

SOUTHDOWN MAGNETITE PROJECT

Transshipment Operations Landscape and Visual Impact Assessment

Prepared for:

Southern Ports Authority
85 Brunswick Road
Albany WA 6330

SLR Ref: 675.30080.00300-R02
Version No: -v1.0
October 2022



PREPARED BY

SLR Consulting Australia Pty Ltd
ABN 29 001 584 612
Level 16, 175 Eagle Street
Brisbane QLD 4000 Australia
(PO Box 26 Spring Hill QLD 4004)
T: +61 7 3858 4800
E: brisbane@slrconsulting.com www.slrconsulting.com

BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Southern Ports Authority (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
675.30080.00300-R02-v0.1	13 May 2022	Adam Parsons	Dean Butcher	Dean Butcher
675.30080.00300-R02-v0.2	4 July 2022	Adam Parsons	Dean Butcher	Dean Butcher
675.30080.00300-R02-v1.0	6 October 2022	Adam Parsons	Dean Butcher	Dean Butcher

EXECUTIVE SUMMARY

SLR Consulting Australia Pty Ltd (SLR) has been engaged by Grange Resources Limited (Grange) on behalf of the proponent Southern Ports Authority (SPA) to undertake a landscape and visual impact assessment (LVIA) of proposed transshipment operations between the Port of Albany and multiple anchorages points in King George Sound. The LVIA is based on use of Anchorage Point Z in Frenchman Bay.

The transshipment activities involved in exporting the magnetite concentrate are detailed as follows:

- **Loading of the TSV:** A TSV will be loaded within the Port of Albany at Berth 5 with magnetite concentrate up to two times a day using a land based shiploader (subject to separate approvals to be sought by Grange).
- **TSV travels to OGV:** Once loaded, the TSV will travel from the dock at Berth 5 to one of four anchor points within King George Sound (KGS) where an OGV is located.
- **Loading of the OGV:** Once the TSV arrives at the anchor point, it will be positioned alongside the OGV and begin to unload the magnetite concentrate using a boom and conveyor. Initial loading from the TSV to the OGV will take place at the more sheltered inner anchorage (most likely W), with the OGV moving into deeper water at Anchorage Y to complete loading due to vessel under keel clearance requirements.
- Once unloaded, the TSV will travel back to the Port of Albany to be reloaded.

Transshipment operation will include a TSV with a maximum DWT 36kt & OGV with a DWT of ~200kt. For the purpose of the LVIA, the visibility modelling approximated height, bulk and scales of the OGV from the dimensions of a 200ktOGV. This includes the maximum freeboard height and superstructure.

The LVIA is conservatively based on Anchorage Point Z in Frenchman Bay as it is a highly visible location when viewing from multiple vantage points. These include:

- Frenchman Bay Residential Settlement;
- Goode Beach;
- Goode Beach Residential Settlement;
- Vancouver Point;
- Waterbay Point;
- Albany's historic Whaling Station Precinct;
- Cheyne Beach; and
- Bald Head Walking track in Torndirrup National Park.

These vantage points listed above have been considered when assessing the visibility in relation to the selection of public receptor points. They were chosen as they provide a range of visibility vantage points for a variety of land-based locations that would be accessed for a variety of purposes, mainly sightseeing, environmental recreation and when accessing marine based activities.

EXECUTIVE SUMMARY

The location of Anchorage Point Z in Frenchman Bay is visible from private receptors located at the residential settlements of Goode Beach and Frenchman Bay. For the purpose of this LVIA the closest receptor points were indicated at approximately 2km distance from the transshipment location at Anchorage Point Z however, other private receptor points in the residential settlements would also have visibility to Anchorage Point Z.

The social surroundings of the transshipment operations at Anchorage Point Z are mainly related to marine based activities including recreation and aquaculture. The marine based activities include:

- Fishing;
- Tourist sight-seeing;
- Guided hikes and tours along the beaches and headlands;
- Guide scuba and wreck diving;
- Swimming;
- Water Jet skiing ;
- Motor boating and sailing; and
- Annual whale migration watching.

The area has both high economic and environmental value for its unique coastal habitats and offers a pristine beauty that attracts local, national and international visitors.

While the natural environment is a valued characteristic for the Albany region, the Port operations and its waters are a well-established industry of the regional centre of Albany. This a valued and respected industry within the Albany region. Anchorage Point Z, like many of the others, has been utilised for safe passage and pilotage within the Port of Albany for an extended period of time. Ships in this location are common and is a well-established development for the region.

As demonstrated in the LVIA, the transshipment operations are unlikely to cause significant impact to the landscape and visual amenity values of Albany and the Frenchman Bay precinct.

During the course of the assessment, it was found that the visual impacts from the transshipment operations are mostly consistent with activities already occurring within Frenchman Bay and the surrounding King George Sound.

In conclusion, the summary of assessment for the public receptor locations were objectively assessed for their sensitivity of change and the likelihood for these points to be impacted by the transshipment operations. The Effect Significance for all public receptor points were rated **Minor**. All private receptors would have visibility to the transshipment operations occurring at Anchorage Point Z however, these operations would not visually differ from the maritime operations that already occur at this location. In addition, it should be noted that Anchorages W and Y, which are further from shore, are more likely to be utilised in the transshipping operations. The assessment of Anchorage Z is the most conservative assessment location and the basis of the LVIA. The more remote Anchorages W & Y would have lesser impact than that of the conservative assessment case, Anchorage Z.

CONTENTS

1	INTRODUCTION	12
1.1	Background	12
1.2	Objectives and Scope of Works	12
1.3	Transshipment Activities	13
1.4	Study Area Description	15
1.5	Assessment Study Assumptions and Limitations.....	15
1.5.1	Assumptions	15
1.5.2	Limitations.....	15
2	BASELINE VISUAL ENVIRONMENT	16
2.1	Transshipment Location Surrounding Context.....	16
2.1.1	Topography and Landform	16
2.1.2	Roads and Access	16
2.1.3	Climate	16
2.1.4	Vegetation	16
2.1.5	Intertidal & Benthic Habitats.....	17
2.1.6	Marine Fauna	17
3	LANDSCAPE CHARACTER ASSESSMENT.....	17
3.1	Regional Context.....	17
3.2	Baseline Visual Character of Subject Site and Surrounds.....	18
3.2.1	Site Context	18
3.2.2	Subject Site.....	18
4	SOCIAL SURROUNDS.....	19
4.1	Frenchman Bay	19
4.1.1	Industrial Use	19
4.1.2	Recreational Use	20
4.1.3	Visitor demographics.....	20
4.1.4	Valued Characteristics	20
5	VISUAL IMPACT ASSESSMENT	20
5.1	Process	20
5.2	Zone of Theoretical Visibility (ZTV)	21
5.3	Assessment of Visual Impacts for Key Receptors	23
5.4	Receptor Sensitivity	27
5.5	Magnitude of Landscape Change	28
5.6	Impact Significance on the Landscape Character	29

CONTENTS

5.7	Summary of Potential Landscape Character Impact	30
5.7.1	Viewpoint 1 (VP1).....	30
5.7.2	Viewpoint 2 (VP2).....	32
5.7.3	Viewpoint 3 (VP3).....	34
5.7.4	Viewpoint 4 (VP4).....	36
6	SUMMARY OF ASSESSMENT FOR PUBLIC RECEPTORS	38
7	SUMMARY OF ASSESSMENT FOR PRIVATE RECEPTORS	38
8	CONCLUSION	39
9	REFERENCES	40

DOCUMENT REFERENCES

TABLES

Table 1	Summary of the transhipment process durations and operations	14
Table 2	Anchorage Points within Albany Port Waters	18
Table 3	Height of the proposed infrastructure features.....	21
Table 4	Key receptor viewpoint locations for Anchorage Point Z Transhipment Operations.....	24
Table 5	Receptor Sensitivity Rating	27
Table 6	Magnitude of Change.....	28
Table 7	Effect Significance Rating	29
Table 8	Receptor VP1 – Summary of Visual Impact Assessment.....	31
Table 9	Receptor VP2 – Summary of Visual Impact Assessment.....	33
Table 10	Receptor VP3 – Summary of Visual Impact Assessment.....	35
Table 11	Receptor VP4 – Summary of Visual Impact Assessment.....	37
Table 12	Summary of Visual Impact Ratings for each receptor.....	38
Table 13	Nearby Private Receptor	38

FIGURES

Figure 1	Anchorage point Z transhipment operations overall visibility results	22
Figure 2	Public receptor points overall visibility	25
Figure 3	Anchorage point Z transhipment operations visibility from all private receptor points.....	26
Figure 4	VP1 – Goode Beach, North Access Zone of Theoretical Visibility	30
Figure 5	VP2 – Goode Beach, South Access Zone of Theoretical Visibility	32
Figure 6	VP3 – 3 Whaling Station Road, Frenchman Bay Zone of Theoretical Visibility	34
Figure 7	VP4 – Bald Head Walking Trail Zone of Theoretical Visibility	36

CONTENTS

PHOTOS

Photo 1	VP1 – Goode Beach, North Access	30
Photo 2	VP2 – Goode Beach, South Access	32
Photo 3	VP3 – 3 Whaling Station Road, Frenchman Bay.....	34
Photo 4	VP4 – Bald Head Walking Trail, Torndirrup.....	36

GLOSSARY

Abbreviation	Definition
°	Degrees bearing of a point in the angle measured in a clockwise direction from the north line
EP Act	Environmental Protection Act 1986
EPA 2016b	Environmental Factor Guideline - Social Surroundings
EPA 2020c	Statement of Environmental Principles, Factors and Objectives
Ha	Hectare
Km	Kilometre
km/h	Kilometres per hour
Kt	Metric kiloton, equal to 1,000 kilograms
M	Metre
m ²	Metres squared
Nmi	Nautical miles
RL	Relative level

Initialism	Definition
APA	Albany Port Authority
CAD	Computer Aided design
CHM	Canopy and Building Height Model
DEWR	Department of Water and Environmental Regulation
DFOV	Display Field of View
DSM	Digital Surface Model
DTM	Digital Terrain Model
DWT	Deadweight
EIS	Environmental Impact Statement
EPA	Environmental Protection Authority
GIS	Geographical Information System
HFOV	Horizontal Field of View
KGS	King George Sound
LiDAR	Light Detection and Ranging
LVIA	Landscape and Visual Impact Assessment
OGV	Ocean-going Vessel
UTM	Universal Transverse Mercator
VFOV	Vertical Field of View
TSV	Transshipment Shuttle Vessel
ZTV	Zone of Theoretical Visibility

GLOSSARY

Term	Definition
Anchorage	Areas where vessels drop anchor either awaiting entry into port or to undertake cargo handling, passenger transfer, bunkering or other cargo operations associated with the port.
Apparent Horizon	The theoretical limit of visibility where the surface of the earth is no longer visible, accounting for atmospheric diffraction.
Background	Elements at the furthest reaches of a view.
Baseline	The environmental conditions against which any future changes can be measured or predicted and assessed.
Berth	A ship's allotted place at a wharf, dock or terminal.
Benthic	Of, relating to, or occurring in the depths of the ocean.
Bulk	Relates to the trades where dry cargoes such as grain, coal, ore and other commodity raw materials are carried in loose form and loaded directly into the holds of ship.
Cape Size	Is a classification term to describe the largest bulk carrier for the transportation of dry cargo such as grain, coal, ore and other commodity raw materials (100,000 - 199,999 DWT). This is the largest bulk carrier that can access the anchorage within King George Sound, Albany.
Channel	A navigational pathway that a ship uses to travel from one place to another. It can be an artificial or dredged waterway for moving ship traffic.
Cylindrical Image Projection	Standard type rendered by traditional panoramic image captures that maintain a more accurate relative sizes of objects than rectilinear projections, however this is done at the expense of rendering lines parallel to the viewer's line of sight as being curved (even though would otherwise appear straight).
Development Envelope	The conceptual maximum disturbance boundary used in this assessment.
Draft	Distance between the ship's keel and the waterline of the vessel and is of particular significance when evaluating port entry regulations of any vessel due the shallower waters surrounding ports, channels and harbours, etc.
Foreground	Elements at the closest reaches of a view.
Fixed Orientation	Refers to anchorage orientation for transshipment requirements, determined from prevailing winds.
Freeboard	Difference between the total height of the vessel and the draft. It is a height determinant for visual impact modelling of transshipment operations.
Geographical Information System	A system that captures, stores, analyses, manages and presents data linked to location. It links spatial information to a digital database.
Handy Size	Is a classification term to describe the smallest bulk carrier for the transportation of dry cargo such as grain, coal, ore and other commodity raw materials (10,000 - 49,999 DWT). This size ship is commonly used for transshipment purposes between berth and off-shore anchorage.
Hold	A space for carrying cargo in the ships compartment.
Impact Significance	Is the evaluation of receptor sensitivity and magnitude of change where a rating is determined based off visual impacts objectively observed or predicted through a process of assessment of the proposed development.
Infrastructure	Public services that supports human activity such as transportation and / or logistics networks utilities networks, flood defences, telecommunications, etc.
Intertidal	Of or denoting the area of a seashore which is covered at high tide and uncovered at low tide.

GLOSSARY

Term	Definition
Landscape	A spatially heterogeneous area scaled relative to the process of interest. Encompasses physical / environmental values and human values.
Light Detection and Ranging	Is a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variables distances) to the Earth. These light pulses, combined with other data recorded by the airborne system, generate precise, three-dimensional information about the shape of the site and its characteristics.
Magnitude of Change	A term that combines judgements about the size and scale of the effect, the extent of the area over which it occurs, whether it is reversible or irreversible and whether it is short or long term duration.
Midground	Elements between the foreground and background.
Mitigation Measures	Are means to prevent, reduce or control adverse environmental effects of a development, and include restitution for any damage to the environment caused by those effects through replacement, restoration, compensation or any other means.
Port Waters	In relation to a port, means the waters declared to be port waters of the port. Ships that enter these waters are subject to rules and regulations.
Proposal Area	Refer to the area(s) where key infrastructure components are located.
Projection	Refers to image projection that occurs whenever a curved surface is mapped onto a flat surface, or vice versa, in particular with panoramic photography.
Receptor Sensitivity	The extent to which the surrounding landscape when viewed from the receptor point can accept a change of a particular type and scale without unacceptable adverse impacts on its character.
Rectilinear Image Projection	Rectilinear image projections map all straight lines in three-dimensional space to straight lines on the flattened two-dimensional grid. Its primary disadvantage is that it can greatly exaggerate perspective as the angle of view increases, leading to objects appearing skewed at the edges of the frame. It is for this reason that rectilinear projections are generally not recommended for angles of view much greater than 120 degrees.
Sensitive Receivers	Individuals and / or defined groups of people who have the potential to be affected by a proposal.
Subject Site	Refers to the area where key infrastructure components are located.
Super Structure	Part of the ship that emerges from the deck.
Swing circle	The distance given to an individual anchorage site to cater for different size vessels.
Terminal	An area or location which serves as a pathway for handling transport process (loading and/or unloading cargo).
The Development	Refers to The Albany Iron Ore Project - Southdown Magnetite and its associated infrastructure.
The Project	The Albany Iron Ore Project - Southdown Magnetite Project.
The Proposal	Transshipment activities between the Port of Albany and Anchorage Points in King George Sound.
The Site	Refers to the area where key infrastructure components are located.
Transshipment	The logistical operation of cargo handling between multiple vessels.
Transshipment point	Location for the cargo transfer within the port waters.
True Horizon	The theoretical limit of visibility where the surface of the earth is no longer visible, assuming a perfect sphere and no atmosphere.

GLOSSARY

Term	Definition
Under Keel Clearance	The vertical distance between the lowest part of the ship's hull and the seabed
Vantage Point	A location assessed under this assessment as potentially being impacted by the Project.
Viewpoint	A location that offers views of the surrounding area.
Viewshed	The area visible from a particular location.
Viewshed Map	A viewshed map is the geographical area that is visible from the location. It includes all surrounding points that are in the line-of-sight with that location and excludes points that area beyond the horizon or obstructed by terrain and other features.
Visual Absorbance Capacity	The capacity of a landscape to accommodate physical changes without a change in its character.
Visual Amenity	The overall pleasantness of the views people enjoy of their surroundings, which provide an attractive visual setting or backdrop for the enjoyment of activities of the people living, working, recreating, visiting or traveling through an area.
Visual Catchment Area	Identifies the area within which the Project can potentially be seen.
Visual Impact Assessment	The analysis of changes in the appearance of the landscape because of a development. Impacts may be negative and/or positive.
Visual Receptors	Individuals and / or defined groups of people who have the potential to be affected by a proposal.
Zone of Theoretical Visibility	A map, digitally produced, showing areas of land within which, a development is theoretically visible.

1 Introduction

1.1 Background

Grange Resources Limited (Grange) has commissioned SLR Consulting Pty Ltd (SLR) on behalf of the proponent Southern Ports Authority (SPA) to prepare a Landscape and Visual Impact Assessment (LVIA) for proposed transshipment activities (the proposal) associated with the Southdown Magnetite Project.

The Southdown Magnetite Project has been granted primary environmental approvals by the Western Australian government under the *Environmental Protection Act 1986* and by the federal government under the *Environment Protection and Biodiversity Conservation Act 1999*. The approved project involves transporting magnetite from Albany Port via a new berth (Berth 7) to be constructed.

Approvals for mining, transport of magnetite to Albany Port, storage and handling at Albany Port and ship loading are held by Grange. Approvals for the development of Berth 7 and associated dredging at Albany Port are held by SPA.

The Southdown Magnetite Project is now also proposing to export stockpiled magnetite utilising a transshipment vessel (TSV) to be loaded at existing Berth 5 to transport to and load ocean-going vessels (OGVs) anchored in the King George Sound (KGS). Approvals for facilities to be built at Berth 5, including facilities to load the TSV, will be sought by Grange. Approvals for transshipment and loading of OGVs will be sought by SPA.

1.2 Objectives and Scope of Works

The objective of this LVIA is to demonstrate how the Proposal can meet the Environmental Protection Authority's (EPA) environmental objectives for Social Surroundings "to protect social surroundings from significant harm". The objective recognises the importance of ensuring that social surroundings are not significantly affected as a result of implementation of a proposal of scheme. (EPA 2016).

In determining the significance of potential impacts of the proposed development, it is important to establish what is meant by social surroundings. The EP Act 1986 states there are two qualifying definitions for social surroundings that includes:

Environment, subject to subsection (2), means living things, their physical, biological and social surroundings, and interactions between all of these (subsection 3(1)).

The second qualifying definition regarding social surroundings relates to humankind which states:

For the purposes of the definition of the environment, the social surroundings of man are his aesthetic, cultural, economic and social surroundings to the extent that those surroundings directly affect or are affected by his physical or biological surroundings.

In determining the impacts of proposals of scheme it is important to qualify what is meant by 'significance'. The EP Act 1986 states:

Significant proposal means a proposal likely, if implemented, to have a significant effect on the environment.

On the significant factors for the social surroundings is concerned with the 'Amenity'. The EPA defines 'Amenity' as:

Amenity is a broad term that generally means the qualities, attributes and characteristics of a place that make a positive contribution to quality of life.

For the purpose of EIA, amenity values include both visual amenity, and the ability for people to live and recreate within their surroundings without any unreasonable interference with their health, welfare, convenience and comfort...

...Natural landscapes and views often contribute to visual amenity value for one person, may not be valued by another...

The following report is an objective evaluation of the proposed development in relation to the social surroundings (and the amenity it offers) to assess the significant effect it may, or may not, have on the physical and / or biological environment.

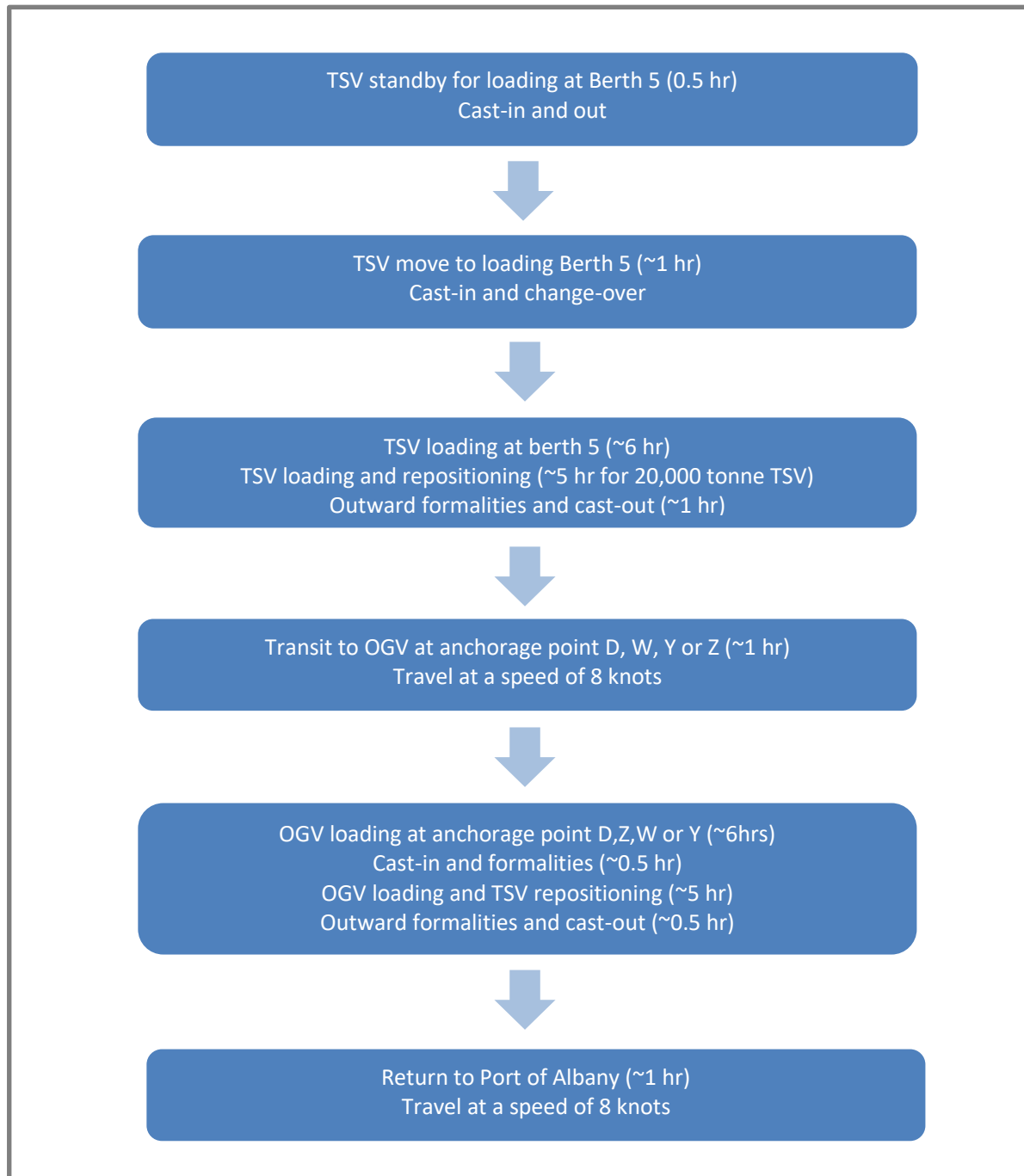
1.3 Transshipment Activities

The transshipment activities involved in exporting magnetite concentrate from the Southdown Magnetite Project are detailed as follows:

- **Loading of the TSV:** A TSV will be loaded within the Port of Albany at Berth 5 with magnetite concentrate up to two times a day using a land based shiploader (subject to separate approvals to be sought by Grange).
- **TSV travels to OGV:** Once loaded, the TSV will travel from the dock at Berth 5 to one of four anchor points within King George Sound (KGS) where an OGV is located. Between loadings, the OGV is expected to move into deeper water.
- **Loading of the OGV:** Once the TSV arrives at the anchor point, it will be positioned alongside the OGV and begin to unload the magnetite concentrate using a boom and conveyor. Once unloaded, it will travel back to the Port of Albany to be reloaded.
- Once unloaded, the TSV will travel back to the Port of Albany to be reloaded.

Table 1 below presents a summary of the transshipment process durations and operations.

Table 1 Summary of the transshipment process durations and operations.



1.4 Study Area Description

The LVIA focuses on the following transshipment components:

- Anchorage Point Z within the port waters of King George Sound in Frenchman Bay;
- Cape size OGV anchored at point Z for the durations as indicated in the process summary in **Table 1**; and
- Land-based public and private receptor sensitivity from Vancouver Peninsula to Flinders Peninsula.

1.5 Assessment Study Assumptions and Limitations

1.5.1 Assumptions

- TSV size to be Handy with a maximum DWT of 36kt;
- OGV size to be Capesize with a maximum DWT of 200kt;
- Capesize vessel dimensions for dry cargo bulk carrier are approximated, from an assumed draft, freeboard and superstructure or deckhouse heights;
- Transshipment to occur in 2 stages with loading of OGV at an inner anchorage and outer anchorage area, to maintain an appropriate under-keel clearance;
- Transshipment loading to occur as a fixed orientation based on local meteorological data;
- Transshipment frequency as per the process and operations outlined in **Table 1**; and
- Tide range of 1 metre at King George Sound will bear minimal impact on modelling and height variation will not form part of the study.

1.5.2 Limitations

- Anchorage point coordinates are approximated as Port of Albany information guides not accessible
- Transshipment to occur at anchorage positions D, W, Y or Z however, this LVIA is limited to anchorage position Z as it is the closest anchorage to land-based sensitive receptors;
- Designated Anchorage Point Z is a pre-existing protected anchorage and the frequency and duration of its current use is unknown;
- Designated anchorage position swing circle size is unknown however, assumed to have a radius of 0.35nm;
- The frequency of the unloading cycle and duration of anchorage at Anchorage Point Z is unknown; and
- Impact of transshipment operations on other ship operations that utilise Anchorage Point Z is unknown.

2 Baseline Visual Environment

The baseline description outlines the current state of the Proposal Area (the extent of potential visual impacts to social surroundings associated with the TSV and OGV transshipment location) as it would likely function in the absence of change resulting from the introduction of the proposed transshipment operations.

2.1 Transshipment Location Surrounding Context

The transshipment designated anchorage location is situated in Frenchman Bay. The size of the bay is approximately 860ha and is in the south-east area of King George Sound. To the south-west Frenchman Bay is surrounded by the Torndirrup National Park which interfaces with Goode Beach that extends from Mistaken Island Nature Reserve in the north and Flinders Point in the south-east. The residential settlement, also known as Goode Beach, is located centrally to the south-west below Vancouver Lake. Whaler Beach makes a small portion of the coastal extents in the south in-between Vancouver Point and Waterbay Point. The farthest eastern landmark that defines the surrounding context is Seal Island Nature Reserve (Transport WA 2022).

2.1.1 Topography and Landform

The topography of the transshipment surrounding context is characterized by the coastal dune systems, limestone or granite headlands and hills with internal lakes that occurs within the Vancouver and Flinders Peninsula. The interface of the bay is defined by the fine quartz sands of Goode Beach (Sandiford & Barret 2010).

2.1.2 Roads and Access

The main access road that provides access to the foreshore surrounding context is via Frenchman Bay Road. This road is located within the Torndirrup National Park. The alternative access is via Austin Road that is a direct route into the Goode Beach settlement.

2.1.3 Climate

The Albany area is characterized by a Mediterranean climate with mild wet winters and mild to hot dry summers. The average annual temperature in Albany ranges from 11.8 – 19.5°C. The average summer temperature range between 14 – 22.9°C, whilst the average winter temperatures range between 8.2 – 15.8°C. The annual mean rainfall for Albany is 927.1mm (BOM 2022).

2.1.4 Vegetation

The vegetation that is located in the surrounding context is located on Vancouver Peninsula. This extent of vegetation is expansive as there is no development outside the Goode Beach settlement and surrounding the historic whaling station at Cheyne Beach. The vegetation community is identified as Mixed *Banksia littoralis* Open Woodland. Sandiford & Barret 2010 describes this vegetation community as:

“Mixed Banksia littoralis Open Woodland is essentially ... Banksia littoralis low open woodlands that occur in small seasonal swamps but do not show uniformity in understorey species nor fit other B. littoralis dominated woodlands. Most occurrences were on flats inland of the coastal dune systems... The understorey is either a shrubland or open heath over a sedgeland. Dominant shrubs species, recorded at different sites included Astartea laricifolia, Taxandra parviceps, Taxandra fragrans and Xanthorrhoea preissii. Lepidosperma effusum was dominant in some modified sites. The presence of species more typical of well drained sandy sites including Melaleuca thymoides, Dasypogon bromeliifolius and patersonia umbrosa suggest that some sites are reasonably free draining... Occurrence in low-lying areas with sandy/loamy soil.

2.1.5 Intertidal & Benthic Habitats

The intertidal and benthic habitats have been characterised as the following habitat classes that include Sparse Seagrass, Seagrass, Sand, Bright Sand and Dark Sand (BMT 2020). These habitat classes, particularly seagrasses habitats provide refuge for juvenile fish and benthic invertebrates and feeding areas for water birds. The predominant seagrass meadows within Frenchman Bay include *Posidonia spp.* and *Amphibolis spp.* in various densities along the shore. Macroalgal habitats are also present where seagrass communities have been outcompeted in these ecosystems. They include kelp *Ecklonia radiata* which is common with the reef areas surrounding Mistaken Island. In the deeper waters of Frenchman Bay sand habitats are interspersed between seagrasses and macroalgal beds (BMT 2020).

2.1.6 Marine Fauna

The primary marine fauna are temperate species with a small portion of these being endemic. They include Mammals, Reptiles & Fish (BMT 2020). The conservation significant species include:

- Humpback Whales (*Megaptera novaeangliae*)
- Southern Right Whales (*Eubalaena australis*)
- Common Dolphins (*Delphinus delphis*)
- Bottlenose Dolphins (*Tursiops truncatus*)
- Australian Sea Lions (*Neophoca cinerea*)
- New Zealand Fur-seals (*Arctocephalus forsteri*)

3 Landscape Character Assessment

The Landscape Character Assessment is a tool for identifying the distinctive characteristics of a site, its context and surrounds without putting a value to it. The site inspection was carried out as a desktop study with onsite assistance with selected image captures. Sensitive receivers and measurement techniques for data collection relevant to visual assessments are used to determine visual impacts.

3.1 Regional Context

The proposed transshipment operations are located at Anchorage Point W, Y in King George Sound, & Anchorage Point Z in Frenchman Bay. Anchorage Point Z has been chosen as the most conservative assessment and operations are more likely to occur at Anchorage Point W & Y. The bay is located 430kms south of Perth and 20km south of the Albany CBD. The anchorage points are within the Port of Albany, Port Waters. Port of Albany is one of three ports that are under the Southern Ports Authority. The other 2 are Port of Bunbury, north-west of Albany and Port of Esperance, east-north-east of Albany. All three ports facilitate trade for southern regions of Western Australia (Southern Ports 2022).

3.2 Baseline Visual Character of Subject Site and Surrounds

3.2.1 Site Context

Anchorage Point Z in Frenchman Bay is defined by Vancouver Peninsula that runs in a north / south orientation and is situated south-west of King George Sound. To the south of the site is the Torndirrup National Park which features many trails, lookouts and natural attractions within a coastal environment.

Anchorage Point Z is approximately 4.9nmi (9.1km) from Berth 5 Magnetite Ore Stockpile Terminal and is accessed via Ataturk Channel, the main access to Port of Albany and Royal Princess Harbour. It is one of 11 anchorages points within the King George Sound (Transport WA 2022). Locations of the anchorage points are listed in **Table 2** below.

Table 2 Anchorage Points within Albany Port Waters

Anchorage	Locations
Point A	Latitude 35° 2' 48" S, Longitude 117° 56' 0" E
Point B	Latitude 35° 2' 24" S, Longitude 117° 56' 36" E
Point C	Latitude 35° 3' 6" S, Longitude 117° 57' 12" E
Point D	Latitude 35° 3' 42" S, Longitude 117° 57' 48" E
Point E	Latitude 35° 1' 12" S, Longitude 117° 57' 12" E
Point F	Latitude 35° 1' 36" S, Longitude 117° 58' 36" E
Point G	Latitude 35° 2' 24" S, Longitude 117° 58' 36" E
Point W	Latitude 35° 4' 42" S, Longitude 117° 59' 24" E
Point X	Latitude 35° 2' 0" S, Longitude 118° 0' 0" E
Point Y	Latitude 35° 3' 36" S, Longitude 118° 1' 0" E
Point Z*	Latitude 35° 4' 24" S, Longitude 117° 57' 24" E

* Transshipment to occur at multiple anchorage points however point Z will be assessed for visual impact due to its proximity to adjacent land-based receptors.

3.2.2 Subject Site

Anchorage Point Z is located centrally within Frenchman Bay. It is located 1.08nmi (2.0km) from Goode Beach to the west, 0.88nmi (1.63km) from Seal Island Nature Reserve toward the east, 1.31nmi (2.43km) from Albany Historic Whaling Station at Cheyne Beach. To the north-east Anchorage Point Z is 0.77nmi (1.42km) from Anchorage Point D and to the north-east 0.76nmi (1.4km) from Mistaken Island Nature Reserve (Transport WA 2022). Ships that are anchored at Anchorage Point Z can be seen from vantage points along Vancouver Peninsula through to Bald Head Walking Track in Flinders Peninsula.

4 Social Surrounds

The transshipment operations are in multiple locations. These include:

- Port of Albany Berth 5 & Royal Princess Harbour;
- Ataturk Channel & King George Sound; and
- Anchorages Points D, W, Y & Z.

For the purposes of assessing the social surrounds the study area will include the context of Anchorage Point Z located in Frenchman Bay.

4.1 Frenchman Bay

Frenchman Bay is under the jurisdiction of 3 main authorities: Marine - Department of Transport, Southern Ports, Port Albany, port waters and Department of Primary and Regional Development. To the west and south-west of Frenchman Bay Torndirrup National Park is managed by the Department of Biodiversity, Conservation and Attractions – Parks and Wild Service and the settlements of Goode Beach & Frenchman Bay are located with the Local Government Area of the City of Albany, Vancouver Ward.

4.1.1 Industrial Use

Port of Albany

The port waters of the Port of Albany include the Anchorage Point Z in Frenchman Bay. Navigation and Pilotage to this anchorage point is under the direction of the Southern Ports Authority where various shipping uses currently utilise this point. This includes both cargo and cruise ships for managing the safety and efficiency of both the port and local maritime industries.

South Coast Aquaculture Development Zone

Aquaculture operations that form part of the South Coast Aquaculture Development occur within the Frenchman Bay area. These operations are the lease arrangements for shellfish farming and occur:

- North of Flinders Peninsula Frenchmans Bay; and
- North and south of Mistaken Island.

Tourism

Tourism is an established industry within Albany and the Frenchman Bay region has many natural attractions and scenic qualities. Activities include:

- Annual Whale Migration watching;
- Visiting historic Whaling Station at Cheynes Beach;
- Guided hikes and tours along the beaches and headlands; and
- Guided scuba and wreck diving (in particular, the Former HMAS Perth wreck).

4.1.2 Recreational Use

The following activities are the most common recreational uses in the Frenchman Bay and include:

- Beach fishing and boat fishing;
- Scuba / wreck diving and snorkelling;
- Swimming;
- Nature walks and National Park Hikes;
- Water Jet skiing in selected areas; and
- Motor boating and sailing.

4.1.3 Visitor demographics

Visitor demographics may include overseas visitors in the country for holiday, business or education. These types of tourists will utilise different services within the local economy. The data provided by Tourism Research Australia (TRA 2020), states the most visitors are domestic visitors followed by domestic tourists for day trips.

4.1.4 Valued Characteristics

The study area is located within a highly natural area that offers oceanic, harbour, beaches and headlands that are undeveloped. It is a place that has many natural habitats that support and house endemic and migratory fauna species.

5 Visual Impact Assessment

5.1 Process

The Visual Impact Assessment generally applies the assessment techniques set out in the *'Visual Landscape Planning in Western Australia: a manual for evaluation assessment, siting and design'* prepared by Department of Planning, Lands and Heritage (DPLH) (November 2007).

The assessment includes the following:

- Review of the proposal (scale, bulk and height);
- Analysis of the subject site (visual exposure, visual qualities, and landscape values);
- Mapping of theoretical visual catchment, visual receptors, and sensitive receptor groups;
- Identification of potential impacts on key receptors including the rating of magnitude for each receptor group;
- Rating of impact significance for each receptor group. The significance is evaluated as a product of the sensitivity or value of the receptor, and the magnitude of impacts on the receptor; and
- Potential mitigation measures to meet the necessary planning requirements and any community expectations.

The assessment included a detailed site investigation conducted in November 2021 and desktop analysis prepared in April 2022. The desktop analysis and site investigation included the following:

- Data review;
- Aerial photography review;
- Onsite image capture at key receptor points; and
- GIS modelling of the topography and the proposal.

The visual receptor points have been selected by first analysing recent satellite aerial imagery to identify areas that may have impact significance. These include both public and private receptor points. Several points are nominated, and a site visit is conducted where photographs are taken at each point with a general 55 degrees bearing in the direction of the subject site. 55 degrees is selected as it replicates the same angle of view that observers perceive. These visual receptors points are analysed and reduced to demonstrate key locations that may, or may not, perceive significant impact from the subject site and its proposed infrastructure. Once these receptors, at key locations, have been determined a visibility model is run to ascertain the likelihood of the proposed infrastructure at the subject site to be seen from these receptor points. This is referred to as the Zone of Theoretical Visibility (ZTV); the detail of such is detailed below.

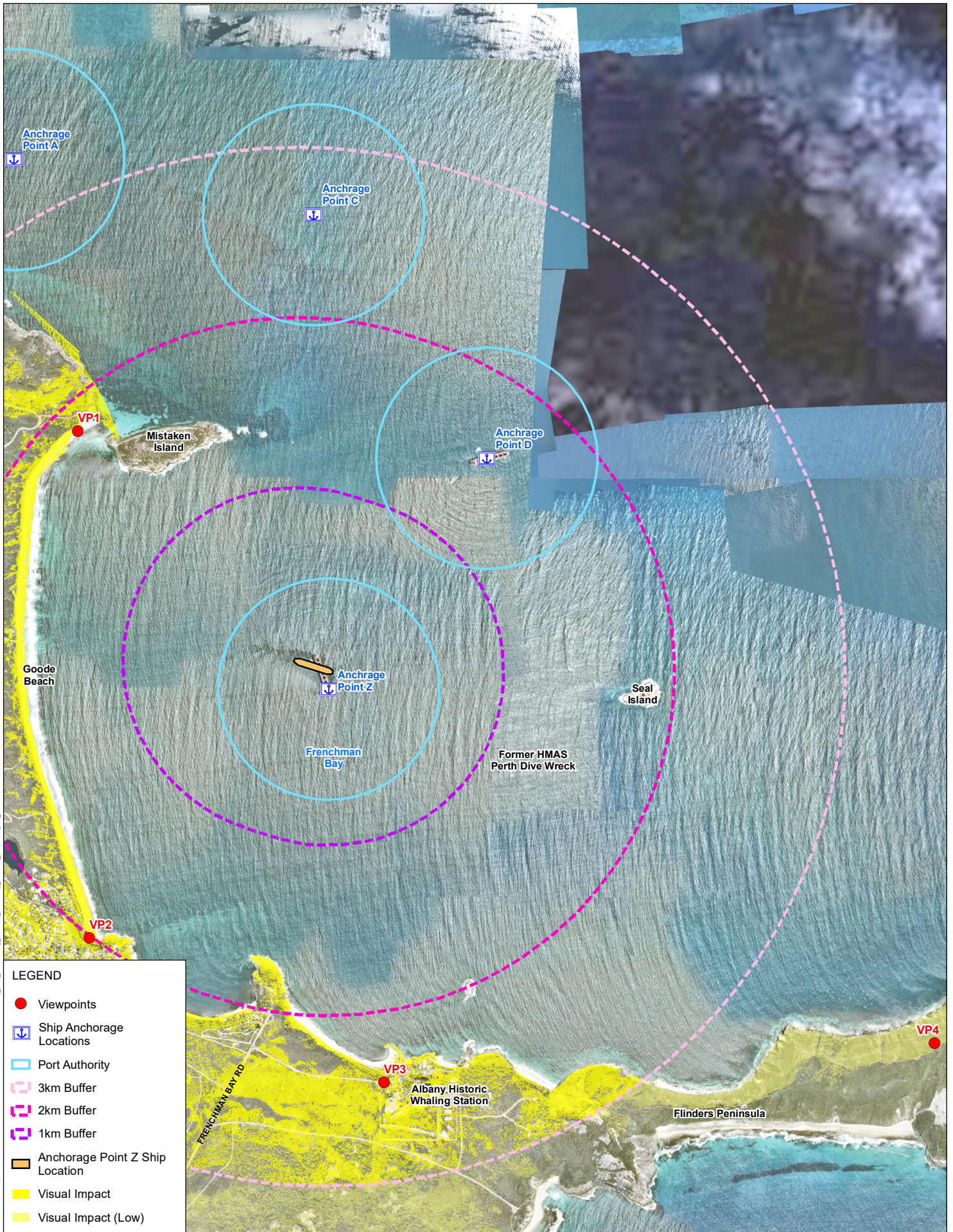
5.2 Zone of Theoretical Visibility (ZTV)

The 1m Digital Surface Model (DSM) was derived from point cloud data supplied by DWER (Department of Water and Environmental Regulation, 2012 and 2013 as LiDAR (Light Detection and Ranging)). The visibility tool was run using the 1m DSM as the raster input. The 1m DSM includes vegetation and heights as of the date of capture of the LiDAR which may have changed to the current date. The proposed infrastructure features for TSV and the OGV, along with the photo locations were used as the observer feature inputs within the visibility tool. The proposed infrastructure heights were researched by SLR for the vessels. The photo locations used an observer offset of 1.7m (average height of a person) for the visibility analysis. The proposed and indicative heights were extracted from CAD files provided by the Client (See below table). Positive visibility results occur within Frenchman Bay a mask has been applied so these results are not displayed.

The visibility model is then analysed in comparison with the key receptor points to see if, or to what significance, the proposed infrastructure could be observed. These key receptor points are then assessed for the potential visual impacts and given a sensitivity and magnitude rating to ascertain objectively the potential visual impact.

Table 3 Height of the proposed infrastructure features

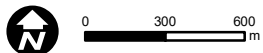
Site Location	Description	Height
Anchorage Point Z	• TSV size to be Handy with a maximum DWT of 36kt *	20m*
	• OGV size to be Capesize with a maximum DWT of 200,000 tonnes	50m*
* Estimated total heights above sea level of freeboard and superstructure for TSV & OGV.		



H:\Projects\SLR\675-PEP\675-30080_00300_GIS\Visual_Impact\Statements\106_SLC_Draft\01_CAD\GIS\SLR\675-30080_00300_Visual_Impact_Overall_Visibility_Results_AnchorageZ_02.mxd

LEGEND

- Viewpoints
- ⚓ Ship Anchorage Locations
- Port Authority
- 3km Buffer
- 2km Buffer
- 1km Buffer
- Anchorage Point Z Ship Location
- Visual Impact
- Visual Impact (Low)



Coordinate System: GDA 1994 MGA Zone 50
 Scale: 1:28,500 at A4
 Project Number: 675.30080.00300
 Date: 12-May-2022
 Drawn by: PW
 Reviewed by: PMG, AP, DB

Data Source:
 Nearmap Imagery Jan 2022
 Department of Water &
 Environmental Regulation

SOUTHDOWN MAGNETITE PROJECT

ANCHORAGE POINT Z TRANSHIPMENT OPERATIONS OVERALL VISIBILITY RESULTS

FIGURE 1

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

5.3 Assessment of Visual Impacts for Key Receptors

Visual receptors are people or groups of people that may be affected by the proposal. Described below are a list of potential visual receptors that are often identified based on a number of key parameters. Depending on the site, proposed use and future anticipated impacts, not all of these may be selected as receptors. These parameters could include:

- Proximity of the receptor – most effected visual receptors are anticipated to be located within a 3km radius of the Project (unless in an elevated position).
- Drivers or passengers of vehicles travelling past, through or alongside the subject site.
- Workers on or near the site that visit or work in in the vicinity of the development locations.
- Members of the general public accessing adjoining public areas (conservation areas) for recreational or visual purposes.
- Permanent residents living near the subject site.

Public receptors (views visible by the general public) are accepted as the most suitable for Visual Impact Assessments, because they represent the highest number of visitations or views to the nominated site in question. Private receptors (namely from private residences) can be selected if the views are unique, significant or the combined effects on a number of residents are considered high.

Visual receptor points were initially identified through desktop assessment including the review of aerial photography and GIS data sets, as well as in **Figure 1** visibility results. These included several locations that may have a likelihood to be impacted by the proposed infrastructure on the subject sites. Other image capture locations were removed from the assessment as it clearly showed no potential visual impacts. These views points were discounted due to the following reasons:

- Relative distances from the site were too great.
- Views blocked or hindered due to presence of existing vegetation or topography.
- Limited viewing opportunities along roads due to relative road speeds and location of the subject site in relation to direction of travel.

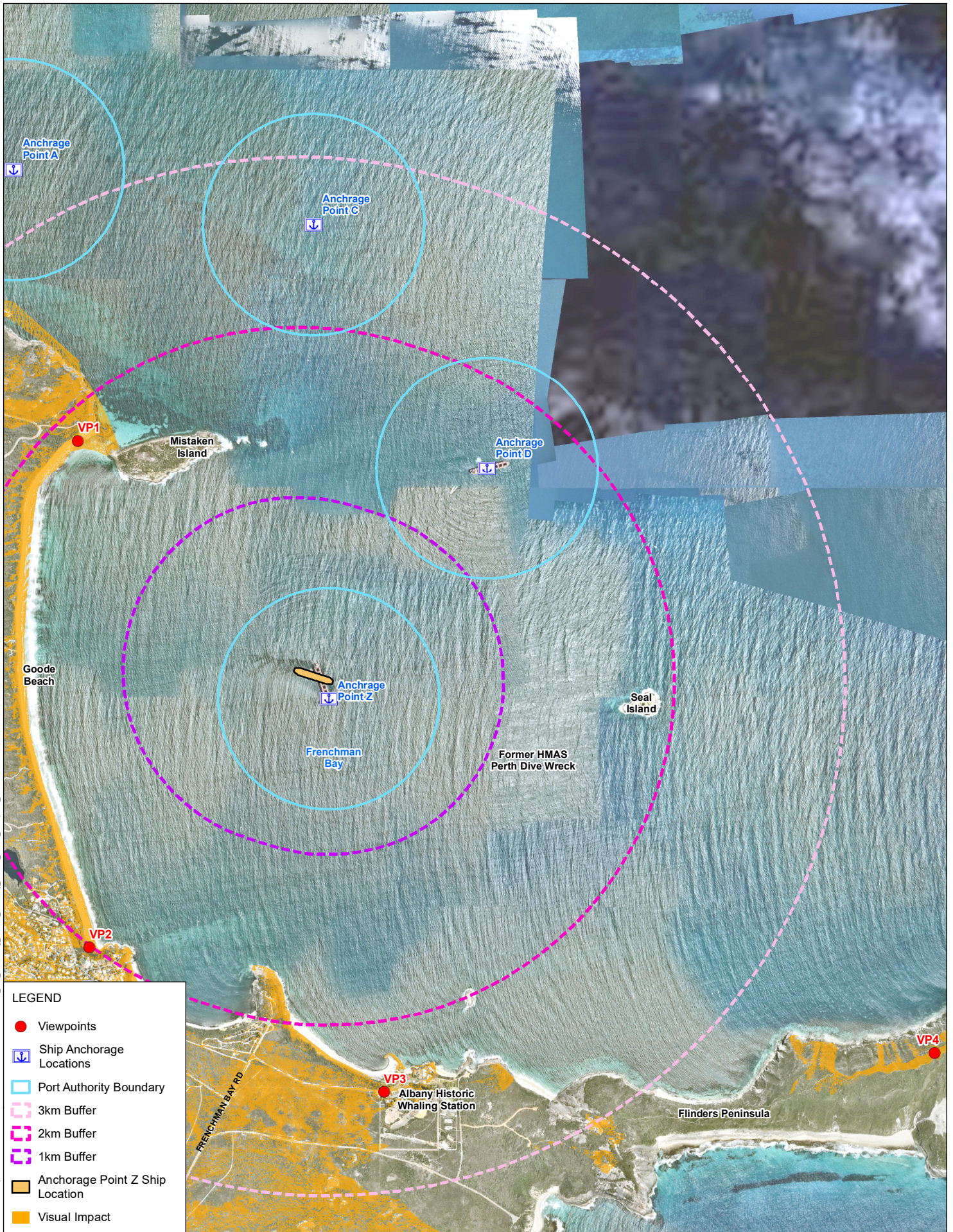
The remaining visual receptor points, as illustrated in **Figure 2** where selected due to the higher likelihood of visual impact. The image captures included multiple photos that have been stitched together to demonstrate a view to match what is perceived by an observer. Visibility modelling is overlaid with the selected viewpoints to assess the visibility results.

These visual receptor points were selected to review both public and private locations for Anchorage Point Z transshipment operation. These are illustrated in **Figure 2 & Figure 3** and were selected as they demonstrate a higher likelihood of capturing perceivable change due the proposed infrastructure. The private receptors were selected from positive cells being identified on the visibility modelling within the 3km buffer from the centre proposed infrastructure. Street side image captures at private receptors (residence ingress), with bearing toward the proposed infrastructure, are included to capture the current conditions. These are included to help ascertain what conditions are currently found on site and if there is, or is not, any existing vegetation that may impact views.

The key receptors viewpoint locations are listed below in **Table 4** includes street address and coordinate locations.

Table 4 Key receptor viewpoint locations for Anchorage Point Z Transshipment Operations

Viewpoint	Address	Coordinates
VP1	Access from Quaranup Rd, Vancouver Peninsula WA	35° 3' 42.5211" S 117°56' 5239" E
VP2	Access from La Perouse Rd, Goode Beach WA	35° 5' 19.0018" S 117°56'20.79" E
VP3	3 Whaling Station Rd, Torndirrup WA	35° 5' 45.9348" S 117°57' 29.2" E
VP4	Access from Bald Head Rd, Torndirrup WA	35° 5' 37.4985" S 117°59' 36.55" E



H:\Projects\SLR\075-PEF\075-30080-00300-GIS\Visual_Impact_Statements\106_SLP_Draft\01_CAD\GIS\SLR\075-30080-00300-Offloading_Overall_Visibility_Results_Public_Receptors_02.mxd

LEGEND

- Viewpoints
- Ship Anchorage Locations
- Port Authority Boundary
- 3km Buffer
- 2km Buffer
- 1km Buffer
- Anchorage Point Z Ship Location
- Visual Impact



DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



0 300 600 m

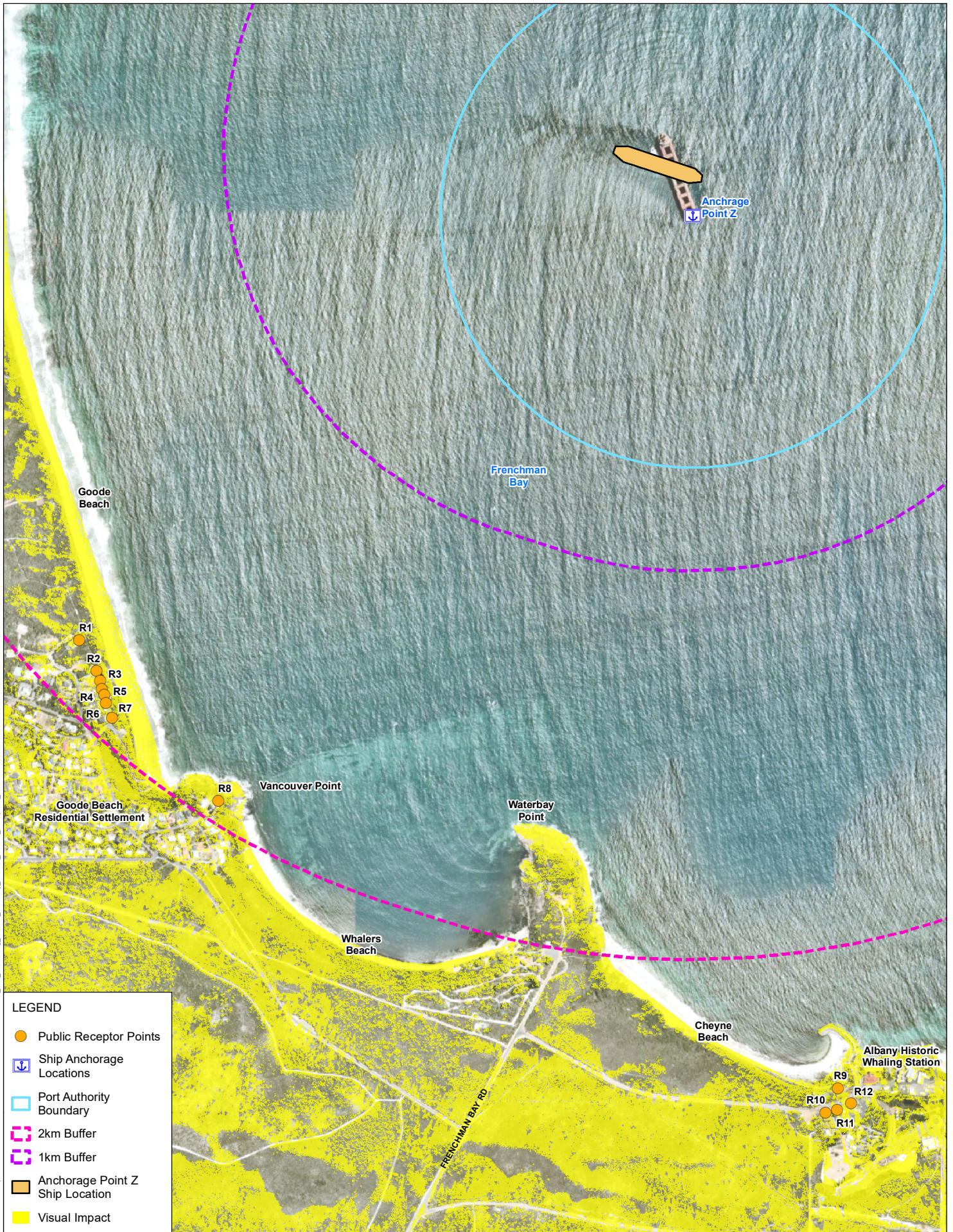
Coordinate System:	GDA 1994 MGA Zone 50
Scale:	1:28,500 at A4
Project Number:	675.30080.00300
Date:	12-May-2022
Drawn by:	PW
Reviewed by:	PMG, AP, DB

Data Source:
 Nearmap Imagery Jan 2022
 Department of Water &
 Environmental Regulation

SOUTHDOWN MAGNETITE PROJECT

ANCHORAGE POINT Z TRANSHIPMENT OPERATIONS VISIBILITY FROM ALL PUBLIC RECEPTOR POINTS - OVERALL VISIBILITY

FIGURE 2



H:\Projects\SLR\675-PEF\675-30080\0200 GIS Visual Impact\Shelternist06 SLR-Draft\01 CAD\GIS\SLR\675\0200_F03_Offloading_Overall_Visibility_Resalts_Private_Receptors_L02.mxd

LEGEND

- Public Receptor Points
- ⚓ Ship Anchorage Locations
- Port Authority Boundary
- 2km Buffer
- 1km Buffer
- Anchorage Point Z Ship Location
- Visual Impact



DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

	0 150 300 m
Coordinate System:	GDA 1994 MGA Zone 50
Scale:	1:12,500 at A4
Project Number:	675.30080.00300
Date:	12-May-2022
Drawn by:	PW
Reviewed by:	PMG, AP, DB

Data Source:
Nearmap Imagery Jan 2022
Department of Water &
Environmental Regulation

SOUTHDOWN MAGNETITE PROJECT

ANCHORAGE POINT Z TRANSHIPMENT OPERATIONS VISIBILITY WITH ALL CLOSEST PRIVATE RECEPTOR LOCATIONS

FIGURE 3

5.4 Receptor Sensitivity

The receptor sensitivity is derived from a combination of factors including:

- Receptors interest in the visual environment (high, medium or low interest in their everyday visual environment and the duration of the effect).
- Receptors viewing opportunity (prolonged, regular viewing opportunities).
- Number of viewers and their distance / angle of view from the source of the effect, extent of screening / filtering of view.

Whilst the assessment of visual values and effects is largely measured on a qualitative basis, assessment against scale enables a more objective evaluation and comparison of sensitivity of receptors and magnitude of effects. The Receptor Sensitivity Rating is described as being High, Medium, Low or Negligible as described in **Table 5**.

Table 5 Receptor Sensitivity Rating

Receptor Sensitivity	Description
High	<ul style="list-style-type: none"> • Visitors to heritage sites, regionally important locations, scenic routes, lookouts within 2.5km with quality views, important views of the site and surrounding areas where landscape is the specific focus. • High numbers of visitors • Views to landscape that are rare and or unique and are possibly vulnerable to change • Views from residences within 1km of the site or are representative of high-quality views
Medium	<ul style="list-style-type: none"> • Travellers/visitors along roads or rail routes that are not scenic routes but offer quality views within 2.5km of the site • Medium numbers of visitors/ residents (rural communities or townships) • Views that are representative of local character or sense of place but are not rare or unique • Views from residences beyond immediate vicinity (1km-5km) of the site or are representative of moderate quality views • Recreational users/ viewers beyond 2.5km from the site with moderate interest in their surrounds
Low	<ul style="list-style-type: none"> • Travellers/visitors along roads or rail routes that are not scenic routes but offer reasonable views within 4km of the site • People at place of work where setting or views not important to quality of working environment • Recreational users not dependent on views or scenic quality of landscape • View experienced take in broad context with which site is visible but not an important element. • Small numbers of visitors with passing interest in their surroundings (those travelling along mid-level roads) • Viewers whose interest is not specifically focused on landscape or scenic qualities (commuters, workers)
Negligible	<ul style="list-style-type: none"> • Very occasional or low level of users with passing interest in their surrounds (those travelling along minor roads or views from the air) • Travellers/visitors along unsealed roads offering views greater than 4km of the site

5.5 Magnitude of Landscape Change

The Magnitude of Change to the landscape character depends on the nature, scale, intensity, extent and duration of the impacts / change due to proposal. The magnitude of change also depends on the loss, change or addition of any feature to the existing landscape and is based on the character type that is most likely to be impacted by the project prior to the addition of any mitigation measures.

The Magnitude of Change is described as being High, Medium, Low or Negligible as described in **Table 6**.

Descriptions of Magnitude and Sensitivity are illustrative only and there is no defined boundary between levels of impacts.

Table 6 Magnitude of Change

Magnitude of Change	Description
High	<p>Dominant Change</p> <ul style="list-style-type: none"> Major change in view at close distances, affecting substantial part of the view continuously visible for a long duration or obstructing a substantial part or important elements of the view Overwhelming loss or additional features in the view such as the nature of view or character of landscape fundamentally changed Views to key landscape features affected Visual amenity of local residents or road users substantially diminished Substantial change to the landscape due to loss of and or change to elements, features or characteristics of the landscape creating an overall worsening of landscape quality
Medium	<p>Considerable Change</p> <ul style="list-style-type: none"> Clearly perceptible changes in views at intermediate distances resulting in either distinct new element in a significant part of the view or a more widely ranging, less concentrated change across a wider area Significant loss or addition of features in the view, such that nature of view or character of landscape is altered Noticeable contrast of any new features in the view such that the nature of the view or landscape character is changed Noticeable contrast of any new features or changes compared to existing landscape Views to key landscapes partially obstructed but views remain intact
Low	<p>Noticeable Change</p> <ul style="list-style-type: none"> Minor memorable change to the landscape or views Temporary or reversible impact Landscape dominant element and built form / development well integrated within it Little permanent change or no fundamental change to local landscape character
Negligible	<p>Barely perceptible change</p> <ul style="list-style-type: none"> No memorable or rarely perceptible change to landscape character or key views

5.6 Impact Significance on the Landscape Character

The Impact Significance is evaluated according to 2 key criteria as noted above and is reflected in **Table 6 & Table 7**. The rating is a means of comparing impacts on different receptors. Professional judgement and experience have been applied in order to identify the level of significance for each character type which has been assessed on its own merits. They include:

- The sensitivity of the receptor or existing landscape; and
- The magnitude of the change or impact that is likely to occur.

The process of assessment and the use of the ratings tables reflect typical outcomes for visual impacts.

- Impacts on receptors that are particularly sensitive to change in views and visual amenity are more likely to be significant; and
- Impacts that constitute a substantial change to the visual environment are likely to be more significant than the impacts that do not cause substantial change.

Table 7 Effect Significance Rating

		Magnitude of Change in Landscape			
		High (Dominant Change)	Medium (Considerable Change)	Low (Noticeable Change)	Negligible (Barely Perceptible Change)
Receptor Sensitivity	High	High	Moderate-High	Moderate	Minor-Moderate
	Medium	Moderate-High	Moderate	Minor-Moderate	Minor
	Low	Moderate	Minor-Moderate	Minor	Minor - Negligible
	Negligible	Minor-Moderate	Minor	Minor - Negligible	Negligible

5.7 Summary of Potential Landscape Character Impact

5.7.1 Viewpoint 1 (VP1)



Photo 1 VP1 – Goode Beach, North Access

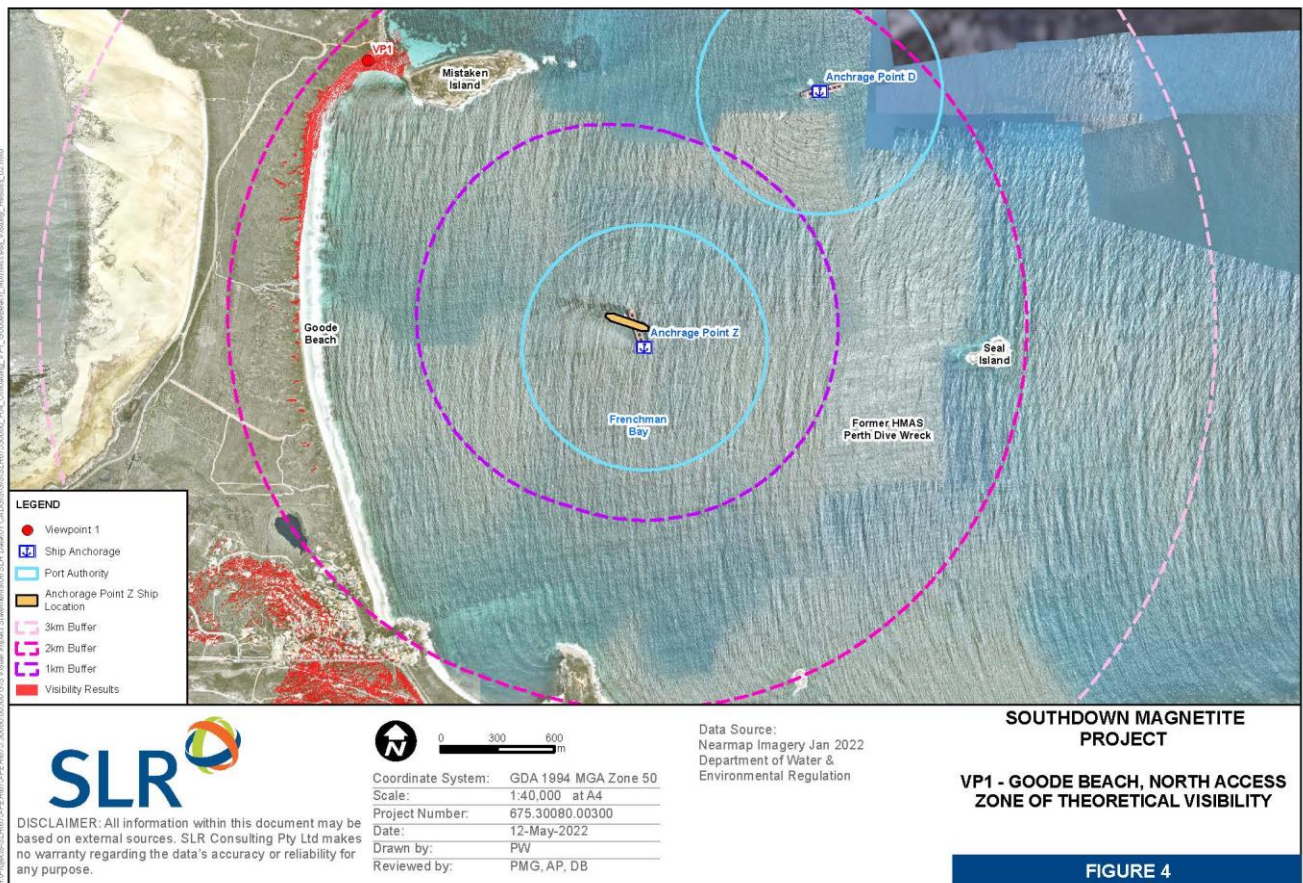


Figure 4 VP1 – Goode Beach, North Access Zone of Theoretical Visibility

Table 8 Receptor VP1 – Summary of Visual Impact Assessment

Receptor - VP1	Summary of Visual Impact Assessment
Receptor location	Access from Quaranup Rd, Vancouver Peninsula WA
Receptor coordinates	Latitude 35° 3' 42.5211" S, Longitude 117° 56' 5239" E
Projection	Cylindrical (Panorama)
Date of image capture	05 November 2021
Camera (make and model)	Realme 6
Camera lens	Focal Lens (27.1mm) Aperture (f/1.8) EIS
Camera HFoV & VFoV	72.4° 53.0°
Direction of view	'Looking south-east'
Elevation	2.2m
Anchorage distance	1.92km (1.033nmi)
Vegetation screening potential	Low
Foreground elements	Beach and tidal zone
Midground elements	Frenchman Bay
Background elements	King George Sound
Viewer motion	Generally slow (5km/h), walking pace
Usage	Moderate level of usage, primarily for recreation / tourism
Accessibility	Moderate
Visual baseline description	<ul style="list-style-type: none"> - foreground view unto Mistaken Island Natural Reserve - high quality panoramic views toward Frenchman Bay - distant views unto Flinders Peninsula (Torndirrup National Park) - distant views unto Seal Island - distant views unto Michaelmas Island - distant views unto Breaksea Island - distant views unto North Channel of KSG
Sensitivity rating	Medium
Impact magnitude rating	Negligible
Impact significance	Minor
Mitigation measures	Nil

5.7.2 Viewpoint 2 (VP2)

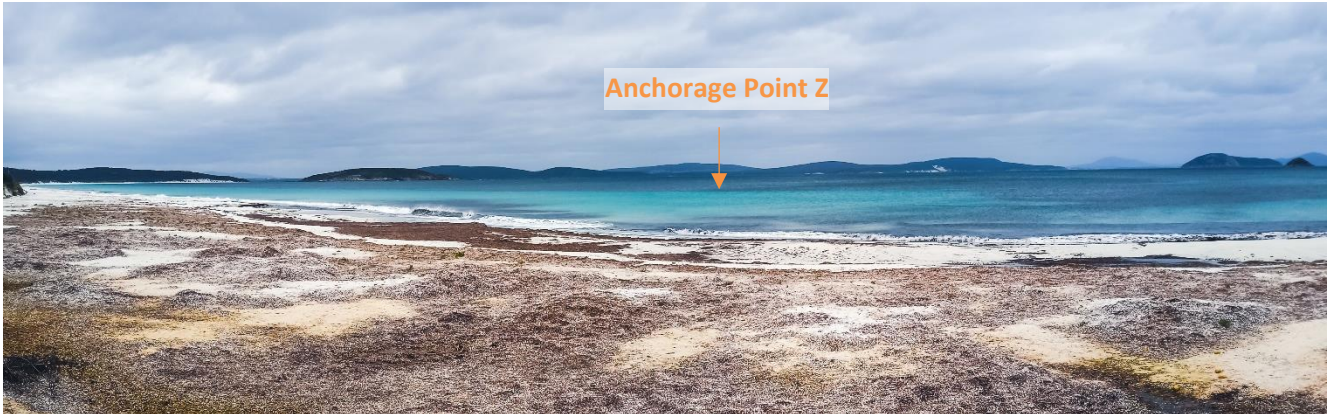


Photo 2 VP2 – Goode Beach, South Access

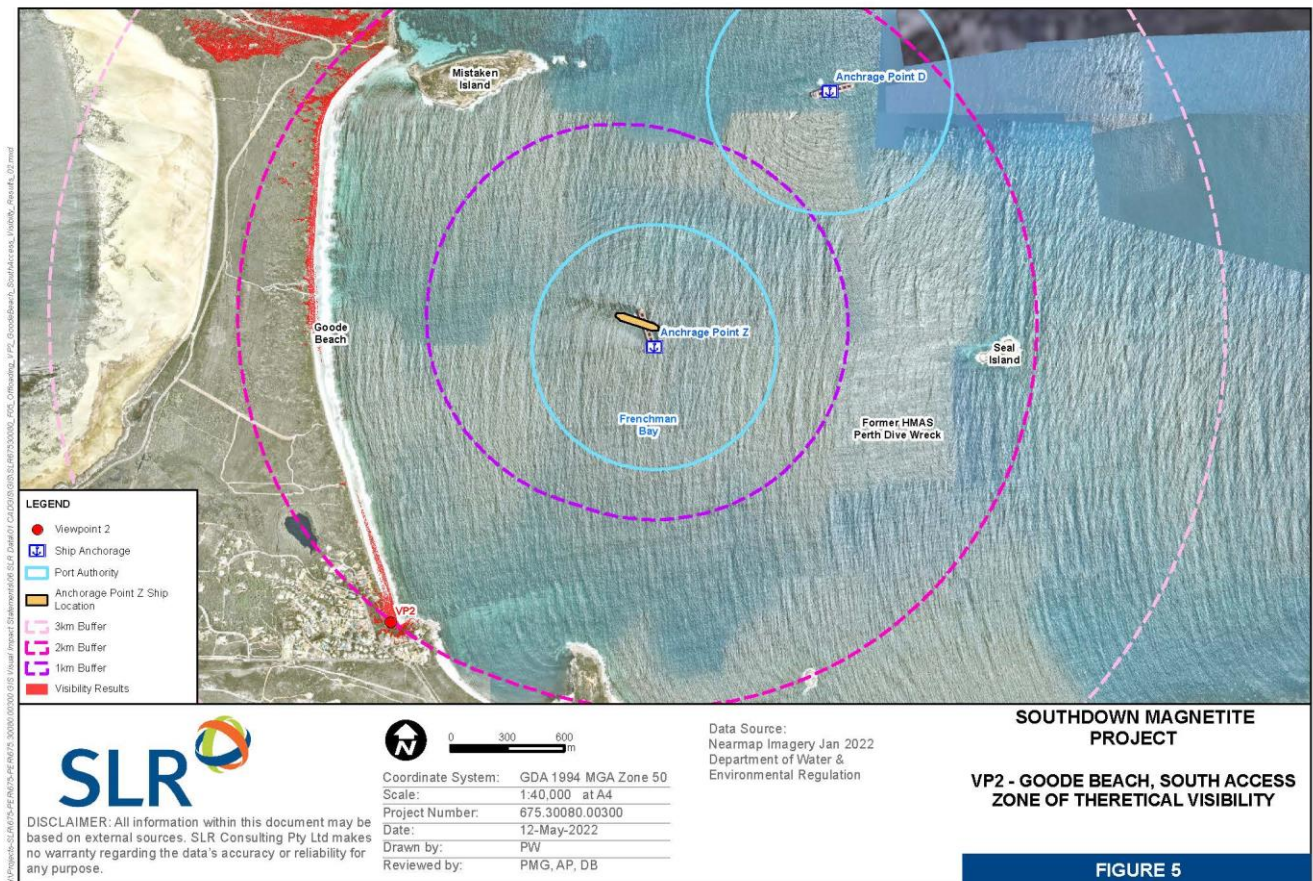


Figure 5 VP2 – Goode Beach, South Access Zone of Theoretical Visibility

Table 9 Receptor VP2 – Summary of Visual Impact Assessment

Receptor - VP2	Summary of Visual Impact Assessment
Receptor location	Access from La Perouse Rd, Goode Beach WA
Receptor coordinates	Latitude 35° 5' 19.0018" S, Longitude 117° 56'20.7985" E
Projection	Cylindrical (Panorama)
Date of image capture	05 November 2021
Camera (make and model)	Realme 6
Camera lens	Focal Lens (27.1mm) Aperture (f/1.8) EIS
Camera HFoV & V FoV	72.4° 53.0°
Direction of view	'Looking north-east'
Elevation	8.8m
Anchorage distance	2.13km (1.15nmi)
Vegetation screening potential	Low
Foreground elements	Beach and tidal zone
Midground elements	Frenchman Bay
Background elements	King George Sound
Viewer motion	Generally slow (5km/h), walking pace
Usage	Moderate level of usage, primarily for recreation / tourism
Accessibility	Moderate
Visual baseline description	<ul style="list-style-type: none"> - foreground view unto Seal Island Nature Reserve - high quality panoramic views toward Frenchman Bay - distant views unto Vancouver Peninsula (Torndirrup National Park) - distant views unto Seal Island - distant views unto Michaelmas Island - distant views unto Mistaken Island
Sensitivity rating	Medium
Impact magnitude rating	Negligible
Impact significance	Minor
Mitigation measures	Nil

5.7.3 Viewpoint 3 (VP3)



Photo 3 VP3 – 3 Whaling Station Road, Frenchman Bay

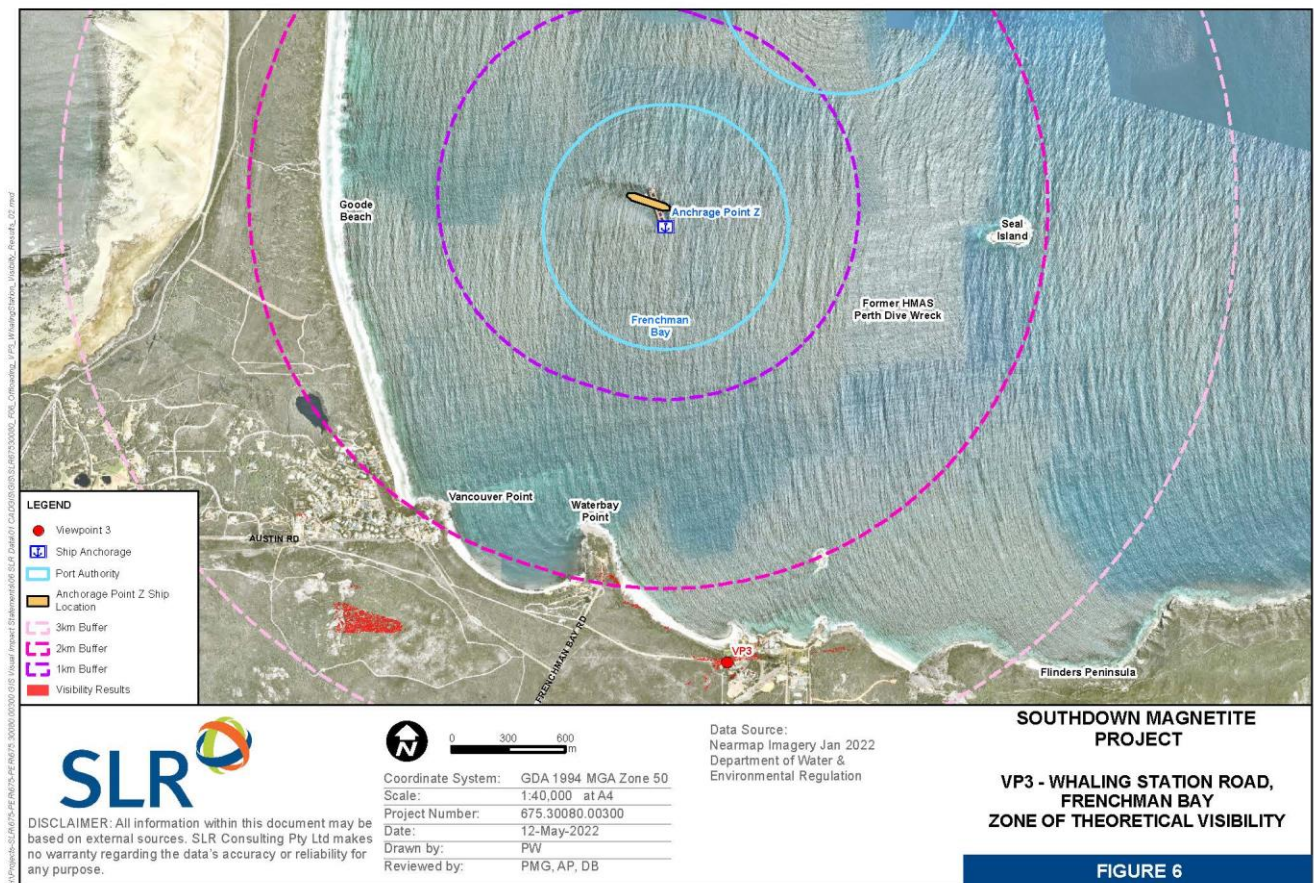


Figure 6 VP3 – 3 Whaling Station Road, Frenchman Bay Zone of Theoretical Visibility

Table 10 Receptor VP3 – Summary of Visual Impact Assessment

Receptor - VP3	Summary of Visual Impact Assessment
Receptor location	3 Whaling Station Rd, Torndirrup WA
Receptor coordinates	Latitude 35° 5' 45.9348" S, Longitude 117° 57' 29.2321" E
Projection	Cylindrical (Panorama)
Date of image capture	05 November 2021
Camera (make and model)	Realme 6
Camera lens	Focal Lens (27.1mm) Aperture (f/1.8) EIS
Camera HFoV & VFoV	72.4° 53.0°
Direction of view	'Looking north'
Elevation	15.7m
Anchorage distance	2.5km (1.35nmi)
Vegetation screening potential	Low
Foreground elements	Whaling Station Road & Cheyne Beach
Midground elements	Frenchman Bay
Background elements	King George Sound
Viewer motion	Generally slow (5km/h), walking pace & at speed (60km/h) driving
Usage	Moderate level of usage, primarily for recreation / tourism
Accessibility	Moderate
Visual baseline description	<ul style="list-style-type: none"> - High quality panoramic views toward Frenchman Bay - distant views unto Seal Island - distant views unto Cheyne Head - distant views unto Gulf Rock National Park - distant views unto anchorage points Z, D, C G, F & E
Sensitivity rating	Medium
Impact magnitude rating	Negligible
Impact significance	Minor
Mitigation measures	Nil

5.7.4 Viewpoint 4 (VP4)



Photo 4 VP4 – Bald Head Walking Trail, Torndirrup

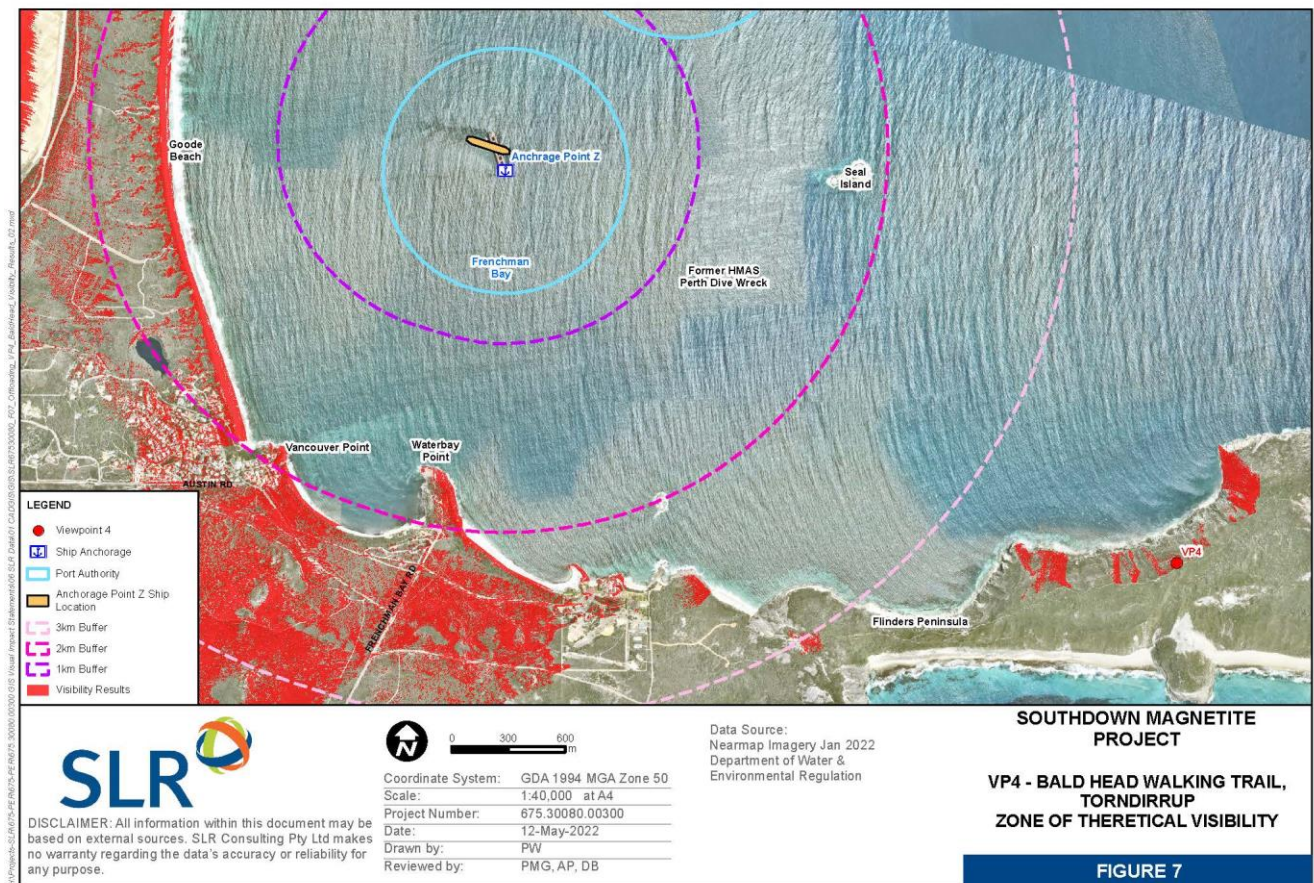


Figure 7 VP4 – Bald Head Walking Trail Zone of Theoretical Visibility

Table 11 Receptor VP4 – Summary of Visual Impact Assessment

Receptor - VP4	Summary of Visual Impact Assessment
Receptor location	Access from Bald Head Rd, Torndirrup WA
Receptor coordinates	Latitude 35° 5' 37.4985" S, Longitude 117° 59' 36.5552" E
Projection	Cylindrical (Panorama)
Date of image capture	08 November 2021
Camera (make and model)	Realme 6
Camera lens	Focal Lens (27.1mm) Aperture (f/1.8) EIS
Camera HFoV & VFoV	72.4° 53.0°
Direction of view	'Looking north-west'
Elevation	164.3m
Anchorage distance	4.3km (2.32 nmi)
Vegetation screening potential	Low
Foreground elements	Flinders Peninsula
Midground elements	Frenchman Bay
Background elements	King George Sound
Viewer motion	Generally slow (5km/h), walking pace
Usage	Moderate level of usage, primarily for recreation / tourism
Accessibility	Moderate
Visual baseline description	<ul style="list-style-type: none"> - High quality panoramic views toward Frenchman Bay - distant views unto Goode Beach - distant views unto Goode Beach settlement - distant views unto Royal Princess Harbour - distant views unto Vancouver Peninsula - distant views unto Ataturk Channel - distant views unto anchorage points Z, D, C G, F & E
Sensitivity rating	Medium
Impact magnitude rating	Negligible
Impact significance	Minor
Mitigation measures	Nil

6 Summary of Assessment for Public Receptors

Table 12 Summary of Visual Impact Ratings for each receptor

Receptor	Receptor Sensitivity	Magnitude of Change	Effect Significance
VP1	Medium	Negligible	Minor
VP2	Medium	Negligible	Minor
VP3	Medium	Negligible	Minor
VP4	Medium	Negligible	Minor

7 Summary of Assessment for Private Receptors

Details of the nearby private receptors are identified as having the potential to have visibility of the proposed transshipment activities. **Table 13** identifies nearby private receptors and their location with respect to the visibility results illustrated in **Figure 3**.

Table 13 Nearby Private Receptor

ID	Description	UTM Coordinates	Approximate Distance and Direction from Project
R1	36 La Perouse Ct, Goode Beach (residential)	585428, 6117094	2.0 km SW
R2	26 La Perouse Ct, Goode Beach (residential)	585473, 6117015	2.0 km SW
R3	24 La Perouse Ct, Goode Beach (residential)	585482, 6116989	2.0 km SW
R4	22 La Perouse Ct, Goode Beach (residential)	585486, 6116968	2.0 km SW
R5	20 La Perouse Ct, Goode Beach (residential)	585493, 6116953	2.0 km SW
R6	18A La Perouse Ct, Goode Beach (residential)	585497, 6116932	2.0 km SW
R7	14 La Perouse Ct, Goode Beach (residential)	585513, 6116894	2.0 km SW
R8	17 St Georges Cres, Goode Beach (residential)	585786, 6116681	2.0 km SW
R9	Whaling Station Rd, Torndirrup (residential)	587378, 6115941	2.3 km S
R10	3A Whaling Station Rd, Torndirrup (residential)	587346, 6115879	2.3 km S
R11	3B Whaling Station Rd, Torndirrup (residential)	587376, 6115886	2.3 km S
R12	5 Whaling Station Rd, Torndirrup (residential)	587412, 6115903	2.3 km S

8 Conclusion

As demonstrated in the LVIA, the transshipment operations are unlikely to cause significant impact to the landscape and visual amenity values of Albany and the Frenchman Bay precinct.

During the course of the assessment, it was found that the visual impacts from the transshipment operations is mostly consistent with activities already occurring within Frenchman Bay and the surrounding King George Sound.

In conclusion, the summary of assessment for the public receptor locations were objectively assessed for their sensitivity of change and the likelihood for these points to be impacted by the transshipment operations. The Effect Significance for all public receptor points were rated **Minor**. All private receptors would have visibility to the transshipment operations occurring at Anchorage Point Z however, these operations would not visually differ from the maritime operations that already occur at this location. In addition, it should be noted that Anchorages W and Y, which are further from shore, are more likely to be utilised in the transshipping operations. Therefore, this assessment is conservative in nature and if approved, the effect of significance would likely to be less than conservatively assessed.

9 References

- AILA June 2018, *Guidance Note for Landscape and Visual Assessment*, viewed 24 February 2022, https://www.aila.org.au/common/Uploaded%20files/_AILA/Submission%20Library/QLD/RLG_GNLVA_V3.pdf
- Albany Port 2017, *Albany Port Authority, Albany Western Australia, Procedures*, viewed 4 April 2022, <http://www.albanyport.com.au/html/procedures2011.html>
- BMT 2014, *Albany Port Authority Maintenance Dredging Program Environmental Impact Assessment, 812_01_002/2-REV1*.
- BMT 2020, *Environmental assessments in support of shellfish farming in Albany, Western Australia, South Coast Aquaculture Development Zone, R-1718_00-2*
- BMT 2021, *Southdown Transshipment Project Preliminary Feasibility Study, R-A10512.006_1R-A10512.006_1*.
- Department of Biodiversity, Conservation and Attractions (DBCA) 2017, *Albany coast parks and reserves management plan 90, 2017. Department of Biodiversity, Conservation and Attractions, Perth*.
- Department of Planning, Lands and Heritage (DPLH) November 2007, *Visual Landscape Planning in Western Australia: a manual for evaluation assessment, siting and design*, viewed 24 February 2022, https://www.dplh.wa.gov.au/getmedia/eb523b89-fbdf-4af7-aff1-c3575c0b5c8a/ML_Visual-landscape-planning-in-Western-Australia
- Environmental Protection Authority (EPA) December 2016, *Environmental Factor Guideline – Social Surroundings*, viewed 24 February 2022, https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/Guideline-Social-Surroundings-131216_2.pdf
- Landscape Institute (LI) September 2019, *Technical Guidance Note 06/19, Visual Representation of Development Proposals*, viewed 24 February 2022, https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/09/LI_TGN-06-19_Visual_Representation.pdf
- New Zealand Institute of Landscape Architects (NZILA) August 2008, *Best Practice Note, Landscape Assessment and Sustainable Management 10.1*, viewed 24 February 2022, https://nzila.co.nz/media/uploads/2017_01/nzila_ldas_v3.pdf
- Routledge 2013, *Guidelines for Landscape and Visual Impact Assessment*, third edition, Oxon
- Sandiford & Barret 2010, *Albany Regional Vegetation Survey, Extent, Type and Status*, viewed 4 April 2022.
- SLR 2022, *Southdown Magnetite Project, Transshipment Operations, Waterside Air Quality Impact Assessment, 675.30080.00400-R02*.
- Southern Ports 2022, *Navigation and Pilotage*, viewed 4 April 2022, <https://www.southernports.com.au/albany/navigation-and-pilotage>

Southdown 2022, *Southdown Magnetite Project Prefeasibility Study, Southdown Project, Western Australia*, viewed 4 April 2022,

<https://www.listcorp.com/asx/grr/grange-resources/news/southdown-magnetite-project-prefeasibility-study-2686530.html>

Transport WA 2016, *Ports Handbook Western Australia*, viewed 4 April 2022,

<https://www.transport.wa.gov.au>

Transport WA 2017, *Boating Guide Albany, Marine Safety*, viewed 4 April 2022,

<https://www.transport.wa.gov.au>

Transport WA 2019, *Government of Western Australia Department of Transport, Ports legislation and policies, Environmental Policies*, viewed 4 April 2022,

<https://www.transport.wa.gov.au/Freight-Ports/ports-legislation-and-policies.asp>

Transport WA 2022, *Nautical Charts 1083 Albany WA*.

Maritime Safety Queensland 2019, *Anchorage Area Design and Management Guideline*, viewed 4 April 2022,

<https://www.msg.qld.gov.au>

PIANC 2014, *Harbour Approach Channels and Design Guidelines*, viewed 4 April 2022,

<https://www.pianc.org>

ASIA PACIFIC OFFICES

ADELAIDE

60 Halifax Street
Adelaide SA 5000
Australia
T: +61 431 516 449

BRISBANE

Level 16, 175 Eagle Street
Brisbane QLD 4000
Australia
T: +61 7 3858 4800
F: +61 7 3858 4801

CANBERRA

GPO 410
Canberra ACT 2600
Australia
T: +61 2 6287 0800
F: +61 2 9427 8200

DARWIN

Unit 5, 21 Parap Road
Parap NT 0820
Australia
T: +61 8 8998 0100
F: +61 8 9370 0101

GOLD COAST

Level 2, 194 Varsity Parade
Varsity Lakes QLD 4227
Australia
M: +61 438 763 516

MACKAY

21 River Street
Mackay QLD 4740
Australia
T: +61 7 3181 3300

MELBOURNE

Level 11, 176 Wellington Parade
East Melbourne VIC 3002
Australia
T: +61 3 9249 9400
F: +61 3 9249 9499

NEWCASTLE CBD

Suite 2B, 125 Bull Street
Newcastle West NSW 2302
Australia
T: +61 2 4940 0442

NEWCASTLE

10 Kings Road
New Lambton NSW 2305
Australia
T: +61 2 4037 3200
F: +61 2 4037 3201

PERTH

Grd Floor, 503 Murray Street
Perth WA 6000
Australia
T: +61 8 9422 5900
F: +61 8 9422 5901

SYDNEY

Tenancy 202 Submarine School
Sub Base Platypus
120 High Street
North Sydney NSW 2060
Australia
T: +61 2 9427 8100
F: +61 2 9427 8200

TOWNSVILLE

12 Cannan Street
South Townsville QLD 4810
Australia
T: +61 7 4722 8000
F: +61 7 4722 8001

WOLLONGONG

Level 1, The Central Building
UoW Innovation Campus
North Wollongong NSW 2500
Australia
T: +61 2 4249 1000

AUCKLAND

Level 4, 12 O'Connell Street
Auckland 1010
New Zealand
T: 0800 757 695

NELSON

6/A Cambridge Street
Richmond, Nelson 7020
New Zealand
T: +64 274 898 628

WELLINGTON

12A Waterloo Quay
Wellington 6011
New Zealand
T: +64 2181 7186

SINGAPORE

39b Craig Road
Singapore 089677
T: +65 6822 2203