the $TiO_2$ plant, and the excess sulphuric acid produced will be sold in the local market |
| Subcategory 8.1: Thermal Treatment of General and Hazardous Waste | Facilities where general and hazardous waste are treated by the application of heat.<br><br>All installations treating 10 Kg per day of waste. | Highveld Steel Slag, which is classified as a hazardous waste, will be used on site |

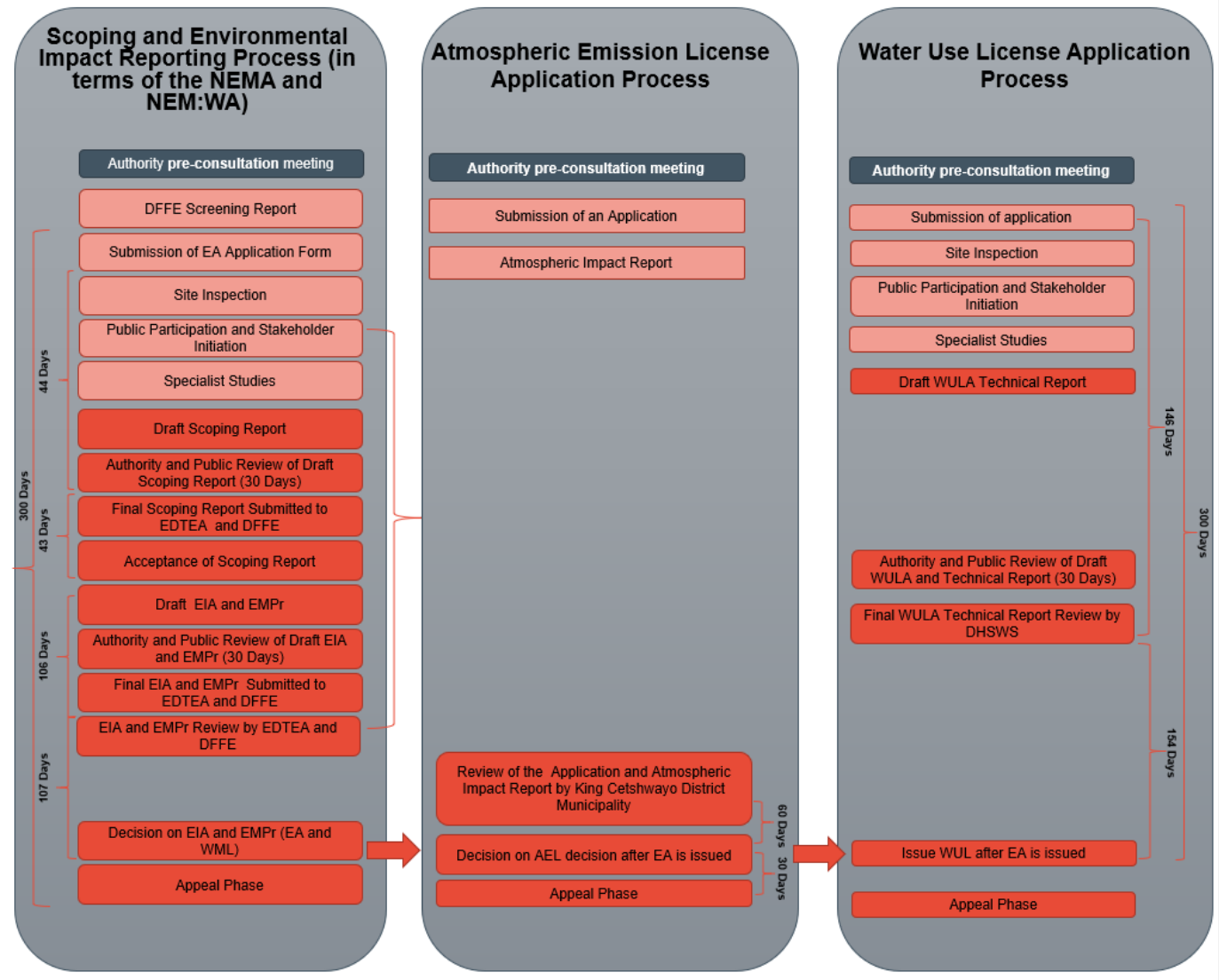
# NEMWA - Potential waste management activities

| Listed Activity | Description | Applicability |
|---|---|---|
| NEMWA Category B Activity 3: | "The recovery of waste including the refining, utilisation, or co-processing of the waste at a facility that processes in excess of 100 tons of general waste per day or excess of 1 ton of hazardous waste per day, excluding recovery that takes place as an integral part of an internal manufacturing process within the same premises." | The metallurgical processing of Highveld Steel Slag (hazardous waste) |
| NEMWA Category B Activity 4: | "The treatment of hazardous waste in excess of 1 ton per day calculated as a monthly average; using any form of treatment excluding the treatment of effluent, wastewater or sewage." | The metallurgical processing of Highveld Steel Slag (hazardous waste) |
| NEMWA Category B Activity 10: | "The construction of a facility for a waste management activity listed in Category B" | The metallurgical processing of Highveld Steel Slag (hazardous waste) |
| *NEMWA Category C Activity 2: (does not require a Waste Management Licence but will comply to GN 921)* | *"The storage of hazardous waste at a facility that has the capacity to store in excess of 80m$^3$ of hazardous waste at any one time, excluding the storage of hazardous waste in lagoons or temporary storage of such waste."* | *The storage of Highveld Steel Slag (hazardous waste)* |

# NWA - Potential water uses

| Water Use | Description | Applicability |
|---|---|---|
| 21 (a) | Taking water from a water resource | Abstracting water from an estuary for cooling process |
| 21 (b) | Storing water | Storing approximately 60 000$m^3$ water every second day |
| 21 (c) | Impeding or diverting the flow of water in a watercourse | Construction in wetlands |
| 21 (i) | Altering the bed, banks, course or characteristic of a watercourse | Construction in wetlands |
| 21 (j) | Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people | Removing water from aquafers to allow for safe work conditions |

# Environmental application process




## Environmental Application Process

- Environmental Authorisation: KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs (EDTEA)
- Waste Management Licence: The Department of Forestry, Fisheries and the Environment (DFFE)
- Water Use Licence: Department of Human Settlements, Water and Sanitation (DHSWS)
- Atmospheric Emissions Licence: King Cetshwayo District Municipality

# Proposed Specialist Studies

## Socio-economic Assessment

SCOPE:

- Desktop assessment
- Engagement with key informants
- In-field formal and informal interviews
- Public consultation meeting
- Capture key issues and concerns
- Reporting including an Impact Assessment

## Heritage Impact Assessment

SCOPE:

- Desktop assessment and historical overview
- In-field assessments recording, describing and highlighting sensitive features / areas
- Reporting including submission to the South Africa Heritage Resources Information System and Amafa sites.

## Noise Impact Assessment

SCOPE:

- Collation and review of information
- Infield baseline noise survey
- Baseline description and source inventory
- Noise propagation simulations in accordance with SANS 10357 (2004)
- Noise Impact Assessment Report

## Air Impact Assessment

SCOPE:

- Collation and review of information
- In-field ambient air quality survey
- Baseline description and source inventory
- An Air Quality, Odour, GHG and Climate Change Report
- Atmospheric Impact Report
- AEL application

## Groundwater Assessment

SCOPE:

- Review of past studies
- Site investigation including a Hydrocensus
- In-field site-specific hydraulic assessment including drilling and testing of new groundwater boreholes
- Hydrochemical sampling
- Conceptual hydrogeological model
- Baseline and Impact Assessment Report

## Ecological and Wetland Assessment

SCOPE:

- Desktop review and analysis incorporating past studies
- Terrestrial in-field faunal and floral summer surveys
- In-field wetland classification and delineation
- Collation and analysis of in-field findings
- Baseline & Impact Report (including a Risk Assessment as per GNR 509)

# Timeframes

## Pre-application:

- 26 Jan'22 – 08 Feb'22

## Specialist Studies:

- 01 Feb'22 – 21 Apr'22

## Environmental Application:

- 02 Mar'22 - 12 Apr'22

## Scoping Report:

- 13 Apr'22 – 20 May'22 (Public review)
- 30 May'22 – 13 Jul'22 (Authority approval timeframe)

## EIA Report and EMPr:

- 14 Jul'22 – 19 Aug'22 (Public review)
- 29 Aug'22 – 14 Dec'22 (Authority approval timeframe)

## WULA:

- 14 Jul'22 – 19 Aug'22 (Public review)
- 13 Jan'23 – 22 Jun'23 (Authority approval timeframe)

## AEL:

- 13 Jan'23 – 18 Apr'23 (Authority approval timeframe)

# Open Discussion