



SCIENTIFIC AQUATIC SERVICES

Visual Resource Compliance Statement

AS PART OF THE ENVIRONMENTAL AUTHORISATION PROCESS FOR THE PROPOSED NEW BERTH 605 AND ASSOCIATED INFRASTRUCTURE AT TRANSNET NATIONAL PORTS AUTHORITY (TNPA) IN RICHARDS BAY, KWAZULU NATAL PROVINCE.

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Report Reference:	SAS 24-1143
Date:	December 2024
Amended:	May 2025



Website: <http://www.sasenvironmental.co.za>

Image taken on site



EXECUTIVE SUMMARY

Scientific Aquatic Services (Pty) Ltd (SAS) was appointed by WSP Group (Pty) Ltd on behalf of Transnet National Ports Authority (TNPA) to prepare a Visual Compliance Statement for the proposed Berth 605 and associated infrastructure in support of a Container Handling Facility (CHF) located at the Port of Richards Bay, KwaZulu Natal Province. The Berth 605 development and associated infrastructure will henceforth collectively be referred to as the “**study area**”. For a visual representation of the location of the study area, please refer to Figures 1 and 2 below.

The study area is situated at the Port of Richards Bay, approximately 1,5 km south of the R34 roadway and 9,7 km east of the N2 national highway.

Visual impacts are only experienced when there are receptors present to experience the impact. The outcome of the desktop and field assessments indicated that the Richards Bay Game Reserve is the only visual sensitive receptor situated within a 2 km radius and as confirmed during the field assessment there is no clear line of sight toward the proposed Berth 605 Project.

The undulating terrain and dense vegetation of the surrounding environment are the main contributing factors of high visual absorption capacity of the landscape. The proposed Berth 605 Project is therefore analogous to a low sensitivity as likely presented by the DFFE Screening Tool.

Based on the findings of the visual assessment, the proposed Berth 605 Project is expected to have a minimal to negligible visual impact on the receiving environment and the number of potential visual receptors is limited. It is therefore the opinion of the visual specialist that the proposed development be considered favorably from a visual impact perspective.



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1 INTRODUCTION AND PROJECT BACKGROUND

Scientific Aquatic Services (Pty) Ltd (SAS) was appointed by WSP Group (Pty) Ltd on behalf of Transnet National Ports Authority (TNPA) to prepare a Visual Compliance Statement for the proposed new Berth 605 and associated infrastructure in support of a CHF located at the Port of Richards Bay, KwaZulu Natal Province. The Berth 605 development and associated infrastructure will henceforth collectively be referred to as the “**study area**”. For a visual representation of the location of the study area, please refer to **Figures 1 and 2** below.

The study area is situated at the Port of Richards Bay, approximately 1,5 km south of the R34 roadway and 9,7 km east of the N2 national highway.

Below is a brief summary of the project components associated with the Berth 605 Development. **Figure 3** below depicts the proposed layout associated with the Berth 605 Project:

- **New berth pocket and quay wall** – A new berth pocket and quay wall is proposed. The new proposed Berth 605 quay wall will extend from the existing Berth 606 quay wall maintaining the same cope line alignment (cope level is the top of the quay wall). On the other end of Berth 605, the quay wall will stop short of Urania Road. The quay is a mass gravity structure with a concrete foundation and walls with soil backfill internally which provides a wider footprint, but a lower density will result in a stable foundation, this is aligned to the existing Berth 606 quay wall and is considered as an economical design that has been used at the PoRB and Port of Coega. The quay wall is expected to be 366 m in length. The new quay wall is designed for a future depth of -19 m Port Chart Datum (PCD). This will ensure that the berth can be lengthened and deepened without the need for additional quay wall deepening costs.
- **End of berth basin slopes** – The Berth 605 must fit within the space between the end of the existing Berth 606 and the South Dunes Road. The location of the end of Berth 606 berth pocket is defined as the end of the existing berth which is the lower retained earth wall. With a slope of 1V:3H from -14.5 PCD to the existing ground level is 60 m long, this provides a total berth length of 338.5 m from the toe of the embankment to the start of Berth 606. This will support a vessel of 315 m Length Overall (LOA). A basin width of 305 m is applied to the bottom of the basin where a proclaimed depth of at least -14.5 m PCD is to be maintained.
- **Dredging** – The new Berth 605 quay wall will be constructed to -19m PCD to allow for further Port expansion at a point in the future. For this project, the berth will be dredged such that a proclaimed depth of -14.5 m PCD is achieved, however the design dredging depth also considers sedimentation and sounding accuracy i.e. 0.6 m below -14.5 m PCD providing a design depth of -15.1 m PCD. This dredge depth is consistent with the PoRB depths and the requirements of the design vessel. This approach limits the volume of dredge material requiring disposal.
- **Dredge disposal** – An estimated 2.8 million cubic metres of dredged material will be disposed of at an existing authorised offshore disposal site. However, it is estimated that a bulked volume of approximately 3.6 million cubic metres will be disposed of at the offshore dump site.
- **Scour protection** - The concept design evaluated the necessary scour protection to prevent excessive erosion, which will compromise the structural integrity of nearby infrastructure, such as Urania Road, or cause excessive sediment movement within the berth pocket. The movement of material within the berth is also of significant concern. The depth of the berth pocket is impacted when material erodes from one area and is deposited elsewhere in the berth pocket. Consequently, maintenance dredging will be required to maintain the required berth pocket minimum navigation depth. A revetment (sloped embankment) will be constructed on the seaward side of the Urania Road. This slope must be protected against wave and propeller action to maintain the structural integrity of the Urania Road. A riprap scour protection system has been considered.
- **New rail siding** – Based on the design throughput and the current requirement of a 50-wagon container train and 2 locomotives, it is proposed that the rail siding will consist of two rail lines that are 370m each in length, each servicing 25 rakes. The existing Mhlatuze Yard will be used for shunting and staging purposes to service the new proposed rail siding.
- **New access road** – a new shared access road and vehicle access control point to the PoRB, the CHF) and the adjacent vacant land surrounding the CHF is proposed. The new road will be an estimated 735 m length with a lane width of 3.7 m and a reserve width of 30 m. It will consist of two (2) lanes each direction and three (3) intersections; at Urania Road, at Ventura Road and one to the CHF. The shared access road will also have a security control facility as the road is accessible



from outside of the Port's security perimeter. Street lighting will be provided for as part of the new road network extension. It must be noted that the road itself and the berth will not be traffic generating, the traffic that will be generated is associated with the operation of the CHF.

- **Footprint of the CHF and apron area** – The CHF will be built and operated by the operator therefore this S&EIR process only considers the disturbance footprint of the CHF and not the associated permits that it will require when operational. The total area considered is 6.75 Ha for the CHF with estimated dimensions of 270 m x 250 m. The apron area is an operational area located behind the quay wall and is used for the movement of trucks. The apron area is an estimated 33 m wide and 400 m in length.
- **Provision of electrical supply to feed the facility operations and equipment** – The preferred alternative is applicable where the required electrical demand is within the available capacity of the current existing 11 kV network. A new feed will be taken from the existing 11 kV network to provide electrical power to the new CHF and quay wall. However, while there is existing capacity on the current 11 kV network, this is limited and may not be able to provide for the full electrical demands in the future. To protect against restricting future electrical supply constraints, a new 11 kV Switching Station fed from the existing Primary Substation is proposed.
- **Water** – The concept design allows for water to be sourced from the municipal supply. There are three municipal feeds into the port, supplied by two separate municipal reservoirs. This provides adequate supply contingency, and therefore, no additional storage has been included in the system. The existing 225mm diameter water main will be extended along with the new quay wall to supply ship water along the new quay. At the end of the new quay wall extension the water main will follow Urania Road to tie into the existing 150mm diameter pipe in the vicinity of the existing gate house. Connections to new buildings will be off takes from either the existing network directly, or via extensions to the existing network brought to the boundary of the proposed CHF. A tie in point will be provided. Connections to new buildings will be off takes from either the existing network directly, or via extensions to the existing network brought to the boundary of the proposed CHF. A tie in point will be provided which will consist of approximately 500 m of pipework with a diameter of 150 mm. Inside the quay wall, water will be provided to landing valves for ships and firefighting.
 - Building water - A new 75mm diameter pipe will branch off from the 150mm diameter water pipe to supply a metered connection for the handling facility. Any connections to new buildings will be made from the metered supply point, located on the western side of the site, just south of the Seafarers club. The Container Handling Facility operator will be responsible for the water network within the facility.
 - Ship water - The proposed new water main line will tie into the existing 225mm diameter asbestos cement water pipe, that is in the existing quay of berth 606, located on the eastern side of the new berth 605. The new pipe will be 200 mm diameter, within the new quay wall, with 75 mm off takes to the landing valves. The 200mm diameter pipe reduce in size to a 160 mm diameter, where the pipe exits the new quay wall and is parallel to Urania Road and will tie into the existing 150mm diameter asbestos cement pipe north of the existing security access to complete the ring.
 - Fire water - The fire water in the PoRB is off the water reticulation network. Allowance for fire-hydrants will be made where there isn't a dedicated firefighting system. This allowance is for normal hydrants outside the container handling facility boundary along the lengths of pipelines that will be installed to service the new quay wall extension.
- **Sewerage** – The existing sewer network has been evaluated to identify areas that require upgrades to accommodate the extension of the sewer network for the new proposed CHF. The sewerage system will allow for wastewater from new toilets, basins, baths and showers. The proposed sewer will be designed to tie into the closest existing pipe network or an existing pump station closest to the proposed CHF. Sewerage inside the CHF will be designed to accommodate for approximately 160 people. The new sewerage pipeline will have a connection point at the northwestern boundary of the CHF. It will be approximately 100 m in length and 160 mm pipe diameter. The preferred alternative involves designing a sump to accommodate the facility's sewer through gravity flow, with pumping from the sump to the existing pumpstation PS20, located north of the facility. The final sewer pipe route will be determined during the design phase.
- **Stormwater** – With the hydrological analysis complete and design flows computed, the stormwater pipes were sized. The minimum size of stormwater pipelines is 600mm diameter, which considers effective maintenance of the stormwater network. With the hydrological analysis complete and design flows computed, the stormwater pipe system has been designed to accommodate a 1 in 5-year storm. The proposed handling facility, as well as any future development adjacent to berth 605 will require major floods to flow overland into the bay. The area will therefore have to be designed



and shaped to accommodate overland flow during a major storm, to prevent water ponding and to control flood damage to any infrastructure. The minimum size of stormwater pipelines is 450mm diameter, which considers effective maintenance of the stormwater network. Conventional catchpits, at 50m to 80m spacing, have been shown along the proposed access road. The access road stormwater is then routed in a pipe system to the bay at a slope of 0.5%. The pipeline will be approximately 360 m along the quay line and 400 m on the other side with a 900mm pipe diameter. It will have a velocity of 0.6 m/s for self-cleaning, to prevent sand settling inside the pipe and blocking. There will also be cross drainage at the new rail siding which will be 400 m in length and 600 mm diameter. The existing network discharges into the bay through the existing quay wall.

- **Provision for temporary laydown and stockpile areas** – Areas for temporary stockpiles and laydown areas have been designated and will be further assessed as part of the project. An approximate area of 4.2 Ha, 220 m in length and 170 m wide to be used as a potential lay down area for the project. In addition, two temporary stockpile areas are proposed. The first image is an area of approximately 2.4 Ha, 250 m in length and 100 m wide. The area is located SE of the CHF. The second area is split into two areas across the Harbour Arterial Road. These areas cover an area of approximately 6 Ha. The infilling of approximately 6 Ha of the basin is also being considered for stockpiling (this infilled area also forms part of the basin to be dredged).



Figure 1: Digital satellite image depicting the location of the study area in relation to the surrounding region.

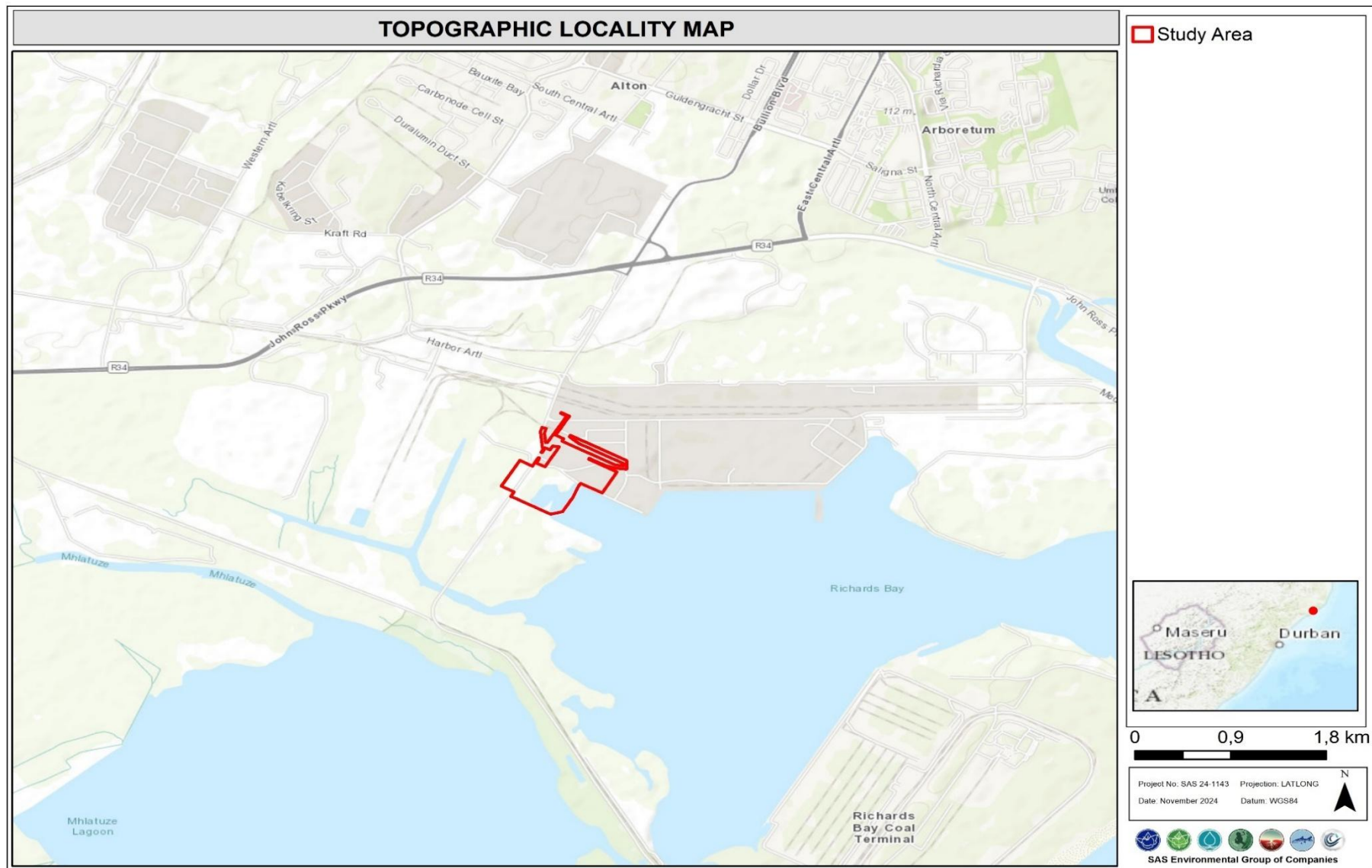


Figure 2: Topographic map depicting the location of the study area in relation to the surrounding region.



Figure 3: Proposed layout of the Berth 605 at the Port of Richards Bay.



2 PURPOSE OF THIS REPORT

The Visual Compliance Statement entails a process of baseline data collection, spatial analysis, visualisation and interpretation to describe the quality of the landscape prior to development taking place and then identifying possible visual impacts after development. Assessing visual impacts can become complex as it is very subjective due to a person's perception being affected by more than only the immediate environmental factors (Oberholzer, 2005).

The site sensitivity verification aims to 1) Verify or dispute the outcome of the screening tool for Visual (Landscape) Theme and 2) should the "low" sensitivity be verified a compliance statement will be provided; however, should the "low" sensitivity be disputed a comprehensive visual impact assessment will have to be undertaken.

Prior to commencing with a specialist assessment, the current use of the land and the potential visual aesthetic sensitivity of the site under consideration as identified by the screening tool must be confirmed by undertaking a site sensitivity verification, which includes the steps as described in the figure below:

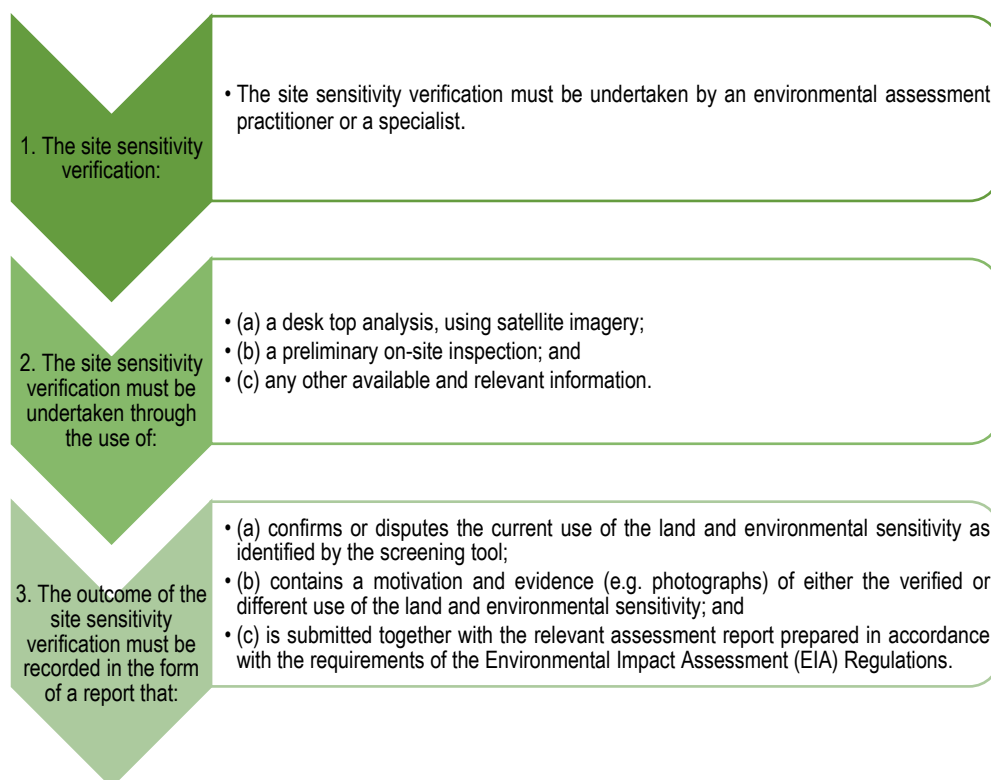


Figure 4: Site sensitivity verification process

3 LEGAL, POLICY AND PLANNING CONTEXT FOR VIA'S

According to the Provincial Government of the Western Cape Department of Environmental Affairs and Development Planning "Guideline for involving visual and aesthetic in EIA Processes" current South African environmental legislation governing the EIA process, which may include consideration of visual impacts if this is identified as a key issue of concern, is the National Environmental Management Act (NEMA) (Act 107 of 1998). This includes the NEMA Environmental Impact Assessment Regulations 2014 as amended (EIA Regulations) (published in General Notice (GN) No. R.982 as well as R 983 Listing Notice 1, R 984 Listing Notice 2, and R 985 Listing Notice 3).

In addition, the following acts and guidelines are applicable:

National Environmental Management: Protected Areas Act (Act No. 57 of 2003)

This act was developed in 2003 for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes:



- Restricted activities involving national and protected parks:
- 48(1) Despite other legislation, no person may conduct commercial prospecting, mining, exploration, production, or related activities–
 - (a) in a special nature reserve, national park, or nature reserve
 - (b) in a protected environment without the written permission of the Minister and the Cabinet member responsible for minerals and energy affairs; or
 - (c) in a protected area referred to in section 9(b), (c) or (d).

According to the South African Protected Areas Database (SAPAD, 2024, Q2) database¹, the study area is located approximately 1,8 km north of the Richards Bay Game Reserve and 8,5 km south of the Enseleni Nature Reserve. The South African Conservation Areas Database (SACAD, 2024, Q2) does not indicate any conservation areas associated with the study area nor within 10 km thereof.

According to the National Protected Areas Expansion Strategy (NPAES, 2018) Database the study area is situated within a Priority Study area. Priority Study Areas are geographic areas identified to be of highest priority for protected area expansion to meet the targets.

National Heritage Resources Act (Act No. 25 of 1999)

This provides legislative protection for listed or proclaimed sites, such as urban conservation areas, nature reserves and proclaimed scenic routes.

Advertising on Roads and Ribbons Act (Act No. 21 of 1940)

Visual pollution is controlled, to a limited extent, by the Advertising on Roads and Ribbons Act (Act 21 of 1940), which deals mainly with signage on public roads.

Municipal Systems Act (Act 32 of 2000)

In terms of the Municipal Systems Act (Act 32 of 2000), it is compulsory for all municipalities to initiate an Integrated Development Planning (IDP) process in order to prepare a five-year strategic development plan for the area under their control. The IDP process, specifically the spatial component is based in certain areas and provinces on a bioregional planning approach to achieve continuity in the landscape and to maintain important natural areas and ecological processes. The study area is situated within the City of uMhlathuze Local Municipality of which the IDP for 2022/2027 is available.

According to the IDP, the Richards Bay deep-water port has been instrumental in the spatial development of the area in the past and will definitely impact on the areas' future spatial development therefore there are future port expansions needed, which is the purpose of this project.

Department of Forestry, Fisheries and the Environment (DFFE)'s National Environmental Screening Tool (2023).

According to the "Protocols for the Assessment and Minimum Criteria for Reporting on identified Environmental Themes ("the Protocols") published in Government Gazette No. 43110 on 20 March 2020 and Government Gazette No. 43855 on 30 October 2020, the Environmental Assessment Practitioner (EAP) must verify the current use of the site in question and its environmental sensitivity as identified by the Screening Tool to determine the need for specialist inputs in relation to the themes included in the Protocols. The Protocols are allowed for in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA") as amended. The Protocols must be complied with for every new application for Environmental Authorisation that is submitted after 9 May 2020.

This document serves as the Visual (Landscape) Site Sensitivity Verification Report for the proposed Berth 605 Project, within the KwaZulu Natal Province. The Berth 605 Project requires environmental

¹ SAPAD (2024): The definition of protected areas follows the definition of a protected area as defined in the National Environmental Management: Protected Areas Act, (Act 57 of 2003). Chapter 2 of the National Environmental Management: Protected Areas Act, 2003 sets out the "System of Protected Areas", which consists of the following kinds of protected areas - 1. Special nature reserves; 2. National parks; 3. Nature reserves; 4. Protected environments (1-4 declared in terms of the National Environmental Management: Protected Areas Act, 2003); 5. World heritage sites declared in terms of the World Heritage Convention Act; 6. Marine protected areas declared in terms of the Marine Living Resources Act; 7. Specially protected forest areas, forest nature reserves and forest wilderness areas declared in terms of the National Forests Act, 1998 (Act No. 84 of 1998); and 8. Mountain catchment areas declared in terms of the Mountain Catchment Areas Act, 1970 (Act No. 63 of 1970).



authorisation in terms of the NEMA EIA Regulations, as amended and potentially a Water Use Licence (WUL).

According to the DFFE Screening Tool, there was no sensitivity rating for the Visual (Landscape) Theme, thus the landscape was deemed to have no sensitivity in terms of visual aesthetic impacts according to the screening tool.

National Environmental Management: Integrated Coastal Management Act (Act No. 24 of 2008) as amended (ICMA)

Coastal set-back lines or coastal management lines are prescribed boundaries that indicate the limit of development along ecologically sensitive or vulnerable areas, or an area where dynamic natural processes pose a hazard or risk to humans.

The 'National Guideline Towards the Establishment of Coastal Management Lines' document as provided by the Department of Environmental Affairs (2017) provide guidance to Lead Agencies of Coastal Provinces on the establishment of Coastal Management Lines by the Members of Executive Council (MECs).

In accordance with National Environmental Management: Integrated Coastal Management Act (Act No. 24 of 2008)(ICMA), Section 25 of the ICMA states:

25. Establishment of coastal management lines

(1) An MEC must by notice in the Gazette establish or change coastal management lines-

- (a) to protect coastal public property, private property and public safety;
- (b) to protect the coastal protection zone;
- (c) to preserve the aesthetic values of the coastal zone; or
- (d) for any other reason consistent with the objectives of this Act.

(1A) An MEC may, in regulations published in the Gazette, prohibit or restrict the building, erection, alteration or extension of structures that are wholly or partially seaward of a coastal management line.

(1B) When establishing coastal management lines in terms of subsection (1), the MEC must consider the location of immovable property and the ownership and zonation of vacant land.

(2) Before making or amending a notice referred to in subsection (1), or making the regulations referred to in subsection (1A), the MEC must-

- (a) consult with any local municipality within whose area of jurisdiction the coastal management line is, or will be, situated; and
- (b) give interested and affected parties an opportunity to make representations in accordance with Part 5 of Chapter 6.

(3) A local municipality within whose area of jurisdiction a coastal management line has been established must delineate the coastal management line on a map or maps that form part of its zoning scheme in order to enable the public to determine the position of the coastal management line in relation to existing cadastral boundaries.

(4) A coastal management line may be situated wholly or partially outside the coastal zone.

(5) The Minister, after consultation with the relevant MEC, must exercise the powers and perform the functions granted to the MEC in this section, if such power relates to any part of an area that-

- (a) is a national protected area as defined in the Protected Areas Act;
- (b) straddles a coastal boundary between two provinces; or
- (c) extends up to, or straddles, the borders of the Republic.

Other

- Visual and aesthetic resources are indirectly protected by local authorities, where policies and by-laws relating to urban edge lines, scenic drives, special areas, signage, communication masts, et



cetera have been formulated. these include the South Africa's national urban development policy – the IUDF and Spatial Development Frameworks; and

- Other decision-making authorities such as the Department of Mineral Resources and Energy (DMRE), or the local authorities, in terms of their particular legislative frameworks, may also require VIAs to support informed decision-making.

4 METHOD OF ASSESSMENT

4.1 Desktop Assessment

The method of assessment for this report is based on a spatial analysis of the study area and the surrounding areas, using Geographic Information Systems (GIS) such as Planet GIS, ArcGIS, Global Mapper as well as digital satellite imagery, photographs, various databases and all available data on the planned infrastructure. The desktop assessment served to guide the field assessment through identifying preliminary areas of importance in terms of potential visual impacts.

The desktop study included an assessment of the current state of the environment of the area including the climate of the area, topography, land uses and land cover with data obtained from the websites of the South African National Biodiversity Institute (SANBI) and the Agricultural Research Council (ARC). All databases used were published within the last 5 years and contain up to date and relevant information.

During the desktop assessment, which took place prior to and in preparation of the field assessment, the 1:50 000 topographical map, as well as high-definition aerial photographs from Google Earth Pro were used to identify the dominant landforms and landscape patterns. These resources together with digital elevation data were utilised to establish a parameter within which potential sensitive receptors were to be identified via Google Earth Pro. These parameters can henceforth be referred to as the “visual assessment zone”. Based on the setting of the area and the proposed infrastructure situated within the Port of Richards Bay, the are only visual receptor situated within a 2 km radius is the Richards Bay Game Reserve, therefore the visual assessment zone encompasses a 5 km radius of the study area. The potentially sensitive receptors identified within the visual assessment zone during the desktop assessment was verified during the field assessment.

4.2 Field Assessment

The field assessment was undertaken during the spring season on the 14th and 15th of October 2024 for the study area. The season within which the VIA takes place is irrelevant as the vegetation screening factor will remain similar across the seasons due to the sub-tropical nature of the vegetation. Some seasonal colour variation may, however, be evident between winter and summer.

The field assessment included a drive-around and on-foot survey of the study area and in the immediate vicinity thereof and a drive-around of the surrounds, to determine the visual context within which the proposed project is to be developed. Focus was placed on assessing the potentially sensitive receptors identified within the visual assessment zone, these included farmsteads and prominent roads within the area. Points from where the proposed infrastructure was determined to be visible were recorded (making use of Global Positioning Systems (GPS) to confirm these aesthetically sensitive viewpoints and potential sensitive visual receptors in relation to the proposed project.

4.3 Assumptions and Limitations

- To date there are no specific national legal requirements for VIAs currently exist in South Africa. However, the assessment of visual impacts is required by implication when the provisions of relevant acts governing environmental management are considered and when certain characteristics of either the receiving environment or the proposed project indicate that visibility and aesthetics are likely to be significant issues and that visual input is required (Oberholzer, 2005);
- Due to a lack of visual specialist guidelines within the KwaZulu Natal Province, the “Guidelines for Involving Visual and Aesthetic Specialists in the EIA Process” (Oberholzer, 2005), prepared for the Western Cape Department of Environmental Affairs & Development Planning, was used;



- Distance and terrain play a critical role when assessing visual impacts of an area. All potential sensitive receptors located within a 5 km radius, were identified on a desktop-level, some of which would then be verified during the field assessment. Since the proposed infrastructure is located within the Port of Richards Bay, it was evident after the field assessment that no receptors outside of the port will have a clear line of sight, therefore the visual impact may be considered negligible. It should be noted that the visibility of an object decreases exponentially the further away the observer is from the source of impact; and
- Abstract or qualitative aspects of the environment and the intangible value of elements of visual and aesthetic significance are difficult to measure or quantify and as such depend to some degree on subjective judgments. It therefore is necessary to differentiate between aspects that involve a degree of subjective opinion and those that are more objective and quantifiable, as outlined in the diagram below (The Landscape Institute and Institute of Environmental Management and Assessment (LI IEMA, 2002).

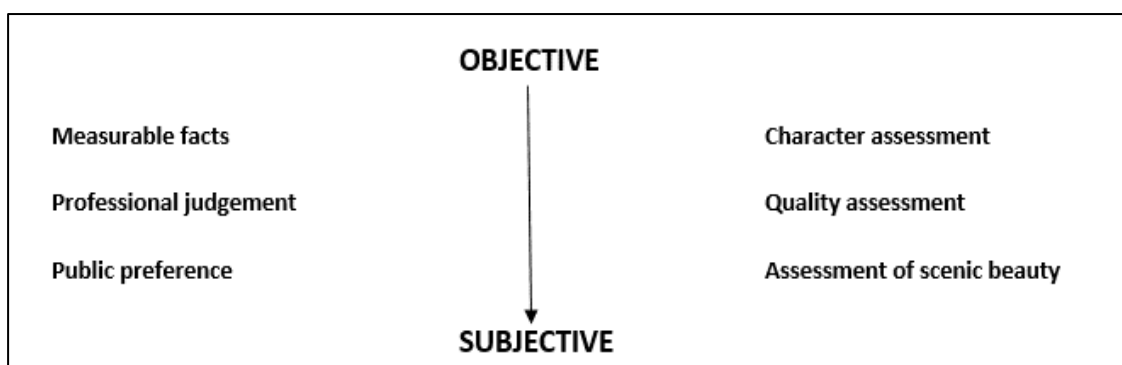


Figure 5: Objectivity and subjectivity in the VIA

5 RESULTS OF INVESTIGATION

5.1 Public Involvement

A Public Participation Process (PPP) will be initiated as part of the Scoping and Environmental Impact Reporting (S&EIR) process, at which time stakeholders are invited to provide input concerning the proposed development. Any concerns regarding visual impacts will be addressed through this process.

5.2 Development Category and Level of Impact Assessment

Through application of the VIA methods of assessment as presented in Appendix A, it was determined that the proposed project can be defined as a Category 5 development, which includes large scale infrastructure and mining activities (Category 5 includes any large scale infrastructure as well as mining related activities, Berth 605 falls within this category as it is large scale infrastructure). In line with the above, a Level 4 Assessment should be undertaken.

Based on the outcome of the desktop and field assessments, it is evident that the only visual receptors within a 1 km radius of the study area is the Richards Bay Game Reserve and the Richards Bay Seafarers Club, and the visual receptors situated within a 5 km radius is limited to the Waterfront, the R34 and R619 roadways and the Arboretum urban area. With the proposed project situated within the Port of Richards Bay, the above-mentioned visual receptors do not have a clear line of sight due to existing infrastructure at the port, the industrial facilities in the surrounding area as well as the subtropical vegetation screening the view.

It is important to note that visual impacts are only experienced when there are receptors present to experience the impact, thus in this context there are sparse receptors present, consequently there are not likely many visual impacts experienced, although the cumulative impact may be affected as the bulk appearance of port infrastructure will increase. Due to the lack of sensitive receptors at the PoRB, it is unlikely that cumulative impacts will be high in significance in the short term of the implementation of the Masterplan, however it may increase during the implementation of the medium to long term projects and must be considered at that stage.



As such, the potential visual impact of the proposed infrastructure is likely to be minimal to negligible and will not be significantly visually intrusive on the receiving environment. In light of the above, the proposed infrastructure is likely to have a low visual impact on the receiving environment, therefore a Level 1 Assessment was undertaken.

5.3 Description of the Receiving Environment

To holistically describe the receiving environment, this section of the report aims to determine the intrinsic value of the receiving landscape including aspects of the natural, cultural and scenic landscape, taking both tangible and intangible factors into consideration. General views of the landscape associated with the study area and surrounds with respect to the facilities at the Port, the alluvial vegetation and the overall character are indicated in the figure below.



Figure 6: General view of the proposed Berth 605 Project, where vegetation is dense and varies from short to tall (top left and bottom), the existing roads and ship currently at the berth (top right).

5.4 Climate

As a result of climate variations throughout the year, the appearance and perception of the landscape within the surroundings of the study area changes with the seasons in terms of the chroma of the area. Cloudy conditions as at the time of the field assessment can limit the visibility of the study area throughout the course of the day, particularly at further distances. Since the KwaZulu Natal Province falls within the region that is characterised by summer rainfall, the visibility of the study area is likely to be lower during the summer months. Seasonal variation may have some effect on the area from where project components would potentially be visible, with visibility expected to be slightly higher during the winter months when seasonal screening effects from vegetation is somewhat lowered.

5.5 Land Use and Visual Receptors

The Port of Richards Bay originated in the early as the 1970s, when the port was first planned in the early 1970s, the area where the port is located was primarily a small, ecologically sensitive environment with extensive mangrove forests, coastal wetlands and estuarine ecosystems. The development of the port and its subsequent expansion has resulted in a change in the landscape from undisturbed to a transformed landscape.

Based on the 2020 National Land Cover Map the majority of the surrounding area comprises industrial facilities, some commercial aspects, fallow lands and old fields and contiguous forests and natural grasslands (Figure 5).

According to SAPAD (2024, Q2) the study area is located approximately 1,8 km north of the Richards Bay Game Reserve and 8,5 km south of the Enseleni Nature Reserve. The South African Conservation Areas Database (SACAD, 2024, Q2) does not indicate any conservation areas associated with the study area nor within 10 km thereof. As confirmed during the field assessment, there is no clear line of sight from the Richards Bay Game Reserve toward the proposed project, due to the dense vegetation and undulating terrain (**Figure 8**).

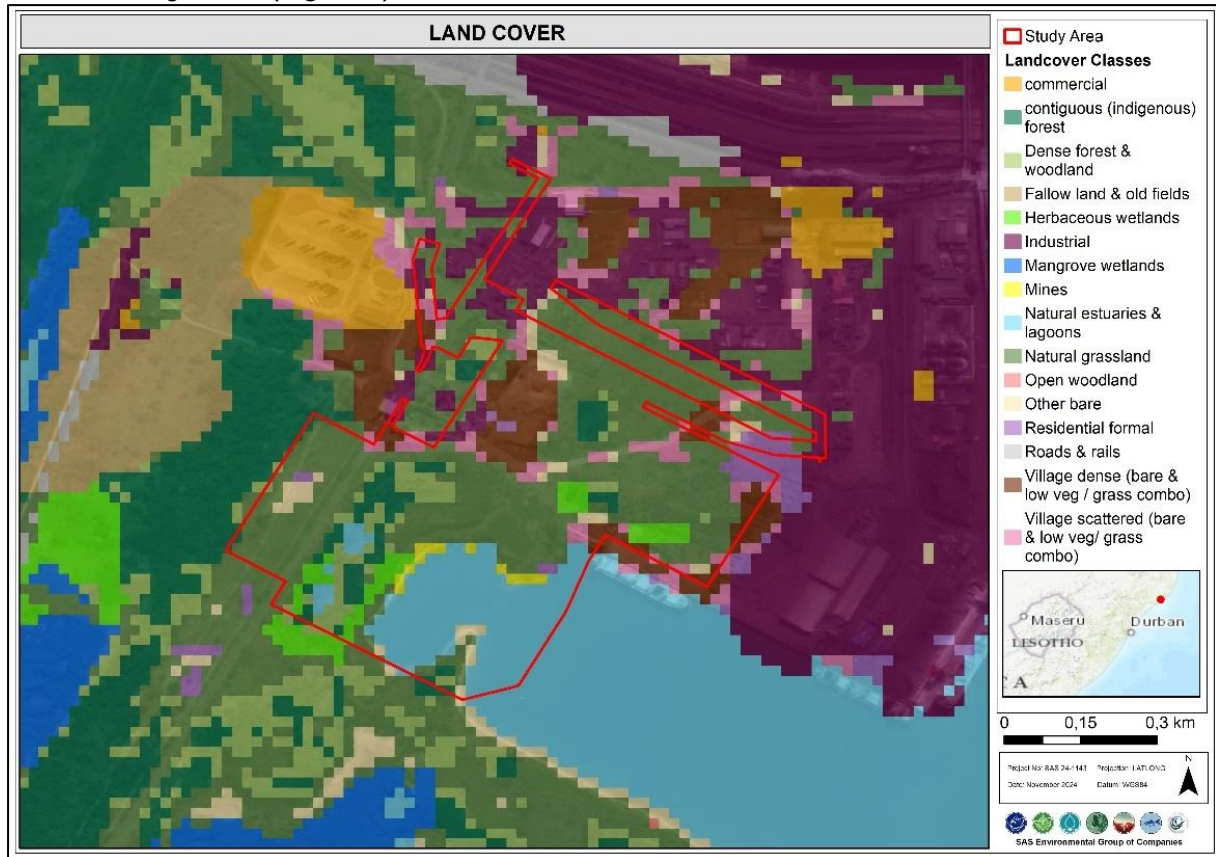


Figure 7: 2020 National Land Cover Map indicating the land uses associated with the study area and immediate surroundings.



Figure 8: Photographs taken at the Richards Bay Game Reserve. The view of the Game Reserve (left) and the view towards the proposed Berth 605 Project (right) with the dashed red arrow indicating the position of the proposed project, with the dense tall vegetation rendering no visibility.



As previously mentioned, the only sensitive visual receptors within a 2 km radius are the Richards Bay Game Reserve and the Richards Bay Seafarers Club and the visual receptors situated within a 5 km radius is limited to the Waterfront, the R34 and R619 roadways and the Arboretum urban area. With the proposed project situated within the Port of Richards Bay, the above-mentioned visual receptors do not have a clear line of sight due to existing infrastructure at the waterfront as well as the subtropical alluvial vegetation screening the view (**Figures 9 and 10**).



Figure 9: Photographs taken at the Dros Restaurant at the Waterfront, indicating that the port is not visible from this vantage point (dashed red arrow).



Figure 10: Photographs taken at the pier directly adjacent to the Port, where no existing infrastructure associated with the Port is visible, resulting in the proposed infrastructure also not being visible (dashed red arrow).

As such the proposed Berth 605 development is not likely to be significantly visually intrusive on the receiving environment due to its isolated location and the dense vegetation associated with the receiving environment.

5.6 Topography and Vegetation Cover

The topography of the receiving environment is gently undulating terrain while the vegetation cover is dense and ranges from low to high heights. The vegetative component and terrain of the receiving environment are the main contributing factors of the landscape displaying a high visual absorption capacity, indicating that the proposed development is highly likely to be absorbed in the landscape.

Vegetation clearing will form part of the construction phase of the proposed project, which will lead to a visual impact on the surrounding environment, however with the area comprising stockpiles of materials to be loaded onto the ships (Figure 9), bare ground is already present in the immediate landscape within the Port, hence the visual impact is expected to be low.



Figure 11: Photographs taken at the Port where the stockpiled materials are being loaded onto the ships.

5.7 Sense of Place

Sense of place is the unique value that is allocated to a specific place or area through the cognitive experience of the user or viewer. It is created by the land use, character and quality of a landscape, as well as by the tangible and intangible value assigned thereto. The sense of place associated with the study area is related to the landscape character type, defined by the Port of Richards Bay and activities therein. As such the sense of place of the area is that which is associated with a busy industrial area, where there are constant movement of heavy vehicles and machinery and people moving about. This is however isolated to the Port itself and the immediate industrial areas surrounding it, the Waterfront and rest of Richards Bay has a calmer more peaceful sense of place.

As the landscape is already accustomed to Port activities, the proposed project will not have a significant effect on the sense of place of the area.

5.8 Night-time lighting

Since the Port of Richards Bay is operational 24 hours 7 days a week, the lighting impact associated with it may be considered high, as there are numerous extensive sources of high-level night time lighting. The lighting environment of the region is therefore considered Suburban with medium district brightness (Zone E3). This corresponds with Bortle's Scale – indicating that the study area falls within a Class 6 area (bright suburban) where there is light pollution to 35 degrees, where lighting is fairly bright on cloudy nights and small close objects on the ground are distinct. As a result of the existing night-time light sources, lighting levels are not expected to significantly increase in this area due to the proposed infrastructure. The proposed project is expected to contribute to the effects of sky glow and artificial lighting in the region to a limited degree, particularly as a result of stationary lighting sources including security lighting, however this impact will not be highly significant due to the high level of existing night time lighting associated with the Port.

6 IMPACT STATEMENT

Since the proposed development is situated within the Port of Richards Bay, the landscape character is considered industrial with numerous anthropogenic activities actively taking place, therefore the sense of place of the area is that which is associated with an industrialised area as well as that associated with a harbour – continuous movement (vehicle and human). Visual impacts are only experienced when there are receptors present to experience the impact and with the sparse receptors present within the receiving environment and given the location of the proposed facility within the harbour (approximately 6 km from the seashore) and where public access is possible, there are not likely many visual impacts experienced. Although the cumulative impact may be affected as the bulk appearance of port infrastructure will increase. The outcome of the field assessment indicated that the subtropical vegetation of the receiving environment assists in screening the view toward the proposed development.



Given the above conclusion, the potential visual impact of the proposed infrastructure is likely to be minimal to negligible and will not be significantly visually intrusive on the receiving environment from where numerous observers could be impacted.

When considering the development phases of the proposed project, the construction phase will have a slightly higher visual impact due to the removal of vegetation and levelling of the ground in preparation for the proposed development, with additional increased vehicular movement in the area. The points below are a brief overview of the anticipated impacts for the proposed project.

- Temporary visual contrast to the surrounding environment to the east may occur during excavation activities, however due to the activities taking place within the Port of Richards Bay numerous areas are transformed.
- Temporary indirect visual exposure of the construction activities will occur for seafarers sailing past the port, albeit it limited of short duration and in the background since the proposed development is situated approximately 6,5 km from the mouth of the port.
- The sources of lighting associated with the proposed development will contribute to the effects of night time lighting and skyglow.

The mitigation measures outlined below would serve to minimise the potential visual impacts during the construction and operational phases of the proposed project:

- The areas cleared of natural vegetation and topsoil must be limited to the proposed development footprint.
- It is recommended, that as far as possible and as per the design development footprint the existing vegetation, with particular reference to tall trees and larger shrubs, in the vicinity of the proposed development should be retained, to ensure that the screening ability provided by the vegetation is not jeopardised.
- Should it be deemed possible and in line with the health and safety protocol of 24hour operations, it is recommended that security lighting required at night, use minimum lumen or wattage in light fixtures. Furthermore, making use of motion detectors on security lighting, where possible, ensures that the site will remain in relative darkness, until lighting is required for security purposes.
- Up-lighting of structures and bright flood lights must be avoided where possible, with lighting installed at downward angles that provide precisely directed illumination beyond the immediate surroundings of the infrastructure, thereby minimising the light spill and trespass.
- As far as practically possible, no naked / unshielded light sources are to be directly visible from a distance. Only reflected light should be visible from outside the proposed development area.

7 CONCLUDING REMARKS

It is important to note that visual impacts are only experienced when there are receptors present to experience the impact. The outcome of the desktop and field assessments indicated that the Richards Bay Game Reserve is the only visual sensitive receptor situated within a 2 km radius and as confirmed during the field assessment there is no clear line of sight toward the proposed Berth 605 Project.

The undulating terrain and dense vegetation of the surrounding environment are the main contributing factors of high visual absorption capacity of the landscape. The proposed Berth 605 Project is therefore analogous to a low sensitivity as likely presented by the DFFE Screening Tool.

Based on the findings of the visual assessment, the proposed Berth 605 Project is expected to have a minimal to negligible visual impact on the receiving environment and the number of potential visual receptors is limited. It is therefore the opinion of the visual specialist that the proposed development be considered favourably from a visual impact perspective.



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APPENDIX A – METHOD OF ASSESSMENT

Level of Assessment

The following methods of assessment for determining the level of detail of the assessment was utilised in this report (Oberholzer, 2005):

Table A1: Categories of development and impact severity.

Type of environment	Category 1 development	Category 2 development	Category 3 development	Category 4 development	Category 5 development
Protected/wild areas of international, national or regional significance	Moderate visual impact expected	High visual impact expected	High visual impact expected	Very high visual impact expected	Very high visual impact expected
Areas or routes of high scenic, cultural, historical significance	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected	High visual impact expected	Very high visual impact expected
Areas or routes of medium scenic, cultural, historical significance	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected	High visual impact expected
Areas or routes of low scenic, cultural, historical significance/disturbed	Little or no visual impact expected, possible benefits	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected
Disturbed or degraded sites/run down areas/wasteland	Little or no visual impact expected, possible benefits	Little or no visual impact expected, possible benefits	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected

The following key provides an explanation to the categories of development:

Category 1 development:

e.g. nature reserves, nature-related recreation, camping, picnicking, trails and minimal visitor facilities.

Category 2 development:

e.g. low-key recreation / resort / residential type development, small-scale agriculture / nurseries, narrow roads and small-scale infrastructure.

Category 3 development:

e.g., low-density resort / residential type development, golf or polo estates, low to medium-scale infrastructure.

Category 4 development:

e.g. medium density residential development, sports facilities, small-scale commercial facilities / office parks, one-stop petrol stations, light industry, medium-scale infrastructure.

Category 5 development:

e.g. high density township / residential development, retail and office complexes, industrial facilities, refineries, treatment plants, power stations, wind energy farms, power lines, freeways, toll roads, large scale infrastructure generally. Large-scale development of agricultural land and commercial tree plantations. Quarrying and mining activities with related processing plants.

The following box explains the nature of the impacts:

Very high visual impact expected:

Potentially significant effect on wilderness quality or scenic resources;
Fundamental change in the visual character of the area;
Establishes a major precedent for development in the area.

High visual impact expected:

Potential intrusion on protected landscapes or scenic resources;
Noticeable change in visual character of the area;
Establishes a new precedent for development in the area.

Moderate visual impact expected:

Potentially some effect on protected landscapes or scenic resources;
Some change in the visual character of the area;
Introduces new development or adds to existing development in the area.

Minimal visual impact expected:

Potentially low level of intrusion on landscapes or scenic resources;
Limited change in the visual character of the area;
Low-key development, similar in nature to existing development.

Little or no visual impact expected:

Potentially little influence on scenic resources or visual character of the area;
Generally compatible with existing development in the area;
Possible scope for enhancement of the area.

From the above, the severity of the impact determines the level of the assessment:

Table A2: Impact assessment level of input determination.

Approach	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected	Very high visual impact expected
Level of visual input recommended	Level 1	Level 2	Level 3	Level 4	

The following box explains the inputs required at each level of assessment. As indicated in Section 5.2, a Level 4 assessment is required for the proposed project (Oberholzer, 2005).

Level 1 input:

Identification of issues and site visit;
Brief comment on visual influence of the project and an indication of the expected impacts / benefits.

Level 2 input:

Identification of issues raised in scoping phase and site visit;
Description of the receiving environment and the proposed project;
Establishment of Receptor Site area and receptors;
Brief indication of potential visual impacts and possible mitigation measures.

Level 3 assessment:

Identification of issues raised in scoping phase and site visit;
Description of the receiving environment and the proposed project;
Establishment of Receptor Site area, view corridors, viewpoints and receptors;
Indication of potential visual impacts using established criteria;
Inclusion of potential lighting impacts at night;
Description of alternatives, mitigation measures and monitoring programmes.
Review by independent, experienced visual specialist (if required).

Level 4 assessment:

As per Level 3 assessment, plus complete 3D modelling and simulations, with and without mitigation.
Review by independent, experienced visual specialist (if required).



APPENDIX B – NIGHT TIME LIGHTING

To understand the potential visual impacts from night lighting, it is important to understand the existing lighting levels. The Institute of Lighting Engineers (ILP) (2011) identifies five environmental zones for exterior lighting control and with which to describe the existing lighting conditions within the landscape (Table B1). These environmental zones are supported by design guidance for the reduction of light pollution, which can then inform proposed mitigation measures and techniques. Where an area to be lit lies on the boundary of two zones the obtrusive light limitation values used should be those applicable to the most rigorous zone.

Table B1: Environmental zones for night-time lighting.

Environmental Zone	Surrounding	Lighting Environment	Examples
E0	Protected	Dark	UNESCO Starlight Reserves, IDA Dark Sky Parks
E1	Natural	Intrinsically Dark	National Parks, Areas of Outstanding Natural Beauty etc.
E2	Rural	Low District Brightness	Village or relatively dark outer suburban locations
E3	Suburban	Medium District Brightness	Small town centres or suburban locations
E4	Urban	High District Brightness	Town/city centres with high levels of night-time activity

Stationary lights facing upward are significant contributors to light pollution and causes sky glow and glare, while light facing in a horizontal direction can be visible for long distances, lead to light trespass (light falling outside the desired area of illumination) and be disturbing to viewers and vehicles. Sky glow refers to the night-time brightening of skies, caused by the scattering and redirecting of light in the atmosphere, by water droplets and dust in the air, back towards the ground. Such stray light mostly comes from poorly designed and improperly aimed light and from light reflected from over-lit areas (ASSA, 2012). Lighting from vehicles within rural areas will generally be more intrusive than in urban settings and, therefore, will have a potentially greater impact due the general lack of existing ambient light within areas further away from the proposed incline shaft areas.

The ILP (2011) recommends that, to maintain the night-time setting, lighting within the identified zone should have minimal illumination into the sky as well as to adjacent viewpoints.

Bortle Dark Sky Scale

The Bortle Dark Sky Scale was developed by John Bortle "based on nearly 50 years of observing experience," to describe the amount of light pollution in a night sky. It was first published in a 2001 Sky & Telescope article. The results are documented on this map below. To facilitate learning and using the scale, Bortle's indicators of sky brightness have been adapted as a table (below), including the colour codes used in available light pollution chart.



Number Code	Map Color Code	Label	Sky Mag.	Naked Eye Limit Mag.	320mm Limit Mag.	Triangulum Galaxy visible?	Andromeda Galaxy visible?	Central Galaxy visible?	Zodiacal light visible?	Light Pollution	Clouds	Ground Objects
1		excellent dark sky	22.00–21.99	≥ 7.5	> 17	obvious	.	casts shadows	striking	airglow apparent	.	visible only as silhouettes
2		average dark sky	21.99–21.89	7.0–7.49	16.5	easy with direct vision	.	appears highly structured	bright, faint yellow color	airglow faint	dark everywhere	large near objects vague
3		rural sky	21.89–21.69	6.5–6.99	16.0	easy with averted vision	.	complex structure	obvious	LP on horizon	dark overhead	large distant objects vague
4		rural/suburban transition	21.69–20.49	6.0–6.49	15.5	difficult with averted vision	obvious	only large structures	halfway to zenith	low LP	lit in distance	distant large objects distinct
5		suburban	20.49–19.50	5.5–5.99	14.5–15.0	.	easy with direct vision	washed out	faint	encircling LP	brighter than sky	
6		bright suburban	19.50–18.94	5.0–5.49	14.0–14.5	.	easy with averted vision	visible only near zenith	.	LP to 35°	fairly bright	small close objects distinct
7		suburban/urban transition	18.94–18.38	4.5–4.99	14.0	.	difficult with averted vision	invisible	.	LP to zenith	brilliantly lit	.
8		city sky	< 18.38	4.0–4.49	13	.	.	.	.	bright to 35°	.	headlines legible
9		inner city sky	.	≤ 4.0	.	.	.	.	.	bright at zenith	.	.

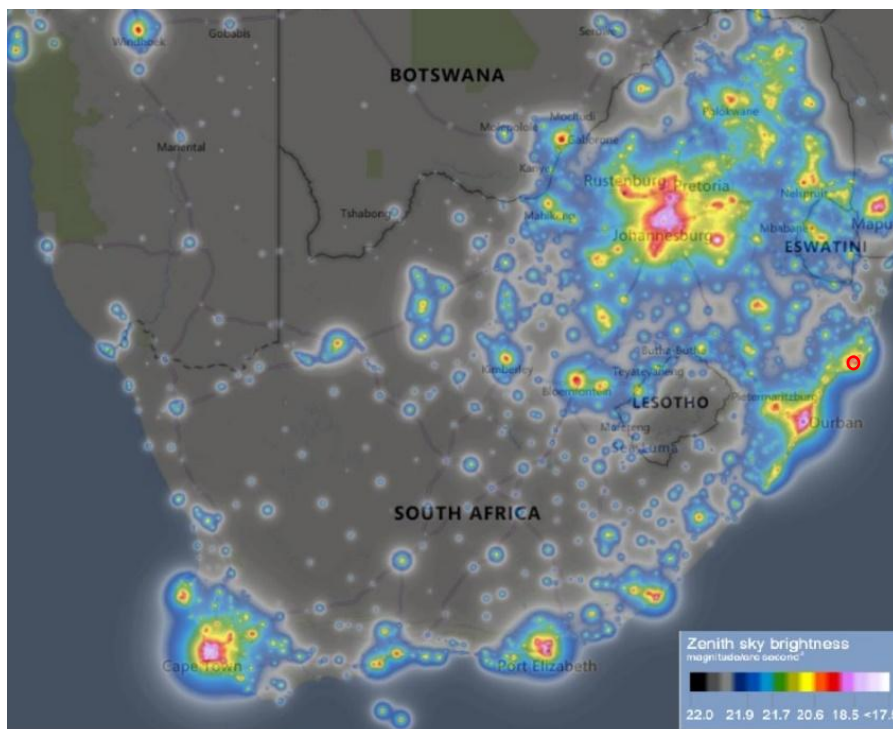


Figure B1: Light pollution map of South Africa (The World Atlas of the Artificial Night Sky Brightness) red circle indicates the location of the proposed Berth 605 Project.



APPENDIX C – INDEMNITY AND TERMS OF USE OF THIS REPORT

The findings, results, observations, conclusions and recommendations given in this report are based on the author's best scientific and professional knowledge as well as available information. The report is based on survey and assessment techniques which are limited by time and budgetary constraints relevant to the type and level of investigation undertaken and SAS and its staff reserve the right to, at their sole discretion, modify aspects of the report including the recommendations if and when new information may become available from ongoing research or further work in this field, or pertaining to this investigation.

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APPENDIX D – SPECIALIST INFORMATION

Details of the specialist who prepared the report

Stephen van Staden
Sanja Erwee

MSc Environmental Management (University of Johannesburg)
BSc Zoology (University of Pretoria)

The expertise of that specialist to compile a specialist report including a curriculum vitae

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Qualifications	MSc (Environmental Management) (University of Johannesburg) BSc (Hons) Zoology (Aquatic Ecology) (University of Johannesburg) BSc (Zoology, Geography and Environmental Management) (University of Johannesburg)		
Registration / Associations	Registered Professional Scientist at South African Council for Natural Scientific Professions (SACNASP) Accredited River Health practitioner by the South African River Health Program (RHP) Member of the South African Soil Surveyors Association (SASSO) Member of the Gauteng Wetland Forum		

Specialist Declaration

I, Stephen van Staden, declare that -

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the relevant legislation and any guidelines that have relevance to the proposed activity;
- I will comply with the applicable legislation;
- I have not and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose 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;
- All the particulars furnished by me in this form are true and correct



Signature of the Specialist



SAS ENVIRONMENTAL GROUP OF COMPANIES – SPECIALIST CONSULTANT INFORMATION CURRICULUM VITAE OF **STEPHEN VAN STADEN**

PERSONAL DETAILS

Position in Company	Group CEO, Water Resource discipline lead, Managing member, Ecologist, Aquatic Ecologist
Joined SAS Environmental Group of Companies	2003 (year of establishment)

MEMBERSHIP IN PROFESSIONAL SOCIETIES

Registered Professional Scientist at South African Council for Natural Scientific Professions (SACNASP)
Accredited River Health practitioner by the South African River Health Program (RHP)
Member of the South African Soil Surveyors Association (SASSO) Member of the Gauteng Wetland Forum
Member of the Gauteng Wetland Forum;
Member of International Association of Impact Assessors (IAIA) South Africa;
Member of the Land Rehabilitation Society of South Africa (LaRSSA)

EDUCATION

Qualifications

MSc Environmental Management (University of Johannesburg)	2003
BSc (Hons) Zoology (Aquatic Ecology) (University of Johannesburg)	2001
BSc (Zoology, Geography and Environmental Management) (University of Johannesburg)	2000
Tools for wetland assessment short course Rhodes University	2016
Legal liability training course (Legricon Pty Ltd)	2018

Hazard identification and risk assessment training course (Legricon Pty Ltd)	2013
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Short Courses

Certificate – Department of Environmental Science in Legal context of Environmental Management, Compliance and Enforcement (UNISA)	2009
Introduction to Project Management - Online course by the University of Adelaide	2016
Integrated Water Resource Management, the National Water Act and Water Use Authorisations, focusing on WULAs and IWWMPs	2017

AREAS OF WORK EXPERIENCE

South Africa – All Provinces
Southern Africa – Lesotho, Botswana, Mozambique, Zimbabwe Zambia
Eastern Africa – Tanzania Mauritius
West Africa – Ghana, Liberia, Angola, Guinea Bissau, Nigeria, Sierra Leona
Central Africa – Democratic Republic of the Congo

SELECTED PROJECT EXAMPLES OUT OF OVER 2000 PROJECTS WORKED ON

- 1 Mining: Coal, Chrome, PGM's, Mineral Sands, Gold, Phosphate, river sand, clay, fluorspar
- 2 Linear developments
- 3 Energy Transmission, telecommunication, pipelines, roads
- 4 Minerals beneficiation
- 5 Renewable energy (wind and solar)



- 6 Commercial development
- 7 Residential development
- 8 Agriculture
- 9 Industrial/chemical

KEY SPECIALIST DISCIPLINES

Biodiversity Assessments

- Floral Assessments
- Biodiversity Actions Plan (BAP)
- Biodiversity Management Plan (BMP)
- Alien and Invasive Control Plan (AICP)
- Ecological Scan
- Terrestrial Monitoring
- Protected Tree and Floral Marking and Reporting
- Biodiversity Offset Plan

Freshwater Assessments

- Desktop Freshwater Delineation
- Freshwater Verification Assessment
- Freshwater (wetland / riparian) Delineation and Assessment
- Freshwater Eco Service and Status Determination
- Rehabilitation Assessment / Planning
- Maintenance and Management Plans
- Plant species and Landscape Plan
- Freshwater Offset Plan
- Hydropedological Assessment
- Pit Closure Analysis

Aquatic Ecological Assessment and Water Quality Studies

- Habitat Assessment Indices (IHAS, HRC, IHIA & RHAM)
- Aquatic Macro-Invertebrates (SASS5 & MIRAI)
- Fish Assemblage Integrity Index (FRAI)
- Fish Health Assessments
- Riparian Vegetation Integrity (VEGRAI)
- Toxicological Analysis
- Water quality Monitoring
- Screening Test
- Riverine Rehabilitation Plans

Soil and Land Capability Assessment

- Soil and Land Capability Assessment
- Soil Monitoring
- Soil Mapping

Visual Impact Assessment

- Visual Baseline and Impact Assessments
- Visual Impact Peer Review Assessments
- View Shed Analyses
- Visual Modelling

Legislative Requirements, Processes and Assessments

- Water Use Applications (Water Use Licence Applications / General Authorisations)
- Environmental and Water Use Audits
- Freshwater Resource Management and Monitoring as part of EMPR and WUL conditions.



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Position in Company	GIS Technician and Visual Specialist
Joined SAS Environmental Group of Companies	2014

EDUCATION

Qualifications

BSC Zoology (University of Pretoria)	2013
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Short Courses

Global Mapper	2015
SANBI BGIS Course	2017
Global Mapper Lidar Course	2017
ESRI MOOC ARCGIS Cartography	2018

AREAS OF WORK EXPERIENCE

South Africa – Gauteng, Mpumalanga, North West, Limpopo, KwaZulu-Natal, Northern Cape, Western Cape Free State

KEY SPECIALIST DISCIPLINES

Freshwater Assessments

- Desktop Freshwater Delineation
- Plant species and Landscape Plan

Visual Impact Assessment

- Visual Baseline and Impact Assessments
- Visual Impact Peer Review Assessments
- View Shed Analyses
- Visual Modelling

GIS

- Mapping and GIS for various sectors and various disciplines (biodiversity, freshwater, aquatic, soil and land capability).