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Eastland Port

Gisborne Port
Twin Berths Project

Resource Consent Applications
Assessment of Environmental Effects

August 2022

REPORT INFORMATION & QUALITY CONTROL

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1 INTRODUCTION

1.1 Report Basis

This report has been prepared for Eastland Port Ltd (Eastland Port hereafter) in support of resource consent applications to the Gisborne District Council (the Council hereafter) for the second and final stage of the Twin Berths Project (TBP). The full TBP is designed to undertake critical port repair and upgrade works and to enable two ships, one up to 185m long and another up to 200m long to berth at the port simultaneously. This will provide for the port's continued contribution to Tairāwhiti and unlock greater capacity for bulk freight and potential options for container freight in the future.

Consents for Stage 1 of the TBP were confirmed by the Environment Court in December 2020. Stage 1 involves remediation of the former slipway to reduce its footprint within the port to enable more manoeuvring space for ships and redevelopment of part of Wharf 6 and all of Wharf 7.

Stage 2 provides for the remaining works required to complete the TBP, as follows:

- Extension of the existing Wharf 8 structure into the area of the inner breakwater;
- Reclamation next to the Southern log yard to enable twin berth usage of the extended Wharf 8 structure;
- Rebuilding the outer breakwater structure;
- Deepening access channels in the outer port to accommodate larger Handymax vessels; and
- Improving stormwater collection and treatment facilities in the Southern log yard.

Stage 2 is referred to in this AEE as 'the Proposal'. It involves land use consent applications and coastal permit applications affecting the coastal marine area.

The primarily land-based works involve upgrading of the outer breakwater, extension of Wharf 8 over part of the inner breakwater, a reclamation adjacent to the Wharf 8 extension and Southern logyard, along with some changes to the Southern logyard, primarily in terms of an upgraded stormwater collection and treatment system. The proposed works are directed at ensuring that two logging vessels can be readily berthed and loaded in the port at the same time.

The coastal marine area works involve capital dredging (deepening) of the outer port to better accommodate future logging and other vessels, along with continued port-wide maintenance dredging, like at present. This part of the Project also involves disposal of the capital and maintenance dredge material at the existing Offshore Spoil Disposal Ground (OSDG) located approximately 4km offshore in Tūranganui-a-Kiwa Poverty Bay. In addition, a coastal permit is being sought for a new port occupation area related to the redeveloped port. It will replace the existing port coastal occupation permit that expires in 2026.

This report explains the basis of the Twin Berths Project and outlines the reasons why the different resource consent applications are being made to the Council, primarily arising from rules in Council's Tairāwhiti Resource Management Plan (Tairāwhiti Plan). Section 88 of the Resource Management Act (RMA) requires all resource consent applications be supported by an Assessment of Environmental Effects (AEE) describing the actual or potential adverse effects the activity may have on the environment and the ways in which any adverse effects may be mitigated. Such an assessment is also expected to cover various related matters listed in the Fourth Schedule to the RMA, including a description of the proposed activity, consultation with any affected parties and monitoring. All of these matters are covered in this AEE report.

The AEE covers all the Tairāwhiti Plan provisions which apply to the Project, along with those in the RMA and National Environmental Standards that 'trigger' the need for the applications. The AEE also covers key provisions in the Marine and Coastal Area (Takutai Moana) Act 2011, Ngā Rohe Moana o Ngā Hapū o Ngati Porou Act 2019, Resource Management (Marine Pollution) Regulations 1998 (Marine Pollution Regulations), New Zealand Coastal Policy Statement 2010 (NZCPS) and other Acts and Regulations relevant to the Proposal.

The AEE documents the engagement undertaken with iwi, hapū and whanau, along with community organisations and individuals (primarily adjacent landowners and occupiers). This consultation has included engagement with the Port Community Liaison Group (PCLG) that was established in March 2009 and meets on a regular basis, along with Te

Tai Uru, a group that comprises hapū from the Tūranganui a Kiwa area that was established in late 2020 and has been meeting regularly since March 2021.

The associated RMA notification assessment part of this report requests that all the applications be publicly notified.

1.2 Report Scope and Contents

This AEE report is the 'base' document for the Proposal's resource consent applications, which are appended to it. The AEE report has 20 sections, as summarised below:

- **Section 1 - Introduction.** An explanation of the report and its contents, the appended expert plans and reports and the resource consent applications.
- **Section 2 - Existing Port.** A brief history of the port and the current facilities and operations, the resource consents in place and the port related applications currently being processed by the Council.
- **Section 3** - **Proposal Overview.** The background and reasons for the Project, a brief mainly illustrative overview of its key components, an assessment of the alternatives options considered for advancing the Eastland's objectives for the port, which ultimately resulted in the Proposal.
- **Section 4 - The Existing Environment.** This section contains a description of the parts of the port affected by the Project as it currently exists, and a description of the surrounding area, including the adjacent Cook Landing and Titirangi reserves.
- **Section 5 - Wharf 8 Extension.** A detailed description of the existing wharf, relationship to the recently consented Wharves 6 and 7 and slipway redevelopments, the proposed wharf extension, alternatives, construction and future wharf use. This section of the report also describes the nature of the larger Handymax vessels expected to use the extended wharf and associated log/cargo loading operations.
- **Section 6 - Outer Port Reclamation.** A detailed description of the proposed reclamation adjacent to the Wharf 8 extension and alternatives considered, its design and layout, construction including a temporary bund. This section also explains the end use of the reclamation and associated stormwater, traffic, landscape and public access matters.
- **Section 7 - Outer Breakwater Upgrade**. A detailed description of the existing breakwater, the proposed upgrade, alternative designs and materials considered, construction and future maintenance.
- **Section 8 - Southern Logyard Stormwater Upgrade**. A detailed description of the existing logyard and the proposed stormwater upgrading works, involving a new stormwater treatment system similar to that in place in the Upper logyard.
- **Section 9 - Outer Port Capital Dredging and Disposal.** A description of proposed capital dredging and disposal operations in the outer port area (seaward of Wharf 6). This section shows the areas affected and explains the different dredge design levels in them. It also covers disposal of the dredgings at the existing OSDG.
- **Section 10 - Outer Port Maintenance Dredging and Disposal.** A description of the proposed maintenance dredging and disposal operations in the outer port (seaward of Wharf 6) based on the new deepened (capital dredged) and related disposal of dredgings at the OSDG.
- **Section 11 - Port Occupation Area.** A description of the existing (1996) port occupation area, changes to it arising from resource consents issued over the years and arising from this project. This section also addresses port navigation and safety, cultural and public access considerations associated with the new application.
- **Section 12 - Statutory Framework and Assessment.** An overview of the RMA, Tairāwhiti Plan, NZCPS and other statutory instruments that apply to the project. This section also highlights parts of the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NES-CS) that affect some land-based construction aspects of the logyard and wharf upgrade components as well as the National Policy Statement for Freshwater Management (NPSFM) in relation to stormwater discharges.
- **Section 13** - **Planning Context Reasons for the Application** - Tairāwhiti Plan Rules and Activities requiring resource consents. A review of all the applicable Tairāwhiti Plan rules, focussing on those that are not met and the associated activities that are subject of the resource consent applications. It also contains a detailed assessment of the applicable regulations in the NES- CS.
- **Section 14 - Assessment of Effects**. An effects overview of the TBP in terms of the two subsequent sections, which differentiate between construction and operational effects. This section backgrounds the effects of the current port operations, along with those subject of approved resource consents, which form part of what is

known as the 'existing environment'. This section also outlines the effects associated with permitted activities in the Tairāwhiti Plan port zone/management areas and what is known as the 'permitted baseline.'

- **Section 15 - Construction Effects**. A detailed assessment of the construction effects of the Project with reference to the appended expert plans and reports. It highlights the proposed effects avoidance and mitigation measures, along with associated construction effects monitoring programmes.
- **Section 16 - Operational Effects**. A detailed assessment of the operational effects of the completed project with reference to the appended expert plans and reports. This section likewise highlights the effects mitigation measures and monitoring programmes being proposed by Eastland Port as part of operating the extended port.
- **Section 17 – Proposed Mitigation Measures.** A brief summary of mitigations measures proposed to address potential adverse effects.
- **Section 18 - Notification Assessment**. A record of the engagement with parties who are potentially affected or interested in the project and an assessment of the applications in terms of the notification provisions in Section 95 of the RMA.
- **Section 19 - Policy Context and Evaluation.** A 'policy' assessment of the project based on the provisions in the RMA, the NZCPS, NPSFW along with applicable Tairāwhiti Plan objectives and policies.
- **Section 20** – **Other Matters**
- **Section 21** - **Other Relevant Sections** of the RMA including s104, s105 and s107.
- **Section 22** - **Other Relevant Acts and considerations**
- **Section 23 – Proposed Consent Duration and Conditions**. The proposed terms of the different resource consents being sought are outlined, along with a list of matters expected to be subject of consent conditions.
- **Section 24 - Part 2 RMA Assessment**. An assessment of the Proposal against the requirements of Part 2 of the RMA.
- **Section 25 – Summary.** A summary of the AEE report findings.

The AEE report is to be read in conjunction with the accompanying appendices.

The appendices contain the completed resource consent application forms, records of title, supporting expert assessment reports, a record of engagement and other relevant material.

1.3 Appended Plans & Reports

The Proposal's resource consent applications and this AEE are supported by plans and reports concerning the following matters from the following organisations:

- Port, civil and geotechnical engineering – Worley.
- Coastal processes – MetOceans Solutions Ltd (MetOceans)
- Port history and land holdings/facilities – Eastland Port
- Alternatives Assessment and design justification for project - Eastland Port & Worley
- Archaeology and heritage – InSitu Heritage (InSitu)
- Ecology and water quality – 4Sight Consulting Ltd (4Sight)
- Economic impacts- Brown Copeland & Co. Ltd (Brown Copeland)
- Landscape natural character and visual amenities – 4Sight
- Navigation and safety – Eastland Port
- Noise and vibration – Marshall Day & Associates Ltd (Marshall Day)
- Site Contamination - 4Sight
- Surf breaks- Tonkin & Taylor (T+T)
- Stormwater system engineering– Cheal Consultants Ltd (Cheal)
- Traffic engineering – East Cape Consulting Ltd (ECC)
- Engagement Report – Eastland Port
- Kororā ecology assessment– 4Sight

The key findings of the expert reports are identified within this AEE. Copies of the full reports are in the accompanying appendices.

1.4 Resource Consent Applications

Resource consent are being sought from the Council in relation to the below aspects of the Proposal. The list includes a summary of the key provisions under which consent is sought and under which the Proposal is permitted are provided in **Table 10 and Table 11** of this AEE.

The overall activity status for the Proposal following the bundling principle is Discretionary.

Wharf 8 Extension

Coastal Permit Application (CP 1). This application seeks consent for the CMA-based construction and use of an extended wharf structure of approximately 900m^2, involving the installation of piles and deposition of imported cleanfill material on the seabed immediately adjacent to the Inner breakwater to form reclamations of approximately 250m^2 and 650m^2, and the incidental discharge of contaminants (primarily sediments) to the CMA during construction, noise emissions from construction activities, along with noise emissions from vessel loading and other port operational activities at the extended Wharf 8 and adjacent areas, all being activities which require consent under the rules for the Port Coastal Management Area (in DP1.6) and for Noise (in C11.2.15) in the Tairāwhiti Plan.

Land Use Consent Application (LUC 1). This application seeks consent for alterations to the land-based part of the Inner Breakwater and Wharf 8 involving the addition of concrete and other materials affecting an area of approximately 1,760m^2, noise emissions from construction activities, along with noise emissions from vessel loading and other port operational activities at the extended Wharf 8 and adjacent areas, all being activities which require consent under rules for the Port Management B zone (DP2.6) and for Noise (C11.2.15) in the Tairāwhiti Plan.

Outer Port Reclamation

Coastal Permit Application (CP 2). This application seeks consent for the construction and use of the Outer Port Reclamation adjacent to the Southern Logyard and the Inner Breakwater of approximately 7,000m^2, involving the progressive formation of a crushed rock based working platform and installation of concrete armour, impounding of an approximately 3,350m^2 area of seawater, disturbance of the seabed from ground stabilisation works, deposition of imported cleanfill material on the seabed, the incidental discharge of contaminants (primarily sediments) to the CMA during construction affecting an area of approximately 8,900m^2, noise emissions from Outer Port reclamation construction activities, all being activities which require consent under rules for the Port Coastal Management Area (DP1.6), General Coastal Management Area (DC2.6) and on Noise (C11.2.15), in the Tairāwhiti Plan.

Land Use Consent Application (LUC 2). This application seeks consent for earthworks associated with partial demolition of the Southern logyard revetment wall and other land based activities involving soil that is likely to contain historical contaminants and requires consent under Regulation 9 of the NES-CS, along with noise emissions from the Outer Port reclamation construction and operational activities which require consent under the rules for the Port Management B zone (DP2.6) and on Noise (C11.2.15) in the Tairāwhiti Plan.

Outer Breakwater Upgrade

Coastal Permit Application (CP 3). This application seeks consent for the construction and use of the upgraded Outer Breakwater, involving disturbance of the seabed from ground stabilisation works, placement of concrete armour units and rock fill on the seabed to form a reclamation of approximately 2,400m^2, reshaping of the facility and the incidental discharge of contaminants (primarily sediments) to the CMA during construction affecting an area of approximately 10,700m^2 in total, along with noise emissions from construction, all being activities which require consent under the Port Coastal Management Area (DP1.6) and Noise (C11.2.15) rules in the Tairāwhiti Plan.

Land Use Consent Application (LUC 3). This application seeks consent for upgrading of the land based (above Mean High Water Springs MHWS) part of the outer breakwater involving the addition of concrete armour units and other materials affecting an area of approximately 1,350m^2, along with noise emissions from construction activities, all being activities which require consent under rules for the Port Management B zone (DP2.6) and on Noise (C11.2.15) in the Tairāwhiti Plan.

Southern Logyard Stormwater Upgrading

Coastal permit application (CP 4). This application seeks consent for the discharge of treated stormwater from the Southern logyard Southern catchment area (approximately 3.42ha) through an existing outfall to the CMA, along with the discharge of treated stormwater from the Southern Logyard Northern catchment area (including the Wharf 8 extension and Outer Port reclamation), plus some adjacent Council road and reserve land, totalling approximately 10.04ha, through an existing outfall in the Wharf 8 area to the CMA, all being activities which require consent under rules for the Port Coastal Management Area (DP1.6) and General Coastal Management Area (DC2.6) in the Tairāwhiti Plan.

Land Use Consent Application (LUC 4). This application seeks consent to carry out cut and fill earthworks affecting land in the Southern logyard, which is likely to contain historical contaminants and requires consent under Regulation 9of the NES-CS, along with the use of pumps to convey stormwater within the site and which requires consent under the rules for the Built Environment – Provision of Infrastructure and Development (in C2.1.7) of the Tairāwhiti Plan.

Port Capital Dredging

Coastal Permit Application (CP 5). This application seeks consent for the capital dredging of approximately 140,600m³ from a port seabed area of approximately 18.46ha to provide for improved shipping vessel access, manoeuvring and berthing, along with discharges of decant water from the capital dredging operations, all being activities which require consent under rules for the Port Coastal Management Area (DP1.6) in the Tairāwhiti Plan.

Disposal of Port Capital Dredgings

Coastal Permit Application (CP 6). This application seeks consent to dispose of approximately 140,600m³ of capital dredged material at the OSDG, along with discharges of decant water from the disposal operations, all being activities which require consent under rules for the Port Coastal Management Area (DP1.6) in the Tairāwhiti Plan.

Port Maintenance Dredging

Coastal Permit Application (CP 7). This application seeks consent for maintenance dredging of up 140,000m^3 per year from an outer port seabed area of approximately 25ha to maintain shipping vessel access, manoeuvring and berthing depths in and adjacent to the port, along with discharges of decant water from the maintenance dredging operations, all being activities which require consent under rules for the Port Coastal Management Area (DP1.6) in the Tairāwhiti Plan.

Disposal of Port Maintenance Dredgings

Coastal Permit Application (CP 8). This application seeks consent to annually dispose of up to 140,000m³ of maintenance dredged material at the OSDG, along with discharges of decant water from the disposal operations, all being activities which require consent under rules for the Port Coastal Management Area (DP1.6) in the Tairāwhiti Plan.

Port Occupation

Coastal Permit Application (CP 9). This application seeks consent for exclusive occupation of a CMA area of approximately 20ha for port related operations based on the reconfigured port layout resulting from the Twin Berths Project and which requires consent under the rules for the Port Coastal Management Area (DP1.6) and General Coastal Management Area (DC2.6) in the Tairāwhiti Plan. Under s124 of the RMA the existing port occupation permit will remain in place at least until the outcome of this current application is determined.

Appendix A contains a copy of the completed application forms in relation to each of the above consents.

2 EXISTING PORT

2.1 Port of Gisborne

Location and General Layout

The Port of Gisborne is located towards the north-eastern end of Tūranganui-a-Kiwa Poverty Bay adjacent to the Turanganui River and city centre. It contains a large wharf area, a breakwater, river/seawalls, some reclaimed land, and land-based port facilities.

The general layout of the port and associated land-based facilities is shown in **Figure 1**.

Figure 1: Port of Gisborne Layout Plan

Key Port Facilities

Figure 2 and Figure 3 contain oblique aerial photographs of the port showing the key facilities in more detail. They are as follows:

- Breakwater. This approximately 470m long concrete/rock rubble facility serves to protect the port from the prevailing south-west ocean swells and other weather events. Part of this was built in the 1890's then extended in the 1920's. Parts of the structure have been repaired, mostly recently in 2018.
- Butlers Wall. This approximately 300m long structure was built in the early 1930's and refurbished in the 1960's. It also serves to protect the port from the prevailing swells and other weather events.
- Turanganui River Diversion Wall. This approximately 1km structure was built in the late 1920's and has been progressively repaired over the years.
- Wharves 1-5. Wharves 1-3 were built in the late 1920's and Wharves 4 and 5 in the mid 1950's. Parts of the piled wharf structures have been repaired over the years.

- Wharves 6 and 7. Wharf 6 was built in the early 1960's and is used by the fishing fleet and port tugs. Wharf 7 was built in the late 1960's and is currently used by a range of vessels, including logging vessels. Both wharves are the subject of a redevelopment project, consents for which were recently granted by Council and subsequently confirmed by the Environment Court.
- Wharf 8. This wharf is currently the main log vessel loading facility. It was built in the mid-1990s.
- Former Slipway. The slipway was closed in the 1970s and is the subject of a contaminated site remediation project, consents for which were confirmed by the Environment Court as part of the Wharf 6 and 7 project.
- Southern Logyard. This logyard was established on reclaimed land in the 1990s and covers an area of approximately 6.7 ha. It has the ability to store up to 85,000 tonnes of logs.
- Upper Logyard. This logyard in Crawford Rd was redeveloped in 2015 following the earlier granting of resource consent applications by the Council. It covers an area of approximately 2.8ha and has the capacity to store up to 25,000 tonnes of logs.
- Wharfside Logyard. This logyard is adjacent to Wharf 5 and is approximately 1.8 ha. It was opened in late 2019 following the granting of resource consent applications by the Council. The logyard can store up to 15,000 tonnes of logs and is linked to the Upper logyard by the Rakaiatane Rd underpass.

The three port logyards have the capacity to store up to 138,000 tonnes of logs at one time. Most of the logs are stored on the Southern and Upper logyards, with the Wharfside logyard also able to be used for other products.

The Port Navigation Channel (PNC) and Vessel Turning Basin (VTB) are important port assets. The PNC is approximately 1.5km long and is maintenance dredged on a regular basis. Most of the VTB, which is approximately 2.7ha, is also regularly maintenance dredged. Some capital dredging has also been undertaken in both areas over the years with the most recent being in 2017.

Offsite Cargo Storage Facilities

Eastland Port also has several other off-site cargo storage facilities. The Matawhero logyard located in Dunstan Rd 11 km to the north-west of the port is also an important part of the Eastland Port log supply chain infrastructure. This logyard can hold up to 55,000 tonnes of logs.

Figure 2: Oblique Aerial Photograph of the Port Looking Towards the Bay

Figure 3: Oblique Aerial Photograph of the Port Looking Towards the City

2.2 Port History

Port History – Establishment

The Port of Gisborne was established in the late 1800's and has been progressively extended and upgraded to its current level of development. The breakwater and groyne were constructed in the early 1900s and the river diversion wall built in the 1920s. Significant capital dredging and wharf construction occurred in the late 1960s, and some reclamation was undertaken in the 1980s.

Figure 4 and Figure 5 contain photographs of the port from the late 1890s and late 1930s showing some of its historical development. The 1930s photograph was taken soon after the river training wall was built and shows the former Weddel freezing works that were in operation between the early 1920s and late 1970s.

Changes in the 1980s and 1990s

Legislative reform in the late 1980s and early 1990s resulted in significant changes to the national economy, many of which impacted on the port. The changes included introduction of the Port Companies Act in 1988, disbanding of the Waterfront Industries Commission in 1989, replacement of the Harbours Act and Town and Country Planning Act with the RMA in 1991 and introduction of the Health and Safety in Employment Act 1992. During this same period substantial changes were made to the legislation surrounding the rail and road transport industries.

With the introduction of the Port Companies Act the port was required to operate as a profitable business. The port facilities had to be operated in a more de-regulated economy, where private businesses, many overseas based, rather than public organisations, became key customers. During the late 1980s through to the 2000s considerable private investment took place in the regions primary industries, particularly plantation forestry, that in turn drove changes particularly to the export log industry. Some local manufacturing operations that used the port also scaled back or closed premises. At the same time, and right through to now, the port has placed greater focus on the effects of its operations on the environment and the health, welfare and safety of all people working at the port. This led to the progressive reorganisation and upgrading of logyards and other mainly land based facilities at the port. Now focus is being placed on the outer port and improved/safer berthing facilities for visiting vessels through the TBP.

Figure 4: Late 1890's Historical Photograph of Gisborne Port

Figure 5: Late 1930's Historical Photograph of Gisborne Port

2.3 Current Port Operations

Port of Gisborne is a major regional asset, critical to a number of export based primary industries. It is the second largest exporter of logs in New Zealand. Kiwifruit, squash and other local products are also shipped from the port. It is also regularly used by the region's commercial fishing craft and, on an increasing basis (COVID-19 excluded), by cruise ships.

Key Facilities

The majority of the port operations are based around Wharves 6, 7 and 8 and the three on-site logyards. The Eastland Group Annual Report 2021 notes that 2.99 million tonnes of logs were exported, which was high given the impacts of COVID-19 that seriously affected China and other international markets. The report notes that some bad weather and disruptive wave patterns also affected shipping during the year, including halting it for significant periods of time. The report notes that in 2021 the quantities of other export goods increased from 2020 levels. Approximately 10,542 tonnes of squash and 3,510 tonnes of kiwifruit were exported.

The Annual Report records that 'the port operates in a highly variable environment', being exposed to the influences of the Southern Ocean. Weather events impacting the port have been well documented through history - from the sinking of the Star of Canada off Kaiti Beach in 1912 to the grounding of the Jody F Millennium in 2002. The Annual Report notes that in July 2019 stormy weather closed the Wharf 8 log vessel berth for 24% of the month. Ships were forced to stay out in the bay, waiting for calmer seas. High swells during this same period also brought much more sediment into the PNC, requiring Eastland Port to dredge approximately 30,000m^3 of sediment from it.

Log Exports

The 2021 Annual Report highlights the need to maintain the Port of Gisborne's efficiency as a major log exporter, and also one that fully supports other primary industries and tourism. It notes that in March 2021 a new export record of 337,000 tonnes of logs in a single month was achieved and coincided with a new cart-in volume (logs arriving at port) record where 341,673 tonnes arrived over the same month.

Eastland Port has invested over $50million in developing and optimising the on-port storage yards for log storage and efficient operations over the past decade. Through this period log exports have grown significantly. In 2008 0.7m tonnes were exported, this has then reached 3.0m tonnes in 2020.

With the landside assets largely optimised now, the future log export focus of the port is expected to be based around the progressive upgrading of the marine assets and expansion of off-port satellite storage facilities nearby at Matawhero (and another at Tolaga Bay on State Highway 35). Storage yards have been designed for use as multi-purpose storage areas. In the future some of these may be used for container operations, which would be shipped via coastal vessels to Napier, Tauranga and other regional ports. Eastland Port's objective is to give companies more options for transporting their products to market and help boost employment and regional economic development.

Other Produce Facilities

The 2020 Annual Report notes that the region's kiwifruit industry was recently given a boost when Eastland Port handed over the second of two newly refurbished cool store facilities in central Gisborne to tenant NZ Fruits. Although originally built for the meat industry it was refitted as a kiwifruit cool store with the latest refrigeration facilities. The first facility, known as the North Store, was ready just in time for the 2020 kiwifruit season and the second South Store, was handed over shortly after. Combined, both facilities can store a total of 2,860 pallets of kiwifruit and enable potentially the shortest kiwifruit supply chain in New Zealand, from orchard to ship. Gisborne's kiwifruit crop is the earliest crop in New Zealand to be harvested.

2.4 The Port and Associated Land Holdings

The 4Sight aerial photograph plan in **Figure 6** shows the port and its relationship to the surrounding area. Most of the land in the port area, including all of the logyards, is owned by Eastland Port. However, some land is owned by the Council, Eastland Property Investments Ltd (subsidiary of Eastland Group Ltd) and other organisations.

Figure 6: Aerial Photograph of Gisborne Port and Surrounding Area

Council Land

The Council is the owner of the breakwater, Butlers Wall, Turanganui River Training Wall and part of the former slipway. The Council also owns some of the land along the immediate harbour edge of the wharves, except around Wharf 8. Eastland Port hold caveats over the Council owned properties.

Eastland Port Land

The extent of the Eastland Port land holding of approximately 15ha is shown on the 4Sight plan in **Figure 7.**

Figure 7: Plan of Eastland Port Land Holdings

Properties & Titles Affected by the Proposal

The Proposal directly affects three properties. They are Lot 1 DP 327614 that contains Wharf 8, Lot 43 DP 7819 that contains the Southern logyard seawall and adjacent land affected by the Outer Port reclamation and logyard stormwater upgrade, and Lot 22 DP 7819 that contains the breakwater. **Appendix B** contains copies of the current records of title.

Coastal Marine Area

The seabed and coastal waters in and adjacent to the port that constitute the CMA are part of the 'common marine and coastal area' as defined in the Marine and Coastal Area (Takutai Moana) Act 2011 (*Marine and Coastal Area Act*). The Marine and Coastal Area Act provides for any existing references in instruments to the foreshore and seabed to instead be taken to be references to the common marine and coastal area. The 'special status' of the common marine and coastal area does not prevent regional plans managing the use of those areas (Section 124 and 11 Marine and Coastal Area Act).

The PNC, VTB wharf berth pockets and other areas that are regularly maintenance dredged and periodically capital dredged are all in the CMA and common marine and coastal area. The OSDG used for the disposal of capital and maintenance dredgings is also part of the common marine and coastal area.

Eastland Port have resource consents in place that authorise the disposal activities. They are detailed in the next section of this report.

2.5 Existing Resource Consents

Eastland Port hold resource consents relating to a range of activities in and adjacent to the port.

Twin Berths Related Consents

The following resource consents held by Eastland Port are of particular relevance to the current Proposal:

- Port occupation area coastal permit issued in December 1996.

- Port capital and maintenance dredging and use of OSDG coastal permits (August 2000).
- Southern logyard land use consent for debarker and anti-sap stain facility (August 2008)
- Port entry area vehicle weighbridge and log scaling station land use consents (May 2009)
- Southern logyard and coastal (stormwater discharge) permit and variation (January 2011 & June 2016).
- Upper logyard land use consent and (stormwater) discharge permit and variation (December 2013 and October 2021).
- Port maintenance dredging and disposal coastal permits (September 2015).
- Wharfside logyard land use consent and coastal (stormwater discharge) permit (February 2017).
- Southern logyard Waikahua seawall upgrade (December 2018).
- Port entry land use consent and coastal (stormwater discharge) permit (December 2019).
- Wharves 6 & 7 and slipway redevelopment land use consents and coastal (stormwater discharge) permits (December 2020)

The Port will continue to operate in accordance with the above existing consents, with the exception of the following consents that will be replaced by the current Proposal:

- The 1996 port occupation area coastal permit. This permit was issued in July 1994 under Section 384A of the RMA and enables Eastland Port to exclusively occupy the seabed and water space in and around its facilities at the Port of Gisborne. The port occupation area includes the VTB and all wharf areas, but not the PNC. It also includes some other areas, including a strip around the seaward edge of part of the Southern logyard and other port facilities, including the Turanganui River training wall. The permit was issued for a term of just under 32 years and expires in September 2026.
- The Southern logyard coastal (stormwater discharge) permit and variation (January 2011 & June 2016). The permit sought by the Proposal covers a slightly larger area, including increased runoff/discharge volumes from the new reclamation and extended Wharf 8 areas, as well as improved treatment of stormwater discharge.
- The 2015 port maintenance dredging and disposal permits, as well as the December 2020 application to renew those permits. In order to accommodate larger vessels at the port, the depth of dredging in some locations will need to be altered slightly to accurately reflect the new function of each area. This includes splitting the PNC into an inner and outer PNC delineated by their different depths, and the creation of additional manoeuvring areas within the port to reflect the new wharf layout. The maintenance dredging and disposal permits sought by the Proposal seek to enable those changes to be maintained.

The port area occupation permit and part of the other existing consents that authorise activities in the CMA are particularly relevant to the application for the new replacement coastal permit being sought as part of the TBP. These same consents, along with those authorising land-based activities, are also relevant to the other resource consent applications, particularly as they involve similar construction activities and use of the redeveloped wharf and other port facilities.

The conditions attached to the different existing resource consents have informed the preparation of mitigation measures and development controls included in assessments for the Proposal and will inform the draft consent conditions for the TBP. A draft set of consent conditions is anticipated to be provided to Council following lodgement of these applications.

2.6 Resource Consents for Twin Berths Project Stage 1

Environment Court Decision

The resource consents for redevelopment of Wharves 6 and 7 and the former slipway confirmed and issued by the Environment Court in December 2020 are important context for the Stage 2 Twin Berths application. This is because they established Te Tai Uru, a consultative group of local iwi, hapū and whanau, as well as a range of generally applicable and conditions relating to disposal of dredging materials, noise limits and operational development controls.

Establishment of Te Tai Uru

Te Tai Uru is made up of representatives from the hapū of Tūranganui-a-Kiwa, including Ngai Tāwhiri and Ngāti Maru of Rongowhakaata, Whānau a Iwi of Te Aitangi A Māhaki, and Ngāti Kahutia and Ngāti Te Rangitauwhiwhia of Ngai Tāmanuhiri, along with the Council and Eastland Port.

Conditions 4 of both the Wharves 6 and 7 and slipway resource consents prescribe the membership protocol for the group's establishment, its role and purpose, meetings, Cultural Values Framework and Cultural Impact Assessment and administrative and financial matters. Further details on these matters are in **Appendix C** which contains a copy of the approved conditions.

Resource Consent Conditions

The Wharves 6 and 7 and former slipway resource consents contain a number of conditions of consent, including in relation to the monitoring and management of adverse effects, that were developed during the Court assisted mediation process. As these consented projects involve reclamation, capital and maintenance dredging and disposal, many of the conditions are appropriate for application to components of the Proposal and will be adopted in the Proposal draft conditions (to be provided following lodgement).

2.7 Resource Consent Applications with the Council

Eastland Port have the following resource consent applications currently pending decisions from the Council:

- Coastal permits (renewal) for outer port maintenance dredging and disposal (lodged with the Council in February 2020).
- Coastal permits (renewal) for inner port maintenance dredging and disposal coastal permit, along with a coastal permit for a Wharf 1 mooring pontoon for the two port tugs (lodged with the Council in late September 2021).

Outer Port Maintenance Dredging & Disposal Coastal Permit Applications

The Outer Port maintenance dredging and disposal applications were publicly notified in August 2020. One submission from the Rongowhakaata Iwi Trust was received from this process. The application has been put 'on hold' while Eastland Port discuss the matters raised in the submission. A Cultural Impact Assessment on these applications was received from Rongowhakaata Iwi Trust in February 2022 which has been the subject of ongoing discussion between Eastland and Rongowhakaata Iwi Trust. The application enables maintenance dredging approved under earlier resource consents to continue under Section 124 of the RMA at least until such time as a decision is made on the 2020 application.

The Twin Berths maintenance dredging and disposal coastal permits for the outer port will effectively replace the current applications being processed by the Council. They cover very similar dredging areas and the same disposal ground. The current applications are not being withdrawn because under Section 124 of the RMA they authorise the continued maintenance dredging and disposal operations, until those applications are approved.

Inner Port Maintenance Dredging and Disposal and Wharf 1 Tug Mooring Platform Applications

The inner port maintenance dredging and disposal applications simply seek continued maintenance dredging of the inner channel adjacent to Wharves 4, 5 and 6 extending through the inner harbour basin to the berth pocket adjacent to Wharf 1. The dredged material will be disposed of at the OSDG. The application also provides for construction of a mooring platform at Wharf 1 to provide berthing for two new port tugs.

Eastland Port advise that the mooring platform adjacent to Wharf 1 will provide secure berths for the two new port tugs. The platform is to be set out approximately 3-4m from the existing wharf structure. Three options have been presented with Option 1 shown in **Figure 8** being most likely. It consists of two floating pontoons with a total length of 44m and a width of 4m. The pontoons will be secured in place with piles and have a gangway for access. The construction works are expected to take approximately 2 weeks and involve removal of some existing piles.

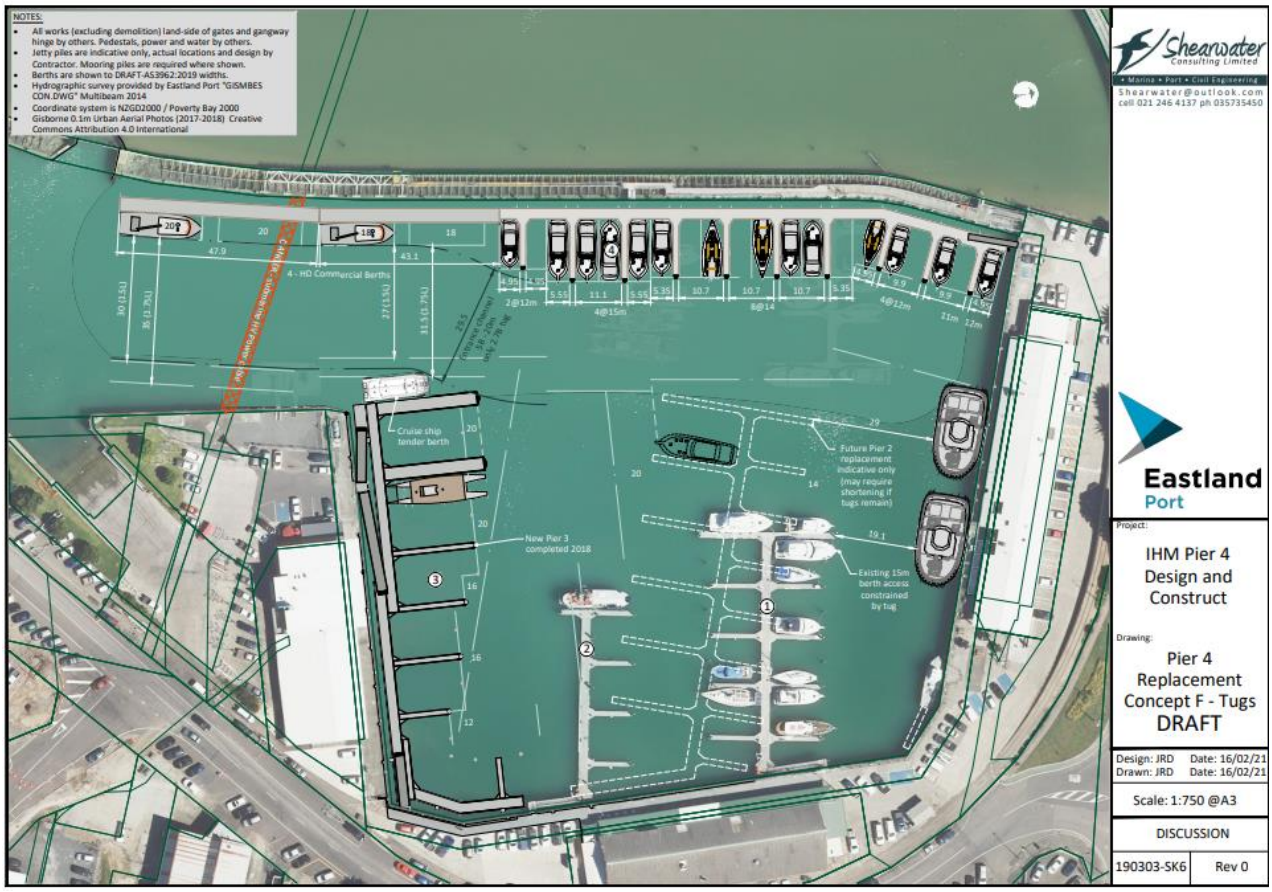


Figure 8: Inner Port Plan of Proposed New Tug Berth and Other Facilities

The operational dredge depth required for the new tugs is approximately -5.65m below Chart Datum (BCD). The proposed dredge depth has been kept to the minimum to provide sufficient clearance above the submarine 50,000 KV power cable that crosses the inner channel in the area of Wharf 4.

The applications note that to establish the required depth of water for craft the initial dredge volume is estimated to be approximately 30,000m^3 in the first year. Once the required depths have been re-established ongoing annual dredge volumes of the area would be much less, being approximately only 3,000– 5,000m^3. The dredging operation will be undertaken using a trailing suction hopper dredge (TSHD) or barge mounted backhoe (BHD) or a combination of both. The dredged material will be transported to the OSDG, which has been utilised for the disposal of all maintenance dredging material over the last approximately 18 years.

3 TWIN BERTHS PROJECT STAGE 2 OVERVIEW

3.1 Background

Eastland Port Twin Berths Report

The *Eastland Port Twin Berth Project Alternatives Assessment Report* in **Appendix D** explains the background to the TBP. The report notes that Eastland Port, and its predecessors, have invested considerably in upgrading the port infrastructure and associated capital and maintenance dredging to maintain an effective port over the past 100 years. Since the purchase of Eastland Port in 2003 by the then Eastland Community Trust, now Trust Tairāwhiti, over $90 million has been invested into the port infrastructure. This capital expenditure has to date mostly been focussed on increasing the capacity of the logyards and other cargo storage assets, but also some significant plant and machinery purchases.

The report notes that the company is planning to invest over $170 million into the port assets through completing the TBP to increase the capacity of its wharf assets to be able to berth two large log carrying vessels at once and also facilitate trade in shipping containers and other bulk products. It notes that while logs are currently the port's primary export, there is a need to create a coastal container terminal to expand the options for exporters, enabling more types of goods to be exported and imported.

The report also notes the increasing importance of cruise-based tourism to the region and the need to improve facilities. In late 2019-early 2020 (prior to the COVID-19 pandemic) Eastland Port recorded its best ever year for cruise ships. In total, 19 cruise ships visited the region with 14 anchoring in the bay, and 1 berthing at a port wharf. Four of the ships could not come into the bay due to bad weather.

The report records that since first engaging with the community on the Twin Berths concept several years ago, Eastland Port have worked through the details with the Council, local hapū, iwi and other key stakeholders and have made several significant changes to accommodate and reflect their feedback.

Stage 1 - Slipway Remediation and Wharves 6 & 7 Redevelopment

Stage One of the TBP involves remediation of the former slipway and reducing its footprint within the port to enable more manoeuvring space for ships. Consents for this project were confirmed by the Environment Court in December 2020, and construction is expected to start in late 2023 and be completed approximately 4 months later.

The works involve removing the old and rusted sheet pile wall, strengthening the river training wall, reshaping the slipway edge and armouring it with large rock boulders to stop any further erosion and enhance the habitat for juvenile crayfish and marine invertebrates. The location of the slipway is shown (as No. 1) in **Figure 9**.

Stage One also involves rebuilding part of Wharf 6 and all of Wharf 7 shown (as No.2) in **Figure 8**. These works were also consented in December 2020. Construction commenced in in April 2022 and be completed approximately 18 months later.

Wharf 6 was built in the 1950s. Over the last 70 or so years Wharf 6 has been used for a variety of vessel berthing, loading and unloading activities. Currently it is utilised by the port tugs, along with the region's fishing fleet. Wharf 7 was built in the 1960s and has used for the loading of agricultural produce, and more recently log and other timber produce. The rebuilding of Wharf 7 will provide Eastland Port with the ability to berth a 200m long vessel loaded to deeper draft and use mobile harbour cranes on this wharf.

Stage 2 - Current Twin Berths Proposal

The second stage of the TBP, which this application relates to, has several development components. One involves extension of the existing Wharf 8 structure into the area of the inner breakwater (No. 3 in **Figure 9**), an associated reclamation adjacent to the Southern logyard (No. 4), and a rebuild of the outer breakwater structure (No.5). Deepening (through capital dredging) of the PNC, VTB and outer port (No.'s 6-8) to accommodate the larger Handymax vessels is also involved. Improved stormwater collection and treatment facilities in the Southern logyard is also planned.

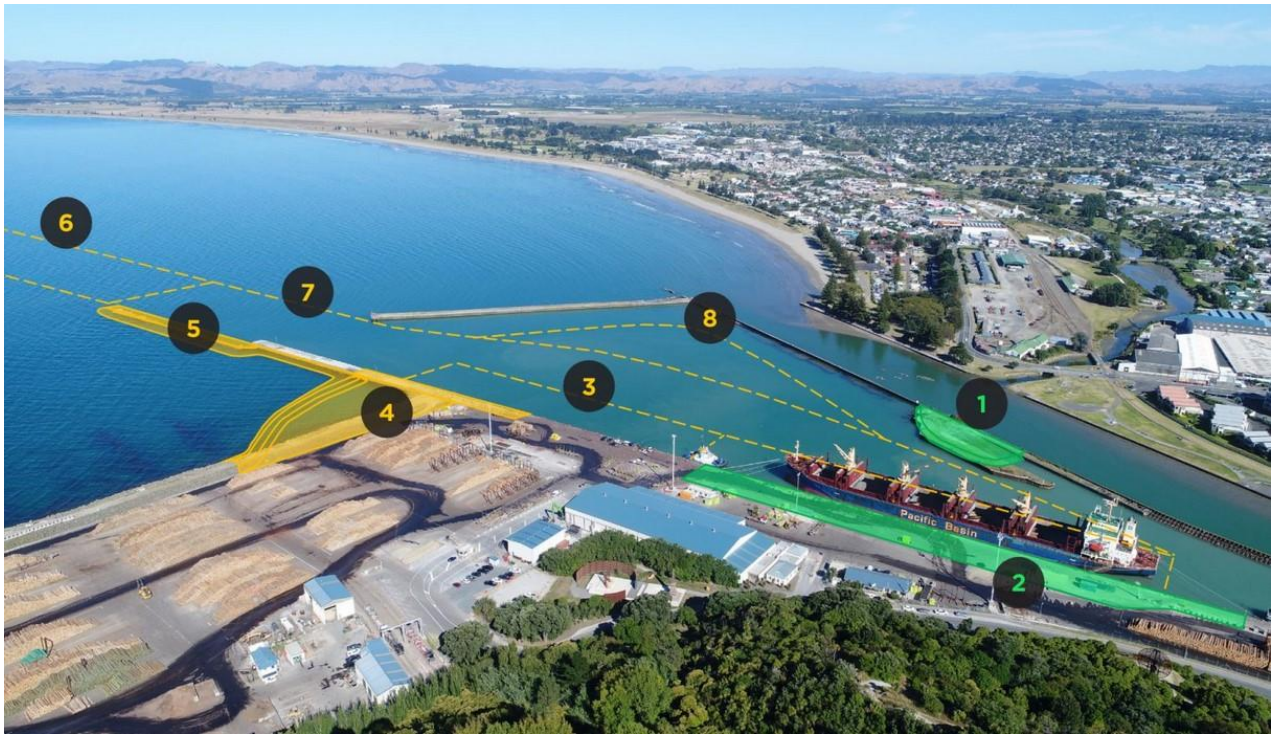


Figure 9: Twin Berths Project Illustrative Plan

The Wharf 8 extension and Outer Port reclamation projects are linked, in the sense that the wharf extension is dependent on logging trucks and other heavy vehicles being able to access it through the adjacent reclamation. In other words, Wharf 8 can only be extended if much improved access to it is available through the proposed reclamation.

The Eastland Port report notes that, at present, the port can handle around 3.0 million tonnes of wood per year, but in future this volume will increase to 4.2 million tonnes. It highlights that both the breakwater and Wharves 7 and 8 that serve the forestry industry are old and in poor condition and not meeting current day port operating needs. On an increasing number of occasions log vessels have to wait out in Tūranganui-a-Kiwa Poverty Bay unable to dock because of the limited wharf space and/or poor weather conditions. This has flow-on effects on operation of the logyards and the wider forestry industry. A fully operational second berth will alleviate these problems and future-proof the port for coastal shipping and new international trade and exports.

3.2 Reasons for the Project

The Port of Gisborne has experienced significant growth in recent years in terms of overall tonnage, log volumes, other primary produce volumes and cruise vessel visits. Eastland Port is expecting to show a continuation of this growth, based on strong national and regional markets. The port is facing several challenges that have triggered the TBP and in particular the subject Stage 2 resource consent applications. They are:

- Aged and damaged assets that require replacement or substantial upgrading.
- More frequent and intense weather events.
- Very high levels of utilisation of wharf and logyard facilities.
- Increasing log volumes and need to provide for other forms of coastal shipping.
- Changes in sizes of vessels which will be servicing the port in the coming decades.
- Water depth limitations in the PNC, VTB and outer wharves.

The Eastland Port *Twin Berths Project Alternatives Assessment Report* provides more information on the above matters, which are summarised below. Some of these same matters are also covered in the Worley *Twin Berths Project Design Justification* Report 2022 in **Appendix E**.

Aged Wharves and Other Infrastructure

Most of the built assets are old and require modernisation, including increased size and strength to cater for larger and deeper draught vessels. The respective ages of the key facilities, shown in **Figure 10,** are highlighted in **Table 1.** The figure and table do not refer to the port navigation facilities, logyards, cool stores and other facilities that are also an integral part of the Port of Gisborne operations.

The PNC, VTB and wharf pockets are also key assets in the sense that they are regularly maintenance dredged and periodically capital dredged. Eastland Port records indicate approximately $0.5million is spent each year on maintenance dredging at the port.

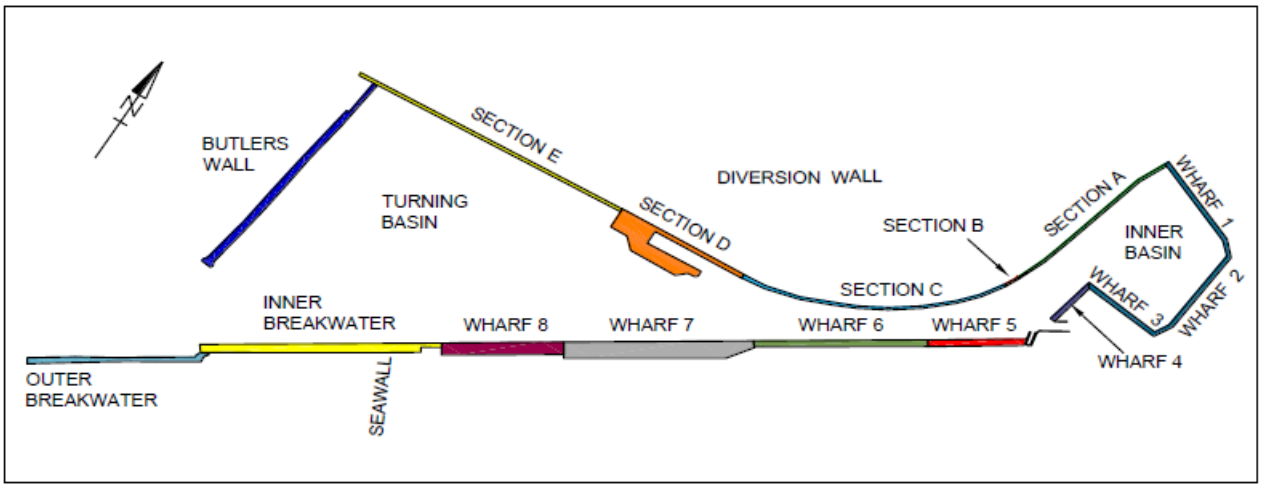


Figure 10: Plan of Gisborne Port Key Assets

The Outer Port wharf infrastructure and layout does not have the capability to meet long term shipping and cargo needs. The PNC, VTB, and Wharves 6--8 vessel manoeuvring areas are not deep enough and the wharves have both structural and working space limitations. The TBP, as noted in Section 6.4 of the Worley report[1] has a 50 year design life, i.e. the outer port is being redeveloped to serve the region for at least the next 50 years.

Table 1: Gisborne Port Ages of Key Assets and Related Matters

Asset	Construction History	Approximate Age (Years)	Upgrading
Wharves 1,2 & 3	Built in 1927	93	Refurbished in 2012
Wharves 4 & 5	Built in 1956	64	Planned for post 2030
Wharf 6	Built in 1959	62	Resource Consented (2020)
Wharf 7	Built in 1969	51	Resource Consented (2020)
Wharf 8	Built in 1996	30	Current Proposal
River Training Wall	Built in 1927	93	Maintenance currently underway
Butlers Wall	Built in 1932	88	Planned for post 2030
Inner Breakwater	Built in 1880's	140	Current Proposal
Outer Breakwater	Built in 1920's	100	Current Proposal

Source: Eastland Port Keystone Asset Assessment October 2018

[1] Worley *Twin Berths Project Design Justification Report* 2022

Wharf 8 provides some crane capacity, although it is load restricted due to its design and current condition. Wharf 7 was designed to accommodate mobile cranes, but its degraded condition has prevented this for some time.

Port Exposure and Bad Weather Events

The exposed nature of the port and its inability to operate during rough weather conditions was highlighted earlier in in terms of the 2020 Eastland Port Annual Report. It is noted that in July 2019, stormy weather closed the Wharf 8 logging berth for about a quarter of the month and vessels were required to stay out in the bay, waiting for calmer sea conditions. This was not the only time in 2019 that port operations were affected by bad weather events.

The Gisborne Herald reported that in mid-May 2019 large swells had stopped port loading operations for six days and at one time seven log ships were moored in the bay. At its peak, 22 ships were anchored from East Cape to Mahia awaiting access to Eastland Port. **Figure 11** contains a photograph of the parked-up vessels from the Gisborne Herald article of 20 May 2019.

Figure 11: Photograph of Logging Vessels Waiting in the Bay Following Bad Weather

Outer Port Water Depth Limitations

Section 7.4 of the Worley report notes the water depth and other limitations of the PNC that affect shipping operations at the port. The majority of the Outer PNC (from the Tokomaru Buoy to the end of the breakwater) is made up of deep unconsolidated sediment overlying rock and only the outer (offshore) is primarily papa rock with little or no sediment. However, due to how ships interact with the waves in this outer section Eastland Port has historically required a Static Under Keel Clearance (SUKC) of at least 2.0m. A lesser 1.5m SUKC applies within the Inner PNC where there are also deep unconsolidated sediments and wave conditions are less due to the protection the breakwater provides. When environmental conditions allow, Dynamic Under Keel Clearance (DUKC) is utilised which is covered in detail in Section 4.1 of Eastland Port Alternatives Assessment. However, the close proximity of the Inner PNC (from the end of the breakwater to Wharf 7) to the breakwater and Butlers Wall means that channel deepening here has to be undertaken carefully so as to not affect the stability of these structures.

Currently with the Outer PNC being maintenance dredged to a nominal -10.2m BCD, and having a UKC of 2m, ships are draught and tidally restricted to entering or departing the port when they are 8.2m draught, plus height of tide above CD. Accordingly, the port is generally operated on the basis that ships enter or leave the port around high tide to prevent the situation of ships being 'captured' (unable to leave the port).

Wharf Berth Utilisation and Operational Capacity

From April 2021 to March 2022, 118 cargo vessels visited the port, 93 % of which were collecting logs. All cargo vessels are escorted into the port by tugs. Berth utilisation at the port is dependent on a range of economic, climatic and other factors.

On average a log vessel stays at the port for 43 hours to collect its export consignment. Wharf 8 was occupied for 5621 hours, or 64% of FY22. This cumulative time includes pilotage to and from anchorage. Over this period 2.7million(M) JAS (Japanese Agricultural Standard) of logs were exported.

Eastland Port's ability to berth a vessel is heavily influenced by climatic factors. Arrival and departure times at the port are irregular and largely tidally dependant with the limited drafts of the PNC and VTB influencing when a vessel can enter or exit port. Primarily this extends the vessel stay times by having to wait for the high tide to sail from the port loaded.

More significant than the tide, however, are the weather conditions affecting the port. Eastland Port is susceptible to infra-gravity waves which prevent the port from berthing a vessel in port and holding it alongside the wharf. In FY22 these conditions occurred for 1688 hours, or 19% of the year.

During this year wharf maintenance and dredging took 216 hours, or 2% of the year. The remaining time, 15%, the berth was available with no cargo to load.

Last year there was a vessel berthed at Wharf 7 for 528 hours or 6%. Wharf 7 had the same weather delays, and similar tidal and maintenance/dredging hours. Over this period 9,485 tonnes of produce were exported via Wharf 7. It remained vacant and available for loading for 75% of the year.

Increasing Log Volumes

As detailed in the *Eastland Port Twin Berth Project Alternatives Assessment Report* in **Appendix D,** the Port's current log export capacity utilising its existing assets is approximately 3.0M JAS a year. One JAS is approximately equal to $1m^3$ or 1 tonne of timber. This capacity of 3.0M JAS per annum exported was reached in 2018 (**Figure 12**: Gisborne Port export log volumes & Wharf 8 berth occupancy), however Tairāwhiti wood resource harvest is expected to peak at approximately 4.2M JAS before 2030. With berth occupancy peaking at 70% along with vessels at anchorage awaiting berthage, Eastland Port has established that it has already reached its capacity operating with a single berth.

Utilisation above 65% (Permanent International Association of Navigation Congresses guideline value) is expected to result in vessels queuing for extended periods awaiting berthage. This is exactly what happened in 2020 with up to 16 vessels recorded as awaiting berthage at one time.

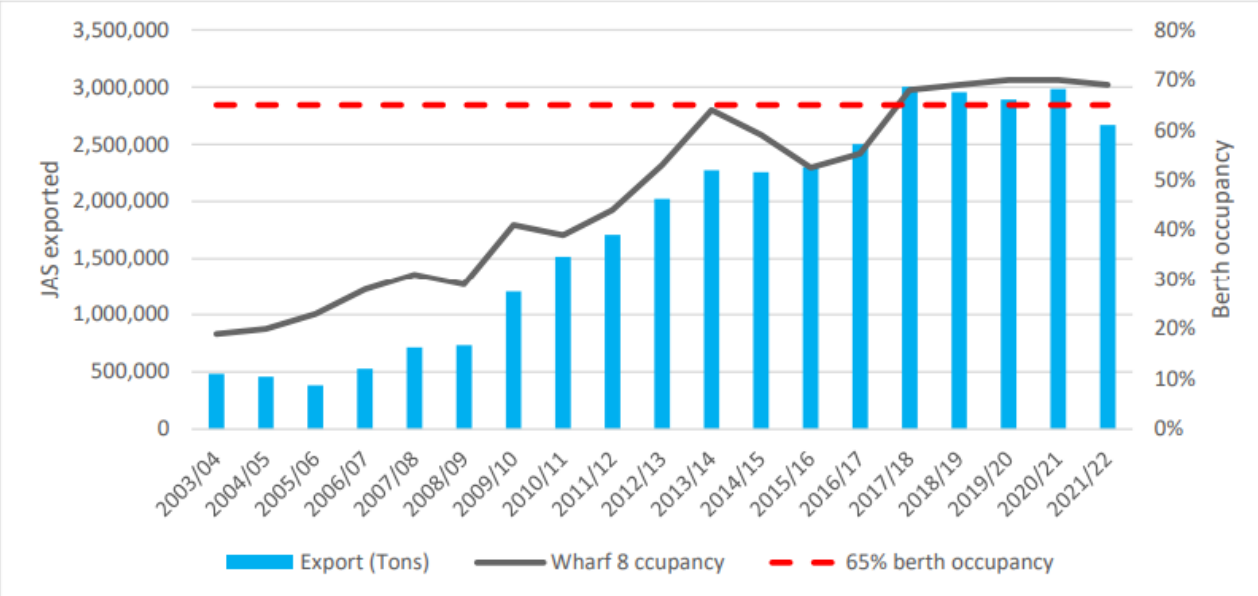


Figure 12: Gisborne Port export log volumes & Wharf 8 berth occupancy

Source: Worley Twin Berths Justification Report 2022

Catering for Increased Vessel Size

Section 3.1 of the Worley report describes the 'size' (length and draught) of the log and other vessels currently visiting the port. They fall into three primary categories:

- Reefer ships 130-155m long with a draft of 6.0-9.2m
- Log ships up to 185m long with a draft of 9.5-10.7m (HandyMax vessel).
- Log ships 185-200m long with a draft of 11.5- 1.8m (SupraMax vessel).

Currently all of these vessels visiting Eastland Port are draught limited given the current infrastructure and dredged depths. **Figure 13** contains a photograph of a typical long log vessel that visits the port at present. The vessel shown is the Polaris Melody, which is approximately 179m long.

Figure 13: Photograph of a Typical Log Vessel Visiting the Port

The TBP is intended to allow the following additional vessels to visit the port in the future:

- Large (Handymax/Supramax type) log vessels up to 200m and with departure draughts of up to 11.8m
- Coastal container vessels, such as the MV Moana Chief that is 175m long Loaded on Arrival (LOA) and has a 10.9m draught.
- Woodchip vessels, such as the MV Kutai Express, that are expected to be up to 200m LOA and have a 10.5m draught.

Figure 14, Figure 15 and Figure 16 contain photographs of a typical Handymax log vessel, along with coastal container and woodchip vessels expected in the future. The typical Handymax log vessel shown is the 180m (LOA) long Jervis Bay.

Figure 14: Photograph of Typical Handymax Log Vessel

Figure 15: Photograph of Moana Chief Container Vessel

Section 7 of the Worley report notes that in the past there have been concerns regarding the high cost of excavating rock from the Outer PNC but now with improved dredging equipment and associated technology, this can be undertaken at a reasonable cost. The principle constraints on deepening the PNC to allow larger draught vessels relate to the Inner PNC and stability of the adjacent port structures. The report finds that deepening the PNC beyond a maintained depth of -10.4mBCD is likely to involve expensive stabilising works for the Butlers Wall, the breakwater and Wharf 8 and they would be disproportionate to the benefits gained. Although some capital dredging of the PNC, VTB and wharf berth pockets can be readily undertaken to improve log and other vessel access to the port, some restrictions on their size (length and draught) will still be necessary.

Figure 16: Photograph of Kutai Express Woodchip Vessel

Sections 7.5 and 7.7 of the Worley report notes the limitations on water depth in the VTB and wharf areas. For the VTB it finds that only minimal capital dredging of rock in high spot locations and trimming to form a consistent basin

is required to accommodate larger logging and other vessels. It notes that a container ship would be 0.2 m short on draught should it arrive fully loaded on an infrequent tide. However, Eastland Port expects to be able to work with the shipping companies to ensure that such ships avoid the lowest of neap tides that would prevent the ship manoeuvring in the VTB. Similarly for Wharves 7 and 8 the report finds that capital dredging of the existing berth pockets can be feasibly undertaken to improve vessel access, with much of that required for Wharf 7 already approved as part of the recent resource consents.

The Worley report finds that catering for a 200m fully loaded log ship at Wharf 8 is not feasible. However, the report notes that capital dredging and other works can be undertaken to significantly improve vessel access to the outer port involving the following:

- One 185m log ship and one 175m container ship at either Wharf 7 or Wharf 8 at the same time.
- Two 185m log ships simultaneously at either Wharf 7 or Wharf 8.
- One 185m log ship at Wharf 8 with one 200m log ship at Wharf 7 at the same time.
- One 185m log ship at Wharf 8 and one 200m woodchip ship at Wharf 7 at the same time.

3.3 Project Scope and Key Components

The Proposal has eight components. They are as follows:

- **Wharf 8 Extension**. This wharf is to be extended approximately 130m into the area of the inner breakwater involving some associated reclamation on both sides of the breakwater. The wharf extensions on each side will in total be approximately 900m^2 and coupled with the existing breakwater area being built over/refurbished will almost double the effective wharf space.
- **Outer Port Reclamation**. A reclamation of approximately 7,000m^2 is proposed adjacent to the extended Wharf 8 to enable logging trucks and other vehicles to access the new wharf facility. The lower revetment wall and other parts of the reclamation will affect another approximately 1,900m^2, bringing the total affected seabed area to approximately 8,900m^2.
- **Outer Breakwater Upgrading**. This involves placing purpose built 24-30 tonne concrete armour units along each side of the approximately 200m long outer breakwater, along with a concrete capping layer. The seabed 'footprint' of the outer breakwater structure will be increased from approximately 8,000m^2 to 10,700m^2.
- **Southern Logyard Stormwater Upgrade**. Changes are proposed to the stormwater drainage network in the southern logyard to improve the quality of existing discharges and accommodate stormwater from the extended Wharf 8 and Outer Port reclamation. A secondary treatment system is to be installed in each of the two existing sub-catchments, comprising underground detention chambers, water clarifiers, and a chemical coagulation/flocculation system. This will bring the treatment system in-line with those in place at the Upper and Wharfside log yards. The additional volume of stormwater is to be discharged through the existing logyard outfalls into the Kaiti reef and Outer Port areas.
- **Outer Port Capital Dredging (Deepening)**. This work affects the PNC, VTB, Wharves 8, 7 and associated vessel manoeuvring areas. The port deepening is required to accommodate the larger Handymax log vessels expected to use the port in the near future. It also involves disposal of the capital dredge material at the existing OSDG. Approximately 140,600m^3 of material is to be capital dredged from an area of approximately 18.46ha extending from the inland (eastern) end of Wharf 7 to the seaward (western) end of the PNC.
- **Outer Port Maintenance Dredging (Removal of Natural Sediment)**. This involves the future maintenance dredging of the deepened outer port (Wharves 7, 8, VTB and PNC), along with disposal of the maintenance dredged material at the OSDG. Consent is being sought to dredge up to 140,000m^3 of material a year from the deepened outer port and other areas that are not being capital dredged but have been maintenance dredged in the past. The proposed maintenance dredging area is approximately 25ha. The proposed annual maximum includes an allowance for increased sedimentation in future during El Niño weather conditions.
- **Ongoing Use of a New Port Occupation Area**. The proposed occupation area is similar to the current one in the coastal permit that expires in September 2026. The proposed area is based around the development plans for the outer port (breakwater, Wharf 8 and proposed reclamation) outlined in this AEE being approved and in turn constructed.

3.4 Project Staging and Timeframe

Overall Timing

The Eastland Port report notes that the new/upgraded port facilities are to be staged and carried out over a period of approximately eight years. The staging and timing will depend on economic and other conditions, but an indicative potential Proposal programme may consist of the following stages and timeframes:

- Stage 1 – Wharf 7 Capital Dredging (after completion of redeveloped wharf under existing consents) - approximately 3 months
- Stage 2 - Wharf 8 Extension – approximately 8 months
- Stage 3 - Wharf 8 Capital Dredging – approximately 5 months
- Stage 4 – Outer Port Reclamation – approximately 3 years
- Stage 5 – Outer Breakwater Upgrade – approximately 5 years
- Stage 6 – PNC, VTB Capital Dredging – approximately 6 months

Staging Details

Section 6 of the Worley Breakwater, Wharf 8 and Reclamation Engineering Report explains in some detail the potential construction sequence involved with these three components, noting that this is indicative subject to final design and project-specific conditions.

Section 13 of the Cheal Twin Berths & Southern Logyard Stormwater Management Report (**Appendix H**) outlines the construction timeframe anticipated for that aspect of the Proposal.

The Worley Eastland Port Reclamation, Wharf 8 Extension and Outer Breakwater Engineering Report explains the expected timing of the capital dredging and its relationship to the other project components, notably the current Wharf 6 and 7 redevelopment works, the Wharf 8 extension, Outer Port reclamation and Outer Breakwater upgrade.

3.5 Alternatives Considered

Clause 6 in the Fourth Schedule of the RMA requires that AEE reports include an assessment of 'alternative locations and methods' where a proposal 'is likely to have significant adverse effects on the environment'. Section 105 of the RMA requires consideration of possible alternative methods of discharge, including into any other receiving environment, where an application for a discharge permit is sought. Policy 10 of the NZ Coastal Policy statement also requires a consideration of alternatives to reclamation.

This AEE and the appended expert reports do not identify any parts of the TBP as having 'significant adverse effects' in terms of Clause 6 of the Fourth Schedule of the RMA. Extensive investigations into alternatives have, however, been undertaken and these are detailed in the following reports:

- Eastland Port Twin Berth Project Alternatives Assessment Report (**Appendix D**); which addresses alternative options to increase shipping capacity at the Port; alternatives to the proposed reclamation; and alternative options for the disposal of dredge material including onshore disposal and reuse of dredge material in the reclamation.
- Worley Eastland Port Reclamation, Wharf 8 Extension and Outer Breakwater Engineering Report (**Appendix F),** which addresses alternative methods and designs for the various structures and works proposed.
- Cheal Consultants Ltd Twin Berths Project Stormwater Engineering Report **(Appendix H**), which addresses alternative methods of discharging of stormwater from the Southern Logyard (SLY)

3.6 Engagement and consultation

Eastland Port has engaged with a wide range of stakeholders in relation to the Proposal, including iwi, hapū and whanau, along with community organisations and individuals, port customers, commercial interests, and Council. A wide range of channels have been used including hui, meetings, community newsletters, a project website, social media campaign as well as print and digital media publications, a stand at the Gisborne A&P show, presentations, port tours and workshops as well as direct email and phone communications. A comprehensive summary of Eastland Port's

approach to consulting on the Proposal as well as the engagement undertaken is included as **Appendix I** ('the Engagement Report') to this application.

The Engagement Report also outlines Eastland Port's commitments to the community to continue to engage as the process proceeds. This includes the provision of the full resource consent application and supporting documentation on the Eastland Port website once accepted by the Council. In addition, advertised drop-in sessions will be held at Eastland Port offices throughout the submission period for people wanting to discuss or clarify points of the application.

Public notification is being sought for this application. It is anticipated that further engagement will occur with stakeholders following the public notification of the application.

In addition to Eastland Port's voluntary actions to reach out to numerous community stakeholder groups and individuals through this process, it also has several obligations to liaise or consult and regularly meet with important community groups in relation to authorised and planned development at the port. As detailed in the attached Engagement Report, and summarised below, Eastland Port has honoured these commitments.

3.6.1 Port Community Liaison Group

The Port Community Liaison Group (PCLG) was formed in 2009 and comprises representatives of the following organisations:

- The Council
- Te Rūnanga o Tūranganui-ā-Kiwa, including Te Aitanga a Māhaki, Rongowhakaata and Ngai Tāmanuhiri
- Ngāti Oneone
- Ngai Tāmanuhiri
- Rongowhakaata
- Department of Conservation
- Residents from Bayview Apartments, Harbourview Apartments, Kaiti Beach Rd, Parau St, Harris Street & Crawford Rd
- Crayfish industry
- Gisborne Boardriders Club.

Eastland Port meets regularly with members to address matters arising from port operations and provides updates on current and future projects. Eastland Port values the input from members of the group and anticipates the continuation of this consultative forum throughout the application process for this Proposal and beyond.

Appendix 5.3 to the Eastland Port Engagement Report in **Appendix I** contains a record of the PCLG meetings from July 2020 through to February 2022 (5 in total) where the TBP was discussed. The appendix documents the attendees and agenda items.

3.6.2 Te Tai Uru

The TBP has also been developed with input from Te Tai Uru.

Section 2.3.2 of the Eastland Port Engagement Report explains the background to the establishment of Te Tai Uru, which was established in December 2020 following the Environment Court's confirmation of resource consents for Stage 1 of the TBP, relating to redevelopment of Wharves 6 and 7 and the former slipway.

Te Tai Uru is made up of representatives from Ngai Tāwhiri, Rongowhakaata Iwi Trust, Whānau a Iwi, Ngāti Maru, Ngāti Kahutia and Ngāti Te Rangitauwhiwhia along with the Council and Eastland Port.

Te Tai Uru was formed to discuss matters relating to the redevelopment of Eastland Port, including both stages of the TBP, and to recognise and provide for the kaitiakitanga responsibilities of the hapū members with respect to the port and surrounding areas hapū.

Appendix 5.1 of the Engagement Report documents the six Te Tai Uru hui from March 2021 through to February 2022 where the TBP was discussed, along with the attendees and agenda items.

3.6.3 Other Meetings with Tangata Whenua

Eastland Port has met separately with Ngāti Oneone in relation to the Proposal as they are not a member of Te Tai Uru, although there is a standing invitation for them to join this hui.

Appendix 5.2 of the Engagement Report documents the communications and hui between Eastland Port and Ngāti Oneone and agenda items, which are the same as those at Te Tai Uru hui to ensure consistency and transparency.

Eastland Port has also engaged directly with Rongowhakaata Iwi Trust in relation to their submission on the December 2020 resource consent application for renewal of the Port's maintenance dredging and disposal consents, Rongowhakaata has undertaken a Cultural Impact Assessment (CIA) of the December 2020 application, which it has given Eastland Port permission to use in respect of the dredging components of this current Proposal. Eastland Port acknowledges and appreciates the korero with Rongowhakaata and has sought to incorporate the outcomes of those discussions into the current Proposal. This includes with respect to the wording of potential consent conditions, monitoring of sediment quality and a commitment to undertake further investigations into alternative locations for disposal of dredged material, other than the OSDG.

3.6.4 Gisborne District Council

Eastland Port has a monthly meeting with GDC officers to cover all matters regulatory and compliance. This has provided an opportunity for several aspects of the I to have been informally discussed with Council staff. A formal pre-lodgement meeting (Zoom based) with Council staff was held on 22 April 2022. **Appendix Z** contains a copy of a letter sent to the Council, as agreed between Eastland Port and Council staff, outlining the application and the anticipated process forward.

3.6.5 Department of Conservation

The Department of Conservation manage the adjacent Puhi Kai iti/Cook Landing Site National Reserve and administer the NZCPS. Eastland Port advised that they have hosted a group from the Department of Conservation (DoC) on the seawall to discuss the TBP and what the port is doing to minimise impacts on the environment. It is also understood that DoC is a member of the PCLG.

3.6.6 Heritage NZ

The Puhi Kai Iti / Cook Landing Site National Reserve as well as protected waahi tapu reefs in the bay are registered under the Heritage New Zealand Pouhere Taonga Act 2014, which is administered by Heritage New Zealand (HNZ). The adjacent heritage boat harbour is identified as historic heritage in terms of the RMA.

HNZ has been advised of the project through membership of the PCLG.

3.6.7 NZ Rock Lobster Industry Council & Tairāwhiti Rock Lobster Industry Association

The NZ Rock Lobster Industry Council (NZRLIC) and Tairāwhiti Rock Lobster Association (TRLIA) are expected to have interests in the applications, in terms of the reported values of the port structures as habitat for juvenile crayfish and wider bay crayfisheries. The Eastland Port Engagement Report identifies that TRLIA has been emailed and presented to in relation to the Proposal.

3.6.8 Recreational Water Users

A workshop was held in March 2022 at Eastland Port offices with a Zoom link as well, for members of the Gisborne Boardriders Club, waka ama clubs, kayak clubs, surf lifesaving clubs, yacht club and Sport Gisborne Tairāwhiti to discuss the TBP. The workshop focussed on covering the effects of the port developments on the coastline and surf breaks within Tūranganui-a-Kiwa Poverty Bay as assets of importance to the community.

3.6.9 Businesses including port customers and leaseholders

Eastland Port has engaged with existing port customers, including forestry and shipping companies and the horticultural industry, with a particular emphasis on operational and financial impacts and opportunities associated with the TBP as well as environmental effects. Marina tenants, berth holders and tourism operators have also been engaged with as well as local business, including by way of the Gisborne Chamber of Commerce. Section 4.1.8 of the Engagement Report sets out a record of engagement with these key stakeholders.

3.6.10 Other Organisations

Section 4.1.5 of the Eastland Port report outlines the community newsletters, events, meetings, social media, and other avenues used to obtain community input to the project.

3.6.11 Marine and Coastal Area (Takutai Moana) Act 2011 and Ngā Rohe Moana o Ngā Hapū o Ngati Porou Act 2019 Consultation Requirements

Section 62 of the Marine and Coastal Area Act requires all applicants seeking coastal permits for activities in the CMA to notify, and seek the views of, any group that has made an application for recognition of customary marine title before lodgement of their applications with the Council. Ministry of Justice records show Ngāti Oneone, Ngāti Oneone (Tupara-Katene), Rongowhakaata Iwi, Te Whānau a Kai and Ngai Tamanuhiri Iwi have made such customary marine title applications over the whole or part of the port and/or OSDG areas subject to the coastal permit applications, under the Marine and Coastal Area Act. A copy of these applications is included in **Appendix T**.

Eastland Port has formally advised all applicants for customary marine title of its intent to seek resource consents for the TBP and invited their views. **Appendix X** contains a copy of the letter and associated information sent to the organisations on 16 June 2022.

None of the applicant groups have yet responded to the invitation to provide feedback under the Act. However, as detailed above, Eastland Port is engaging with some of these groups in other forums. If any response is received under the consultation provisions of the Marine and Coastal Areas Act, Eastland Port will engage further and incorporate any feedback into the proposal as appropriate and advise the Council as to the outcome of any such discussions.

Ngā Rohe Moana o Ngā Hapū o Ngati Porou Act 2019 does not have a specific requirement consistent with Section 62 of the Marine and Coastal Area Act in relation to an applicant notifying and seeking the views of any group who has made an application for recognition of customary marine title. Engagement with Ngati Oneone has been undertaken and will continue to be undertaken through the notification of this application (and as required by s16 of Ngā Rohe Moana o Ngā Hapū o Ngati Porou Act 2019). A record of Engagement is held in **Appendix** I.

4 THE EXISTING ENVIRONMENT

4.1 Overview

The existing environment relevant to the Proposal is the Port of Gisborne, including port structures and activities, as well as the coastal and land-based environment in which it is located, much of which is influenced to some extent by existing port activities.

The following section outlines the relevant elements of the existing environment, which includes:

- Existing structures to which works are proposed, being Wharf 8, the inner and outer breakwaters and the southern logyard revetment wall;
- Stormwater infrastructure in the southern logyard and associated discharges of stormwater to the CMA;
- The PNC and VTB, which have been capital dredged and are maintenance dredged on an ongoing basis to maintain clearance depths for vessels accessing the port, as well as the OSDG;
- Historic and cultural values associated with the environment in this location;
- The noise and traffic environment resulting from existing port operations.
- Landform and visual setting.

4.2 Existing Wharf 8 and Inner Breakwater

Section 2.2 of the Worley Eastland Port Reclamation Wharf 8 Extension and Outer Breakwater Engineering Report in **Appendix F** briefly describes the existing wharf and inner breakwater, along with their relationship to the adjacent Wharf 7 and outer breakwater. The report notes that Wharves 7 and 8 are not long enough, nor in sufficiently sound condition to serve two logging vessels and this will become even more apparent as larger vessels seek to use the port in the future.

The **Figure 17** oblique aerial photograph below shows the extent of Wharf 8 and its relationship to the inner breakwater and other port facilities.

Figure 17: Oblique Aerial Photograph of Wharf 8

The photograph shows a vessel, the Yangtze Legend, loading logs. Shipping records show the Yangtze Legend is 179.9m long, 30m wide and has a 9.5m draught. These dimensions are typical of the Handymax log vessels that visit Eastland and are used to transport logs overseas from New Zealand. Currently Eastland can accommodate a vessel up to 200m long with a departure draft of 10.2m on Wharf 8. Following the extension of Wharf 8, Eastland will be able to accommodate a larger class of vessel, Supramax, on either Wharf 7 or 8, and Wharf 8 will have a deeper draught (up to 11.1m).

The Worley report and associated investigations record the following details on the existing structures.

Wharf 8

- Wharf 8 is approximately 150m long and 16m wide.
- The innermost section is a deck on pile structure, the middle section is a quay wall structure with piles drilled into the bedrock and a continuous capping beam on top. The outer section is built over the existing breakwater with a similar quay wall at the front.
- The wharf deck is generally at RL 4.1mCD and approximately 1.98m above MHWS (RL 2.12).
- The adjacent berth pocket has been capital dredged and is regularly maintenance dredged.

Figure 18 contains a photograph of the wharf. The log vessel in the photograph is berthed at the adjacent Wharf 7.

Figure 18: Photograph of Wharf 8

Inner Breakwater

- The inner breakwater is approximately 274m long and consists of an approximately 10m wide concrete structure with a relatively flat top surface.
- The original structure consisted of concrete block work laid over a layer of concrete filled bags.
- Substantial repairs were undertaken, mainly to the surface, in 2011 and again in 2018.
- The top of the inner breakwater varies in height, but is around RL 4.1 and approximately 2m above MHWS (RL 2.12)
- The inner breakwater lies over deep paleochannel material with good geo-mechanical properties, whilst the outer breakwater is located on some softer sediments which have settled.
- The soft, muddy sediments in the PNC adjacent to the breakwater are regularly maintenance dredged.

Figure 19 contains a photograph of the structure.

Figure 19: Photograph of Inner Breakwater

4.3 Outer Breakwater

Section 2.2 of the *Worley Eastland Port Reclamation Wharf 8 Extension and Outer Breakwater Engineering Report* in **Appendix F** describes the existing breakwater, along with the current failings/limitations it has for serving future port needs. The key points from the Worley report and associated Eastland Port and 4Sight investigations are:

- The breakwater is approximately 470m long and contains an inner concrete structure (275m) and an outer concrete/rock rubble (195m) structure.
- The top of the outer breakwater is approximately 9m wide. The crest varies, as parts of it have sunk or been damaged, but is generally around RL 4m CD. It is regularly overtopped by waves during rough weather conditions.
- The outer breakwater is generally located on soft alluvial sediments up to 15m deep overlying papa mudstone rock. Sections have failed, with parts of the existing structure now below Mean High Water Springs (MHWS).
- Parts of the outer structure have been settling at rates of up to 22mm/year since at least the late 1950s and some of the concrete cube armour units have been dislodged by wave action.

Figure 20 contains a photograph of the Outer breakwater under very calm conditions. The outer (western) end of contains a raised concrete platform with a port navigation marker as shown in the photograph.

Figure 20: Photograph of Outer Breakwater

Investigations indicate that three types of concrete construction techniques were used to build the outer breakwater, being concrete capping laid over a mound of concrete cubes, concrete caisson filled with rubble and concrete block slice work. **Figure 21** contains typical cross section plans of the different type of breakwater construction. The base contains 1-5 tonne blocks and other material that is approximately 40m wide on the seabed.

Large parts of the structure have been damaged/eroded away and material is scattered on the seabed floor, making its current 'footprint', much wider.

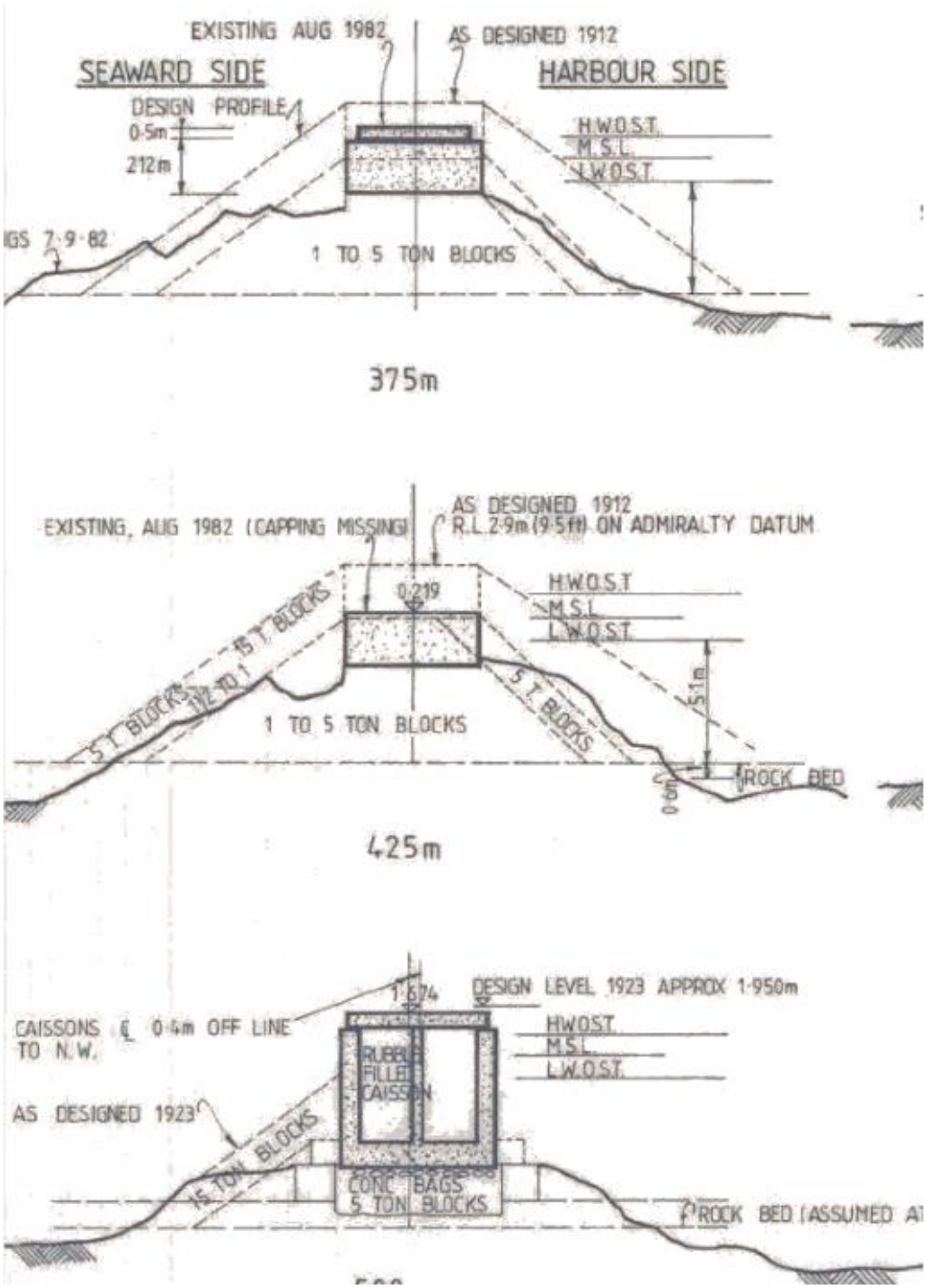


Figure 21: Plan of Existing Outer Breakwater Typical Cross Sections

Source: Eastland Port Keystone Asset Assessment 2018

The freeboard during high tides is marginal and a considerable amount of energy gets transmitted into the port by overtopping, which at times affects vessel navigation and wider use of the port. During rough weather conditions the whole structure is effectively underwater. The **Figure 22** photograph shows this situation.

Figure 22: Photograph of Largely Submerged Outer Breakwater

Source: Eastland Port Keystone Asset Assessment 2018

4.4 Existing Southern Logyard

Logyard Area and Layout

The Southern logyard occupies an area of approximately 6.84ha adjacent to Kaiti Beach Rd. The extent of the logyard and its relationship to the adjacent port entry and other facilities is shown in the Eastland Port Site Plan in **Figure 23**. The original logyard area of approximately 6.5ha was extended in 2020 to include an area of approximately 0.34ha formerly occupied by the Nissho Iwai and Harbour coolstore buildings marked on the plan.

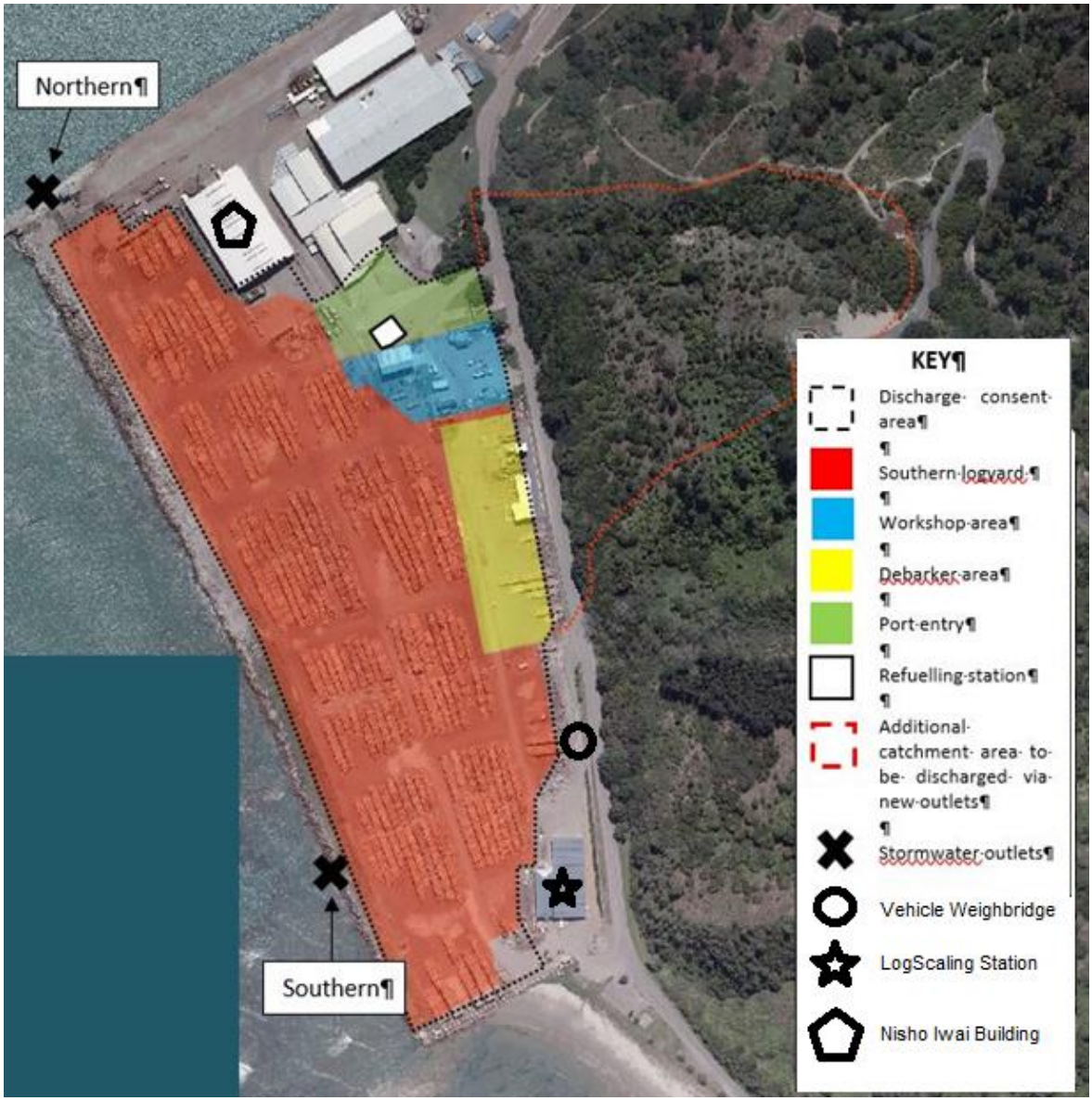


Figure 23: Southern Logyard Existing Site Plan

The logyard site contains defined log storage and traffic areas, along with refuelling station, debarking and anti-sap stain treatment facilities. Resource consents are in place for these facilities, the nature of which were outlined earlier in this report.

Existing Resource Consents

The logyard is the subject of a land use consent for debarker and anti-sap stain facility (August 2008), land use consent for a vehicle weighbridge and log scaling station (May 2009) and a coastal (stormwater discharge) permit and variation (January 2011 & June 2016). The most recent Section 127 variation consent contains conditions that require a Stormwater Management Plan (SMP) be in place to guide management of the site and that it be regularly reviewed. The consent conditions also require that a Stormwater Quality Monitoring Programme (SQMP) be in place, which is also subject to periodic review.

Existing Stormwater Drainage System & Management

The logyard is made up of two discrete sub-catchments, being the north and south areas of the yard respectively. The northern sub-catchment (SLY Nth) is 5.25ha but also catches runoff from areas of Kaiti Beach Road and Kaiti Hill. This catchment discharges to the harbour. The southern sub-catchment (SLY Sth) is 3.42ha and discharges into the sea.

Each of the sub-catchments is currently served by a Hynds downstream defender treatment system, which treats stormwater prior to discharge to the CMA. The SMP guides day to day management of the logyard and the associated water quality monitoring programme. The SMP covers the following matters, Site and Surrounding Environment, Stormwater Treatment and Collection Facilities, Stormwater Management Programme, SQMP and Site Management and Reporting.

The SQMP is based around sampling from two manholes (MH1 and MH11) close to the two stormwater outfalls (northern and southern) in accordance with the consent conditions. Additional 'background' monitoring is also carried out. The stormwater from two other manholes (Post DSD & MH9) adjacent to the anti-sap stain facility is sampled to check there are no contaminants entering the logyard from this facility, which is fully bunded. A Council stormwater sump in Kaiti Beach Rd is also sampled because some stormwater from the Council system enters the Eastland Port system. These additional sampling sites are also shown in the Eastland Port plan in **Figure 24**.

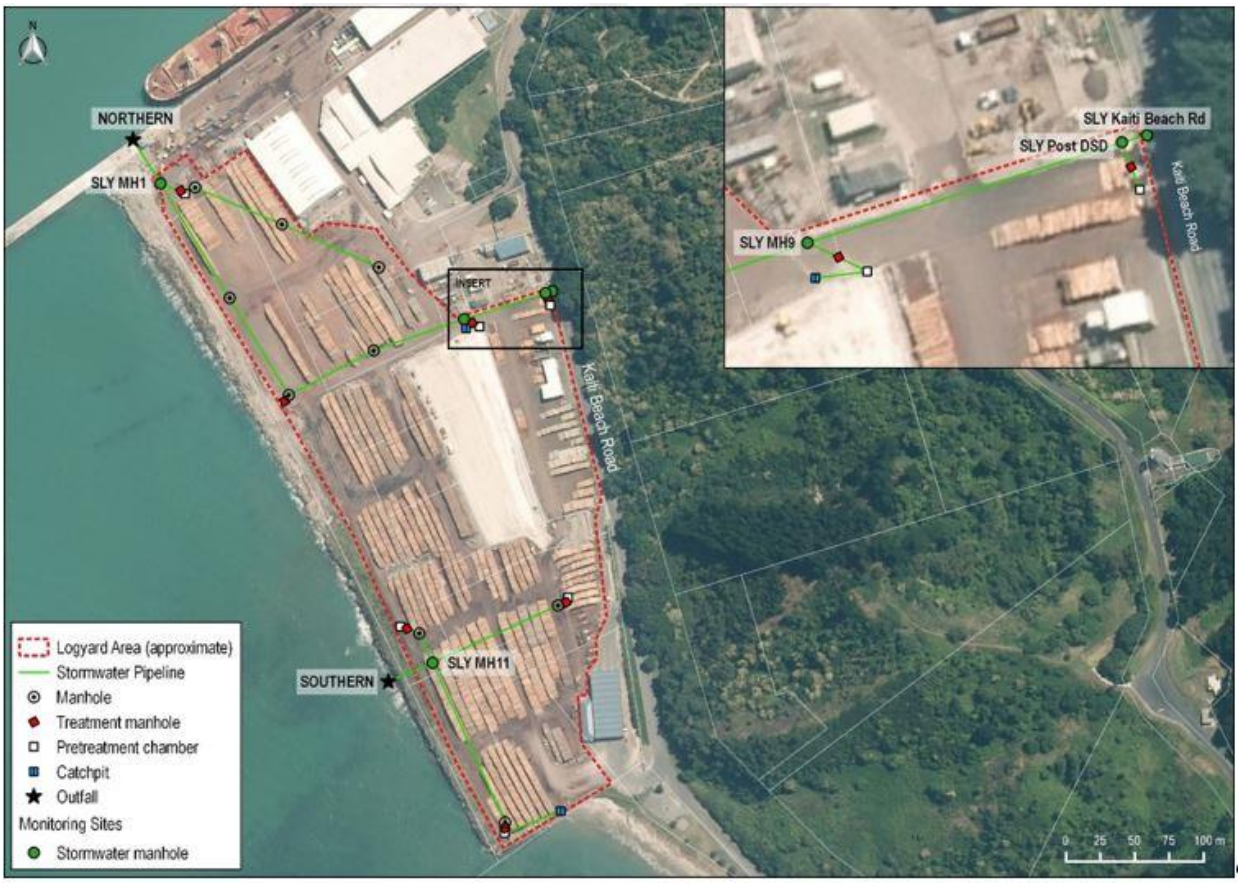


Figure 24: Southern Logyard Stormwater Sampling Site Plan

The stormwater discharges are sampled approximately three-monthly. Ten water quality parameters are tested and analysed, including total suspended solids (TSS), chemical oxygen demand (COD), total petroleum hydrocarbons (TPH), and three trace metals (copper, lead and zinc). More frequent monitoring is also carried out at the discharge point and in the receiving environment for TSS and turbidity, plus receiving environment measurements of salinity and vertical water clarity.

As detailed in the 4Sight *Ecology and Water Quality* report in **Appendix M** , stormwater monitoring results indicate that suspended sediment concentrations in the discharge are above consent targets of a median and 75 percentile of not more than 300 and 450g/m^3 TSS respectively. A narrative standard requiring no conspicuous visual change in receiving waters beyond the mixing zone boundary is sometimes not met due to the elevated TSS and associated discolouration. This is due to very fine fraction particulates which are not able to be captured in the present system. Monitoring results indicate that the discharge quality meets all other water quality consent limits after reasonable mixing, including pH and heavy metals.

Additional Northern Logyard Area Connection to Wharfside Logyard Stormwater System

The northernmost part of the logyard, along with a port entry internal roadway and the contractor's area are connected to the recently upgraded Wharfside logyard stormwater system. The use of the Wharfside logyard stormwater treatment system was authorised as part of the December 2019 port entry redevelopment resource consents referred to earlier in this report. A SMP with a similar water quality monitoring programme is also in place for the Wharfside logyard.

Soil Contaminants

The majority of the Southern Logyard is located on reclaimed land. As detailed in the 4Sight *Detailed Site Investigation* (DSI) contained in **Appendix Q**, historic landfilling and port related activities means soils are potentially subject to elevated levels of contaminants. The DSI focuses on parts of the site that will be subject to land disturbance as part of the Proposal. Specifically, parts of the existing Southern logyard seawall and areas of the Southern logyard where works associated with the proposed stormwater upgrades are to occur. The findings of the DSI include that:

- The Southern logyard is primarily on land reclaimed in the 1970's and 1980's. Reclamation is a form of 'landfilling' under the Hazardous Activities and Industries List (HAIL) Clause G3 listing of: Cemeteries and waste recycling, treatment and disposal – Landfill Sites.
- Field observations as part of the DSI indicated the presence of buried waste, typified by concrete, brick, rubble, asbestos pipe and copper pipe in the existing Southern logyard seawall.
- The concentrations of all key Contaminants of Potential Concern (CoPC) were below the adopted NES-CS Soil Contaminant Standards (SCS) for the protection of human health for Commercial / Industrial land use (consistent with the proposed future use of the Site) in all soil samples submitted for analysis from the Site. Concentrations of CoPC were also below the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZWQG) Default Guideline Values (DGVs) for sediment quality.
- The concentrations of heavy metals in soils were variable when compared to the 'adopted background' concentration ranges. 'Background' data for the Hawkes Bay region have been adopted in the absence of published background soil concentrations for the Gisborne region. Concentrations of arsenic, boron, cadmium, chromium, mercury and nickel were typically within the respective typical background concentration ranges, while concentrations of copper, lead and zinc typically exceeded the respective background concentration ranges. Concentrations of PAH congeners were also typically above the laboratory Limit of Reporting (LOR), and therefore above the adopted background concentration ranges.
- Asbestos was identified in seven soil samples analysed in the form of both asbestos containing matter (ACM) debris and loose fibres. However, reported concentrations of asbestos in soils were all below the adopted human health assessment criteria (Guidelines for Assessing and Managing Asbestos in Soil – GAMAS) of 0.001% wt/wt for asbestos fines and fibrous asbestos, and 0.05% w/w for asbestos as ACM debris.)
- The concentrations of CoPC in leachate collected following completion of a Toxicity Characteristic Leaching Procedure (TCLP) on selected soil samples only marginally exceeded the ANZWQG Default Guideline Values (DGV's) for lead, zinc and copper, and were below the GV-high values.

4.5 Outer Port Capital Dredging and Disposal

4.5.1 History of Dredging at the Port

The port has a long history of both capital and maintenance dredging. As outlined earlier the port was developed in the late 1880's following establishment of the Gisborne Harbour Board. The In-Situ Heritage *Heritage Inventory and Whole of Port Archaeological Assessment (2015)* in **Appendix J** records some of the past capital dredging operations. Section 3.4.1 - Port Development, records the following:

> "*In 1885 the Harbour Board decided to construct a breakwater to improve access to the port, extending from the eastern side of the river mouth. A blockhouse was built....and Tuamotu Island. A breakwater was also constructed on the western side of the river. These developments, along with dredging and blasting meant that from the late 1880's to the mid 1910's coastal streamers were able to use the harbour, until further silting in 1916 prevented access*." (emphasis added)

Since its formation, the Harbour Board had debated various plans to develop the harbour, provide improved berthage for large ships, and to address problems with constant silting of the river. These plans were finally realised in the late 1920's. Between 1927 and 1928 a river training wall and diversion channel were constructed to separate the river from Kaiti Basin, and the basin was excavated to form the inner harbour. The excavation of the inner harbour... land held by other parties. The Kaiti Basin Harbour was completed in late 1931." (emphasis added)

"*After a hiatus of several years, Gisborne was reinstated from 1950 as an overseas port. It also developed...as a fishing port. In 1967 an overseas terminal was opened, which included ... and the dredging of the ships' turning circle adjacent to the wharf. A second overseas wharf was opened in 1997*." (emphasis added)

Capital dredging has been undertaken at different times as new port facilities are established and to serve larger vessels, especially log carriers. Maintenance dredging is undertaken on a regular basis to remove sediment, most of which comes from the Waipaoa and Turanganui rivers that discharge large volumes of material into Tūranganui-a-Kiwa Poverty Bay.

4.5.2 Recent (2009-2011) Capital Dredging and Disposal

The most recent capital dredging and disposal undertaken at the port involved removing approximately 21,000m^3 from the PNC in 2009 and approximately 32,000m^3 was removed from the PNC and VTB in 2011.

Eastland Port dredging records indicate that the most recent capital dredging was carried out in 2011 when approximately 32,000m³ of material was removed from the PNC and VTB. The work was undertaken by a Westport harbour dredge (the Kawatiri). A smaller amount of material (around 21,000m³) was removed by the same dredge from the PNC in 2009.

The capital dredging, along with the disposal of dredgings to the OSDG, was authorised as part of a suite of coastal permits issued by the Minister of Conservation for capital dredging of the PNC, VTB and Wharves 7 and 8 Berth Pockets in July 2009 (CP 2008- 103666). The consents were issued by the Minister (under the restricted coastal activity provisions in the RMA at the time) following a recommendation issued by a Council appointed independent hearing panel in June 2009. The permits had a five-year term and have expired. Further details are provided on the consents in **Appendix B**.

The Minister's decision does not include a plan of the authorised capital dredging area. However, such a plan was in the December 2008 Insight Application Report submitted to the Council, which is reproduced as **Figure 25** in this AEE.

The decision authorised a total dredge volume of approximately 88,300m³, related to a 'footprint' area of approximately 151,000m², of which approximately 90,000m² was estimated to be within the PNC.

The 2008 plans and reports indicate that around 69,700m³ was expected to be removed from the VTB, another 16,800m³ from the PNC and around 1,800m³ from the Wharves 7 and 8 berth pockets. The dredging plans referenced in the decisions record existing depths at the time as being less than 9m BCD, 9-10m BCD, and 10.0-10.1m BCD. The plans also record a 1.5m under keel clearance required in the VTB.

The permits authorised the disposal of dredgings at the OSDG, which is the same site to be used for the dredge spoils subject of this Twin Berths application package.

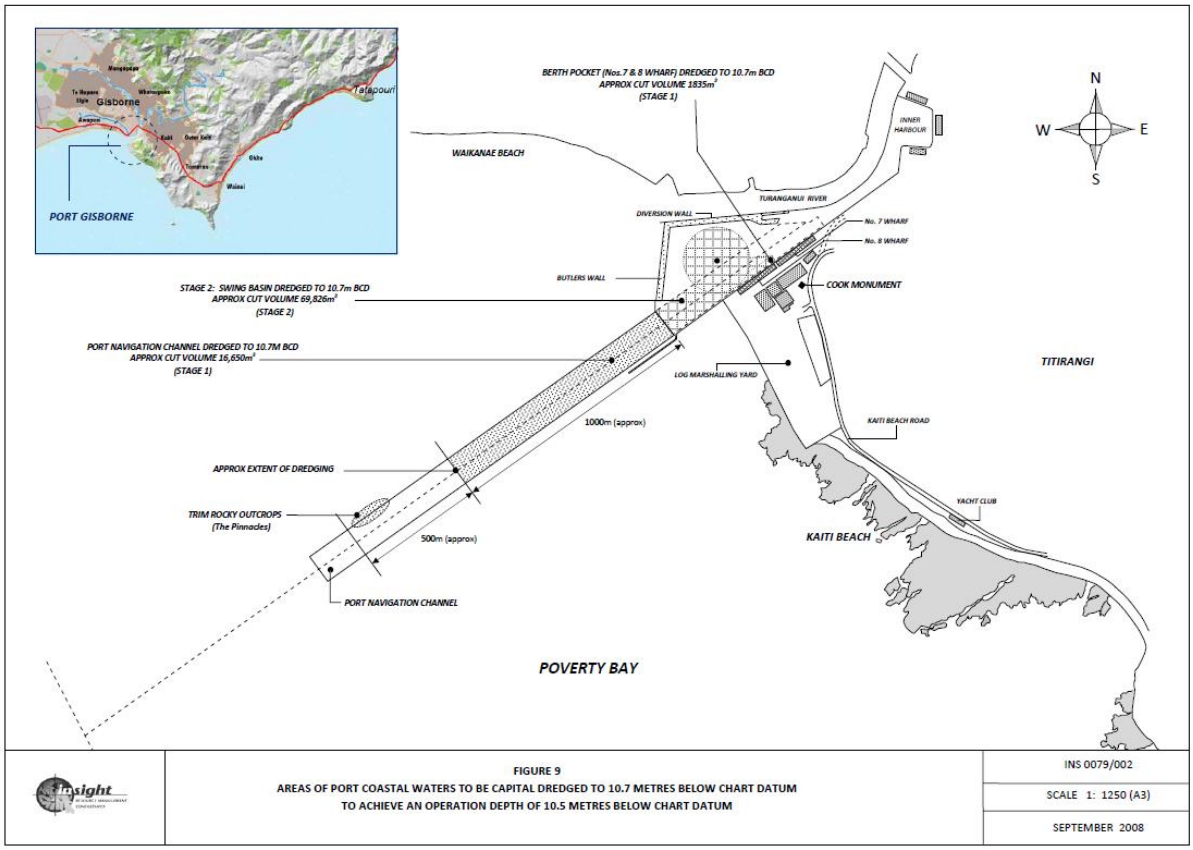


Figure 25: Gisborne Port 2008 Capital Dredging Plan

4.5.3 Approved Wharf 7 Berth Pockets Capital Dredging and Disposal

The coastal permits confirmed by the Environment Court in December 2020 in relation to Stage 1 of the TBP include provision for capital dredging of two berth pockets at Wharf 6. One of the new berth pockets (to 8.1m BCD) was for the new port tug- the Waimata, and the other berth pocket (to -6.6m BCD) was for a second new tug that Eastland Port were looking at purchasing at that time. No capital dredging was proposed or approved for the redevelopment of Wharf 7 as the extent of it was still being investigated by Eastland Port and its advisers at the time the applications were first lodged with the Council back in October 2017.

The Worley Wharf 6 and 7 Upgrade Dredge Extents Plan in **Figure 26** shows the extent of the Wharf 6 area that was approved in the Court decision as part of the Wharf 6 and Wharf 7 redevelopment resource consent package. The consents, as confirmed by the Environment Court, include authorisation to capital dredging of approximately 28,500m^3 from an area of approximately 7,400m^2 adjacent to Wharf 7 to allow manoeuvring of tugboats escorting vessels on and off Wharf 7.

The consents, as confirmed by the Environment Court, also include authorisation to dispose of the capital dredgings at the OSDG (subject to specified conditions being met). It also authorised ongoing maintenance dredging of the two dredged berth pockets and disposal of the material at the OSDG.

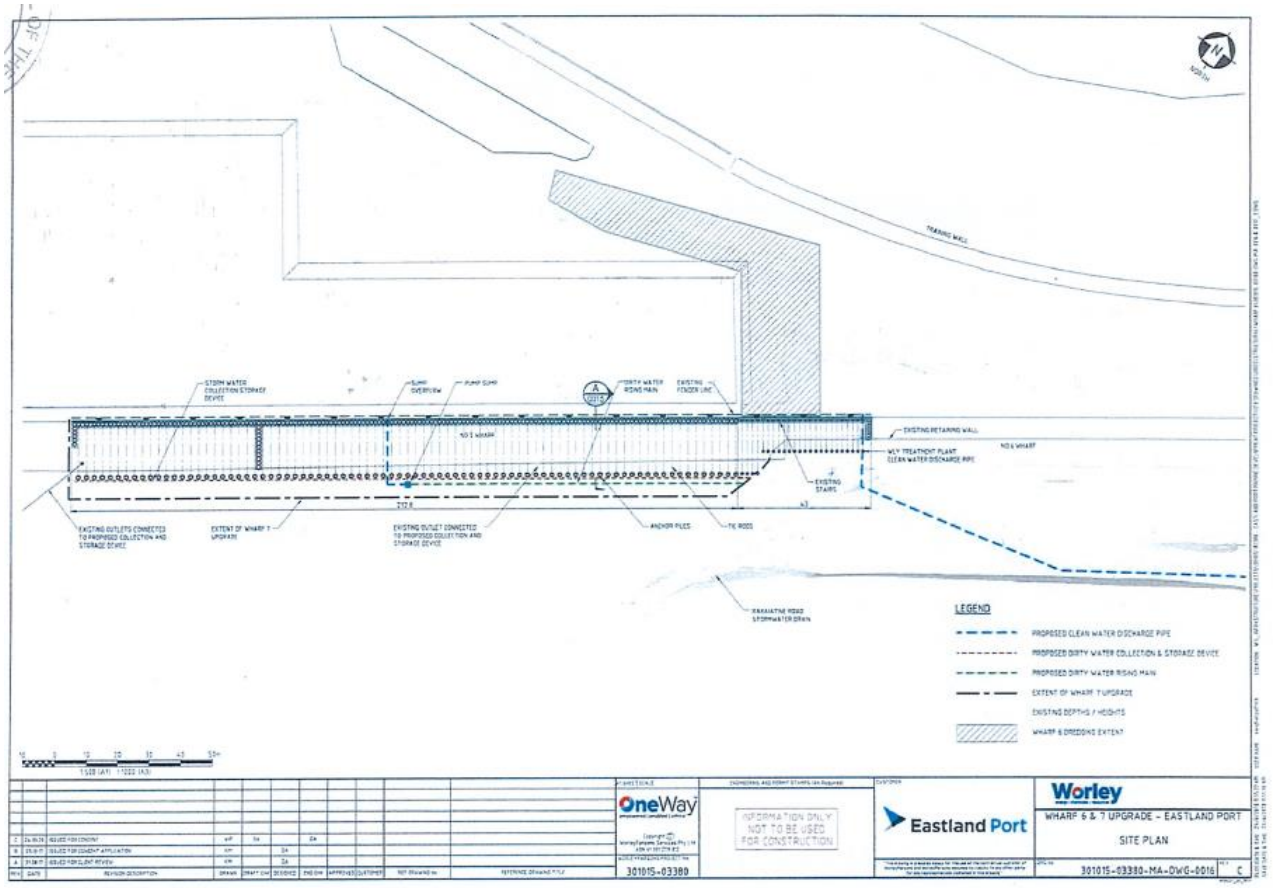


Figure 26: Plan of Approved Wharf 6 Capital Dredging Area

4.6 Outer Port Maintenance Dredging and Disposal

4.6.1 Recent Maintenance Dredging and Disposal

The maintenance dredging of the port has become more critical over recent years as the PNC, VTB and work berths have been deepened to provide additional depth for logging vessels. For the port to be operated efficiently, both now and in the future, regular maintenance dredging is required.

The current Eastland Port maintenance dredging and disposal operations are authorised under the coastal permits issued by the Council in September 2015 and the subject of the February 2020 renewal applications being processed by the Council. This permit provides for the dredging of the PNC, VTB and Wharf 7 and 8 areas and the use of the OSDG for the disposal of dredgings.

Most of the maintenance dredging has over the years generally been carried out by the Eastland Port owned Pukunui dredge. Other dredges have been used, especially after storm events like Cyclone Bola, when larger than normal sediment loads are deposited within the port, or when the Pukunui was being serviced. However, the Pukunui was retired at the end of 2019 and Eastland Port now engage external contractors such as Dutch Dredging Ltd to do their maintenance dredging on a as required campaign basis.

Annual Dredging and Disposal Report

Annual records, in the form of an Annual Dredging & Disposal Report, are kept of all capital and maintenance dredgings and associated disposal of material at the OSDG. Each year they are provided by Eastland Port to the Council and the Port Community Liaison Group (PCLG). The annual reports identify in general terms the port area dredged, type of material, number and volume of loads, and other information.

Between 2003 and 2020 five dredges are recorded in the annual reports as being used. Most of the dredged material was removed by the Pukunui. The reports note that the Pukunui was used all year round and other dredges are used on an as required basis. Based on the annual report records approximately 1,282,720m^3 of maintenance dredged material was removed from the port between 2003 and 2020. Over the 18-year period this equates, on average, to approximately 71,260m^3 per annum. The annual dredging estimates varied from 16,500m^3 (in 2005) to 138,200m^3 (in 2011).

Eastland Port records show that more recently the Albatross dredged approximately 26,700m^3 over 7 days in September 2020 and 43,200m^3 over 13 days in the first half of 2021. The total of approximately 70,000m^3 of material in that year (July 2020 – June 2021), is very close to the earlier 18-year period average highlighted above.

Worley Report

Section 2 of the Worley C*apital and Maintenance Dredging and Disposal Report* describes the current maintenance dredging operations, primarily in terms of the June 2013 and September 2015 maintenance dredging permits and the February 2020 maintenance dredging application, which continues to authorise the activity under Section 124 of the RMA. The 2020 application description is based on the Worley Overall Port Layout Plan in Figure 2.1 reproduced in **Figure 27.**

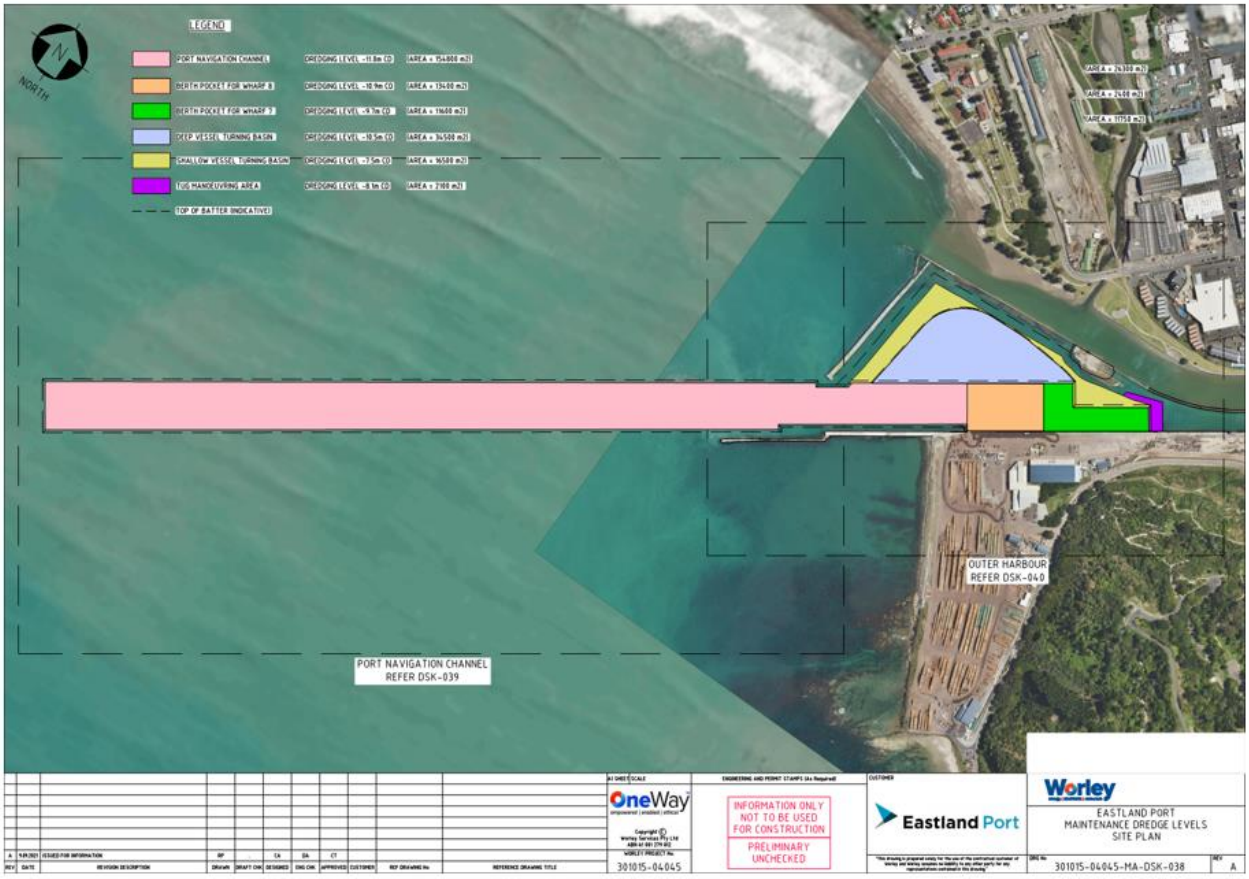


Figure 27: Existing Port Maintenance Dredging Area

2020 Coastal Permit Application Maintenance Dredging Area and Depths

The Worley report notes that the maintenance dredging area sought in the 2020 application is approximately 23.31ha. It extends from the inland (eastern) end of Wharf 4 to the seaward (western) end of the PNC. Dredge design depths range from -11.0mCD in the PNC to -8.1m CD in the tug manoeuvring area.

Table 2.1 in the report contains a summary of the different existing maintenance dredging areas and depths, which is reproduced in **Table 2** in this AEE.

Table 2: Existing Port Maintenance Dredge Depth Areas and Levels

Port Area	Existing Maintenance Dredge Level (m below chart datum)	Existing Maintenance Dredge Area (ha)
Port Navigation Channel (PNC)	-11.0mCD	15.5
Vessel Turning Basin (VTB)- Deep	-10.5mCD	3.5
VTB- Shallow	-7.5mCD	1.6
Wharf 8 Berth Pocket	-10.9mCD	1.3
Wharf 7 Berth Pocket	-9.7m CD	1.2
Tug Manoeuvring Area	-8.1mCD	0.2
Total	**Variable**	**23.3**

Source: Worley Report

Recent Annual Maintenance Dredging Volumes

Eastland Port Annual Report records show that on average over the last 20 years approximately 71,000m^3 of material has been maintenance dredged each year from the port. The annual dredging estimates varied from 16,500m^3 (in 2005) to 138,200m^3 (in 2011).

Historical records indicate that the PNC alone can receive up to 4,500m^3 of sediment a month (or 54,000m^3/year). The dredging records also note several dredging 'hotspots', especially around the breakwater and in the PNC, where sedimentation rates are higher than other areas.

4.7 Offshore Spoil Disposal Ground Site

Location

The OSDG is located approximately 4km to the south-west of the port as shown in the 4Sight aerial photograph in **Figure 28**. It is approximately 3km^2 in area in water depths 18-20m BCD.

The OSDG is specifically identified in the Tairāwhiti Plan and is located within the common marine and coastal area. Use of the site was approved by the Environment Court as part of a set of capital and maintenance dredging and disposal consents in August 2000 (Ref. RMA No. 2076/98 in **Appendix B**).

Use Since 2003

Eastland Port's Annual Report and other records indicate that the OSDG was first used in 2003. The reports indicate the OSDG was chosen for the following reasons:

- The site is close to the mouth of the Waipaoa River and has a naturally muddy surficial seabed lithology.
- The muddy based benthic ecology is relatively sparse and of no ecological significance.
- There are no reefs nearby and the area is not used significantly for fishing or other recreational boating activities.
- The general direction of sediment transport in the area tends to be offshore which reduces the likelihood of material re -entering the port or affecting any of the beaches in the Gisborne area.

The effects of the dredging spoil disposal operations on coastal processes and ecological/water quality values are regularly monitored. The receiving environment in the OSDG has been an integral part of the port activities since dredging and disposal commenced in 2003.

Figure 28: Aerial Photograph of the Gisborne Port Offshore Spoil Disposal Ground

Ecology

Studies have shown the OSDG to be soft sediment habitat. The effect of the dredging spoil disposal operations on ecological values at the OSDG has been monitored by a benthic ecology study approximately every 5 years. The most recent ecological assessment of the benthic ecology of the OSDG and adjacent areas and which reviews the earlier work, was undertaken by 4Sight in July 2020.

It notes that it supports a moderately diverse benthic assemblage. In total 86 taxa were identified, of which 30 were polychaetes, 23 were crustaceans, 17 were bivalves and 7 were gastropods. The survey results were found to be consistent with the previous 2014 survey.

The abundance, diversity, richness, and other analyses both within the OSDG and surrounding areas is also addressed in the report. They indicate that the benthic community composition in the OSDG is either not affected by the spoil disposal, or the spoil is being disbursed beyond the OSDG and all communities are equally affected, and/or any effects are masked by the effects of more dominant processes, such as the large discharge of sediment from the nearby Waipaoa River.

Offshore Disposal Ground Sediments

Section 3.2.4 of the 4Sight *Ecology and Water Quality Report* summarises the results of the NIWA surveys of the disposal ground dating back to 1996. It also highlights some important findings of the MetOcean and other investigations into coastal processes occurring in the bay, along with the August 2019 4Sight sediment quality survey and July 2020 4Sight/NIWA benthic survey.

The most notable MetOcean report finding is that the nearby Waipaoa River, which has a catchment area of approximately 2,200km^2, is estimated to annually discharge approximately 12.1million m^3 of sediment into Tūranganui-a-Kiwa Poverty Bay. This volume of material is much greater than the estimated 0.69million m^3 coming from the 220km^2 catchment of the Turanganui River, which is immediately adjacent to the port.

Appendix M contains a copy of the OSDG sediment sampling site plan from the 4Sight report. Four sites (OSG1-4) and two control sites (East and West) are involved.

Figure 29: Offshore Spoil Disposal Ground Sediment Sampling Sites

Source: 4Sight Ecology Report

The key findings of the August 2019 sediment quality survey are reported to be:

- Metals – All eight sediment metals concentrations, except nickel, fell below (that is 'complied with') the relevant 2018 ANZ guidelines. Nickel exceeded the Threshold Effects Level (TEL) at all sites, including the East and West control sites and was equivalent to, or exceeded, the ANZG Default Guideline Value (DGV) by a small margin at four sites.
- Total Organic Carbon- TOC concentrations at all OSDG sites fall within the 'very good' category with reference to published research (Robertson and Stevens 2007), indicating low levels of organic carbon in the sediments. All August 2019 OSDG and background samples showed low TOC (<1%) and would be classified as 'Very Good' in the enrichment classification system of Robertson and Stevens (2007).
- Particle Size -All sites, except OSDG 2, had very similar particle size distribution profiles. In general, the samples were comprised predominantly of very fine sand, followed by a smaller component of mud and fine sand. OSG 2 had a higher proportion of mud compared to the other sites.

4.8 Ecology of the Port Marine Environs

The ecological context and values of the marine environment of the port are detailed in the 4Sight *Ecology and Water Quality Report* at **Appendix M.** Section 3 - Existing Environment, contains background information on ecological/sediment/water quality values in the port and OSDG and characterises the material to be dredged in terms of the requirements of the RMA Marine Pollution Regulations relating to the disposal of dredged material. The source information for the ecological and water quality analysis comes mainly from baseline studies and monitoring carried out by Eastland Port over the last six years and which have been previously reported to Council.

The report notes that the marine environment is already influenced by its proximity to port infrastructure and port activities, and in particular ship movements and tug activity, which frequently cause high turbidity and reduced water clarity which dominates conditions.

The report identifies five predominantly marine habitat areas, relevant to the Proposal:

- The Outer Breakwater
- The Inner Breakwater
- The Southern Logyard and adjacent Subtidal Zone
- The PNC, VTB and berth pockets
- The OSDG (note the ecology of the OSDG is addressed in section 4.7 above)

The existing characteristics of these areas including in terms of substrates, habitats and communities in both intertidal and subtidal areas are described in detail in the 4Sight Ecology Report, and summarised briefly below:

The Outer Breakwater:

The existing concrete units and 'rubble' on the northern side and the concrete units and rock spalls on the southern side of the breakwater, offer potential 'reef type' habitat for marine life and support a relatively diverse community of kelps, encrusting species, macro-invertebrates, and fish. High numbers of juvenile crayfish are present on the structure. The elevated parts of the structure provide resting habitat for some coastal birds. One NZ fur seal was observed during the 4Sight work.

The Inner Breakwater:

The northern (harbour) side is a vertical concrete surface, and the southern side offers limited shallow man-made reef type habitat.

The Southern Logyard Seawall and adjacent Subtidal Zone:

The northern third of the southern seawall of the Southern Logyard and a small area of the adjacent subtidal zone will be within the proposed reclamation. This northern area of the seawall is very highly exposed to storm waves which limits opportunities for marine life.

Kororā

The southern half of the seawall has been recently reconstructed as part of the Southern Logyard Seawall maintenance and Waikahua Seawall Upgrade projects. These projects are distinct to the TBP and are addressed in section 4.14 of the AEE. The seawall has been surveyed by avian specialists and recorded to be used by kororā. The presence, impacts and management of the Proposal in relation to kororā is addressed in the 4Sight *Little Penguin/Kororā (Eudyptula minor) Assessment of Ecological Effects* (the 4Sight Kororā AEE) contained in **Appendix Y.**

The 4Sight *Kororā AEE* and *Ecological and Water Quality Report* identify that Kororā use of the northern section of seawall within the TBP works footprint is currently limited due to the exposed nature of the wall here. However, locations of interest have been identified. The southern section of the seawall, and in particular the area of the recent Southern Logyard Seawall maintenance project is more sheltered from swell and waves because of the reef in front of this section of the seawall and the use of this area by kororā is well documented. The recent upgrade project is assessed as likely to have significantly enhanced kororā habitat potential through the creation of voids in the more elevated parts of the structure for and during resting, moulting and nesting.

In recognition of the Kororā population in the southern section of the seawall, a 10-year Kororā Conservation Management Plan (KCMP) has been prepared for Eastland Port, which looks to enhance the southern section of the seawall to protect the species from predators and port operations via predator control and a port exclusion fence. The 'Kororā Conservation Management Plan 2022-2032' was prepared for Eastland Port by Ecoworks, and is addressed in the 4Sight Kororā AEE.

Adjacent Intertidal and Subtidal Area

There is negligible intertidal area adjacent to the northern third of the southern seawall.

The subtidal area within the proposed reclamation footprint consists of mainly soft sandy sediment with a small, isolated kelp covered rock located sub tidally at the edge of the proposed reclamation. This is the only natural hard substrate feature that would be lost within the reclamation.

Very close to the proposed reclamation is a patch reef which supports a community of kelps, seaweeds, encrusting species and fish.

The PNC, VTB and berth pockets

The VTB, berth pockets and PNC comprise the marine environment that is within the footprint of the dredging associated with the Twin Berths. These areas are under a regime of constant disturbance from maintenance dredging and vessel movements.

The PNC, VTB and berth pockets offer mainly soft sediment habitat. The PNC toward its outer end includes rock which is either exposed or covered by a shallow layer of mobile sandy sediment and which itself is the result of the capital dredging that established the PNC. Surveys show the presence of a range of common species, mainly infaunal or surface feeding, including post-juvenile crayfish.

Habitats in the PNC are also influenced by the GDC wastewater outfall, a short distance to the south-west, and subject to low light conditions, high loads of suspended particulates and regular disturbance by storms.

Other Potentially Sensitive Ecology and Habitat

The 4Sight Ecology and Water Quality Report identifies the following potentially sensitive resources in the wider ecological setting beyond the immediate Twin Berths footprint but which could potentially be influenced by the TBP.

- **Crayfish:** The use of parts of the port by juvenile crayfish is well documented, with detailed assessment work being undertaken as part of the Wharves 6 and 7 redevelopment projects. The Stage 1 Twin Berths consents (confirmed by the Environment Court in 2020) approve that redevelopment subject to conditions, which including measures mitigate their effects on the juvenile crayfish habitat. Juvenile crayfish settlement is greatest in a small transition area between Wharves 6 and 7, which is not affected by the Proposal.
- **Kaiti Reef Intertidal Area:** To the south of the reclamation footprint, the Kaiti Reef becomes more prominent. The community is described as relatively diverse. The habitat is identified as clean and not silty and hosting a relatively diverse community. These features and the community in general are likely to be governed by the high exposure to wave energy.
- **Nearby Subtidal Areas:** The near shore subtidal habitats to the immediate southeast of the port breakwater include fingers and stacks of patch reef interspersed with sand. These are the subtidal part of the extensive shallow Kaiti Reef. These are the nearest natural reef habitats of ecological value which are relevant to a consideration of the potential for effects from port activities. Habitat and species diversity in these locations is high.
- **Marine Mammals:** Five marine mammal species are likely to inhabit Poverty Bay seasonally or regularly, including the 'nationally critical' orca, 'nationally endangered' bottlenose dolphin, common dolphin, and New Zealand fur seal. Groups of "nationally vulnerable" Hectors dolphin with 10 to 50 individuals have been sighted in the bay from locations along Midway beach (DoC, marine mammals sighting database, 2010 and 2011). Any of these species could potentially be present in or near the port intermittently
- **Seabirds:** A total of 16 species of coastal birds that are known inhabit Tūranganui-a-Kiwa Poverty Bay, of which 10 have a 'threat' classification. Red billed gulls and white fronted terns utilise the elevated outer end of the Outer Breakwater and kororā presently utilise the southern half of the Southern logyard seawall.
- **Fisheries:** Tūranganui-a-Kiwa/Poverty Bay is within Fisheries Management Area Two – Central East which extends from Cape Runaway to Titahi Bay north of Wellington. The principal species under management are spiny red rock lobster and two species of pāua. Restrictions also apply to a range of fish species. Since January 2020, there has been a commercial ban on the take of pāua and mussels within this area (Central Area Commercial Fishing Regulations 1986: 10 - CFR0199) and other restrictions apply to vessel length and use of set nets. Tūranganui-a-Kiwa Poverty Bay has two Rohe Moana or customary fishing areas for Tangata Whenua. The coastal marine area to the north is gazetted to The Paikea Whitireia Trust on behalf of Ngati Konohi and to the south to Ngai Tamanuhiri as represented by the Ngāi Tāmanuhiri Whānui Charitable Trust. Recreational fishing effort is recorded as being low for the Tūranganui-a-Kiwa Poverty Bay area when compared to the rest of New Zealand (number of vessels per km^2).

Summary

Overall, the 4Sight Ecology and Water Quality report identifies no specific features of scientific or ecological conservation importance or value occurring within the Twin Berths footprint but some ecological elements have been identified in or adjacent to the port. These are:

a. seasonal settlement of post-larval red rock lobsters beneath part of Wharf 7, which is a feature of importance to iwi and is of some ecological and scientific interest;

b. the use of the Outer Breakwater by high numbers of small post juvenile lobsters, which has been recently documented;

c. the Kaiti Reef, which is an extensive area of intertidal and shallow subtidal habitat and patch reef and, although not directly within the Twin Berths footprint, is a potentially sensitive ecological feature nearby;

d. itinerant use of the Outer Breakwater by New Zealand fur seal;

e. use of the Outer Breakwater for resting by small flocks of white fronted tern and redbilled gull; and

f. the use of parts of the southern seawall by Kororā

Mediterranean fanworm, a marine pest, is present in the harbour. It was first identified in 2015 and is now an active reproducing 'population'. The Council has worked with the Ministry of Primary Industries to fund an eradication programme in Gisborne Port, with over $100,000 spent to date.

4.9 Port Water Quality

Water quality of the port area is detailed in the 4Sight Ecology and Water Quality report. It explains the water classification system affecting the port under the Tairāwhiti Plan and the influences that regular ship and tug berth activities have on water quality in terms of sediment disturbance and turbidity with reference to drone photographs (June 2017) of associated plumes. The report also documents the large volumes of sediment that regularly come down the Turanganui River with reference to the MetOceans reports that estimates during storm events the river carries up to 3-8 kg/m^3 of sediment. The 4Sight report notes that this equates to suspended sediment concentrations of between 200 to 550 times typical background conditions during non-storm periods.

Table 3 in the 4Sight Ecology report summarises the findings of a May 2017 water quality sampling investigation of TSS, turbidity and vertical clarity at six sites in the VTB, the day after a large rainfall event. TSS results within the VTB were in the range of 130-230 g/m^3 and turbidity in the range 85-160 NTU. Background suspended sediment and turbidity beyond the harbour was 20 g/m^3 and 5 NTU respectively.

The results also show the reduced salinity throughout the port at that time (salinity range 12.8-16.2 ppt) compared to the background site (salinity 28.5 ppt). The VTB results show the much lower 'natural' water quality that occurs in the port following large rainfall events. The TSS levels above can be compared with 'background' concentrations during or shortly after light rainfall as recorded as part of monitoring of the Southern logyard discharge into the nearby marina basin. A review of 60 background 'wet period' sampling results collected between March 2017 and October 2020 shows a TSS median concentration here of 14 g/m^3 and range of 3 to 89 g/m^3. The TSS concentrations in the VTB during the large rainfall event (130-230g/m^3) are more than 10 times the median (14g/m^3) recorded in the marina basin.

Section 3.5 notes that the 'background' turbidity within the port is primarily related to the regular shipping movements, with flooding events in the adjacent Turanganui River also being a factor at times. The drone photograph in **Figure 30** taken on 5 July 2017 shows a typical example of the turbidity generated by tug/ship movements.

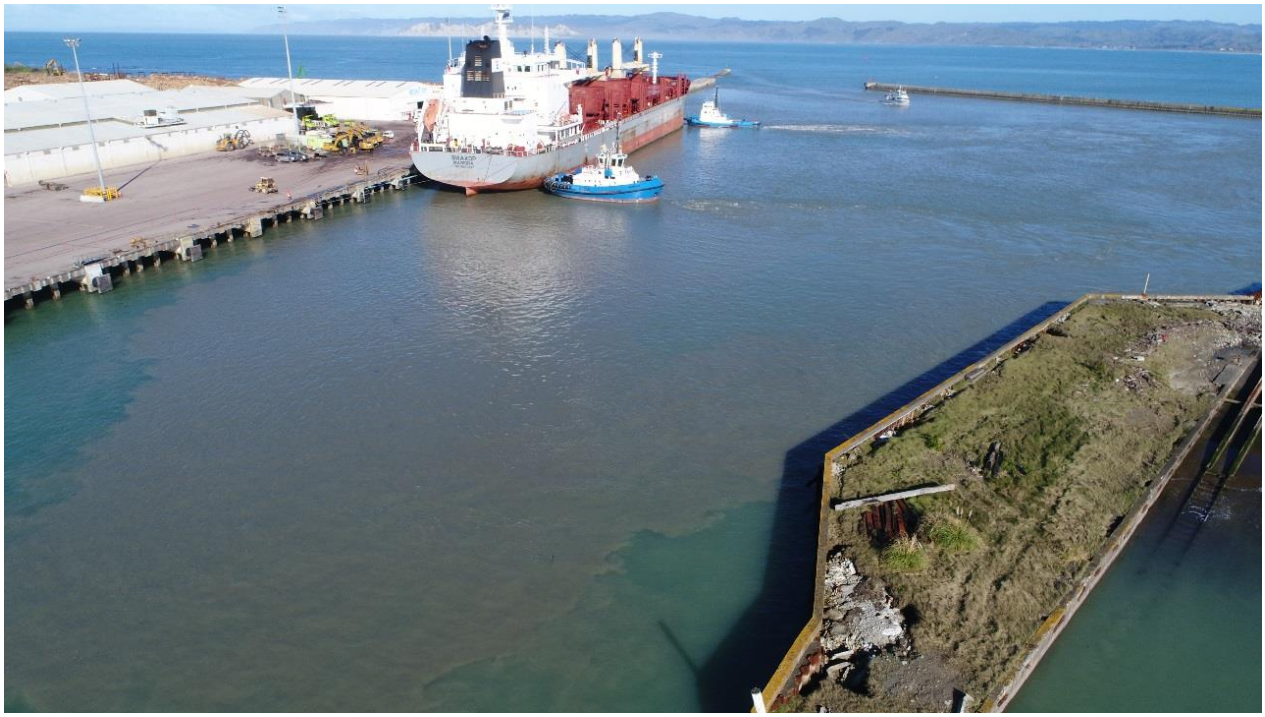


Figure 30: Drone Photograph of Turbidity from Regular Tug and Vessel Movements Within the Port

The ship being berthed at Wharf 8 in the photograph has generated a heavy, conspicuous plume of turbid water from the main wharf extending across to the old slipway and over much of the port basin. The same activity at Wharf 7 generates similar plumes, which also at times extend to Wharf 6 and other adjacent port facilities. These vessel influences permeate the entire inner port area and effectively become the 'background' state at such times.

The adjacent Turanganui River on the northern side of the training wall also, on occasions, experiences highly turbid (discoloured) conditions as shown in **Figure 31**. It was taken early on a flood tide on the same day, i.e., 5 July 2017. and shows the very clear water quality conditions in the port compared to the adjacent river.

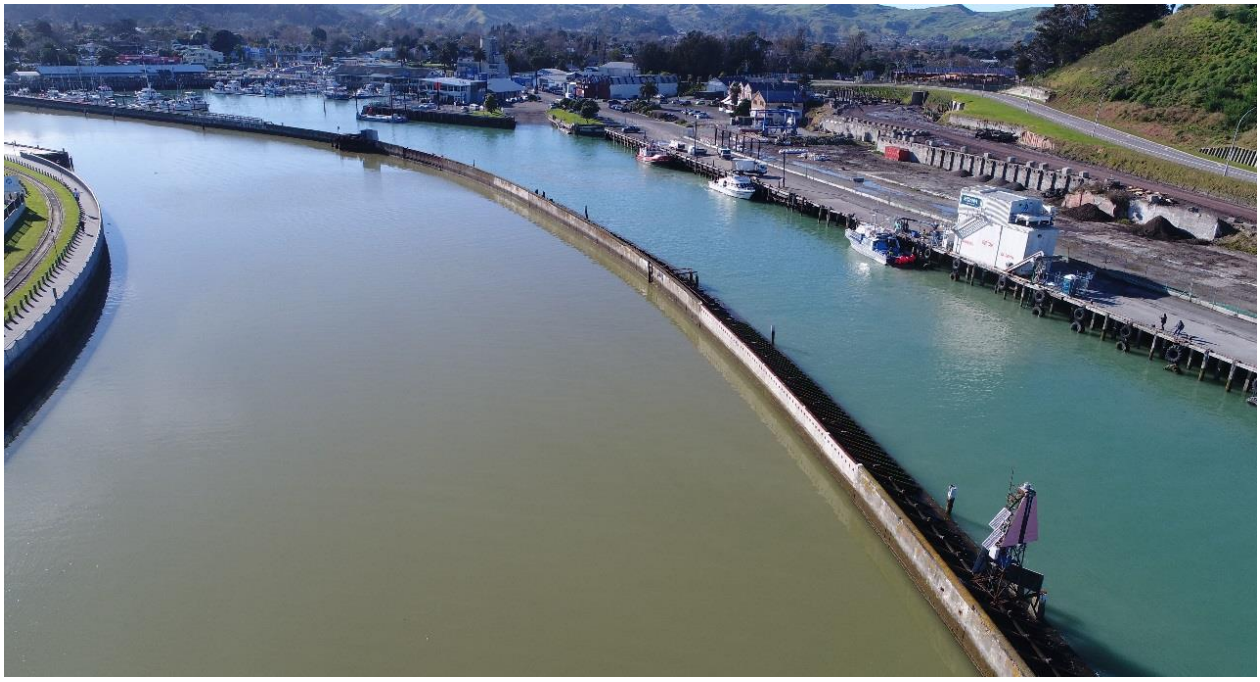


Figure 31: Drone Photograph of Turanganui River Flood Tide

Port Sediment Quality

Near surface seabed sediments in the port area are quite variable. In the VTB they are approximately 60% silt, 20% clay and 20% sand, whilst in the PNC (beyond Butlers Wall), approximately 80% sands and 20% silt and clay.

The 4Sight Ecology report documents the results of the sampling of the port sediments from three locations in the outer port between 2006 and 2021 as part of annual maintenance dredging monitoring programme. The three sampling locations (S4-6) are shown in a report, which is reproduced as **Figure 32** in the AEE.

Figure 32: Outer Port Sediment Sampling Sites

Source: 4Sight Ecology Report

The sample results indicated that concentrations of the nine heavy metals sampled (arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver and zinc) are all well below the applicable 2018 Australia and NZ Guidelines for Fresh and Marine Water Quality (ANZG) and considered unpolluted and suitable for offshore disposal. The 2018 ANZ Guidelines have replaced the 2000 ANZECC guidelines referenced in the maintenance dredging consent conditions.

Total Petroleum Hydrocarbons (TPH) are also monitored as part of the same annual sediment quality monitoring. Results confirm that TPH concentrations are low and typically below analytical detection.

Adjacent Kaiti Reef Sediment Sampling

Sampling of sediments offshore from Kaiti Reef area in 2019 indicates that sediments are predominantly fine and very fine sand with varying proportions of mud and medium sand. One of the sample sites (P17) was notably different compared to the other samples, being comprised predominantly of gravel and medium sand.

Heavy metal concentrations were well below the applicable 2018 ANZG guidelines, except at one site (P17) where arsenic was comparatively higher, which may be related to the higher levels of organic material also recorded at this site.

The six sample sites are shown in **Figure 33** below.

Figure 33: Southern Logyard Offshore and Kaiti Reef Sediment Sampling Sites

Source: 4Sight Ecology Report

4.10 Existing Port Coastal Occupation Area

Eastland Port holds a coastal permit for occupation of the coastal marine area (CMA) in and adjacent to the port "to enable the company to manage and operate the port related commercial undertakings". The permit was issued under Section 384A of the RMA to the former Port Gisborne Ltd by the Minister of Transport on 27 July 1994. The permit has a term of just over 32 years and expires on 30 September 2026. **Appendix R** contains a copy of the permit, along with a subsequent letter from the Minister of 10 December 1996 that corrects an error in the earlier permit.

RMA Section 384A Occupation Permit Rights

Coastal permits issued under Section 384A are limited to occupation for 'port related commercial undertakings.' The term 'port related commercial undertakings' is defined in Section 2 of the Port Companies Act 1988 and refers to "*the activities of commercial ships and other commercial vessels… or the operation of facilities on a commercial basis for ships, vessels… [or activities] facilitate[ing] the shipping or unshipping of goods or passengers.*"

Existing Occupation Area

The existing occupation permit covers the port area shown on the plan reproduced in **Figure 34**.

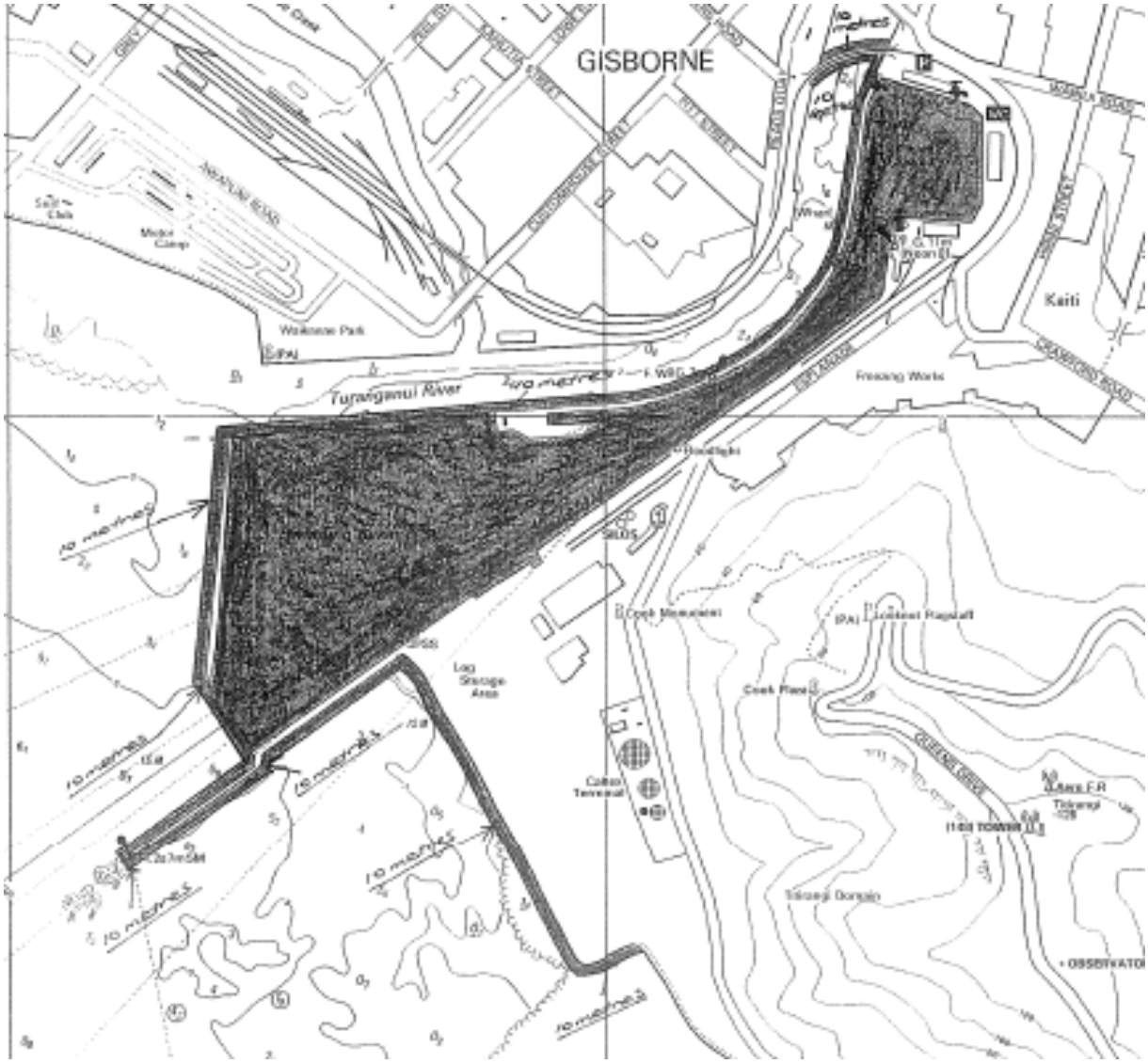


Figure 34: Gisborne Port Existing Coastal Permit Occupation Area

Source: Eastland Port Coastal Permit

The following occupation area matters are noted:

- The occupation area includes all of the working port area (Wharves 1-8 and the VTB) but excludes the PNC.
- The occupation area included the marina, which was issued with a subsequent occupation area permit in August 1999.
- The occupation area includes a strip 10m wide around the outer breakwater, Butlers Wall, Turanganui River training wall and part of the Southern logyard reclamation.
- The occupation area around the edge of the Southern logyard does not follow the actual logyard edge.

The 4Sight aerial photograph plan in **Figure 35** shows the existing occupation area based on the plan attached to the 1994 coastal permit. As indicated in the 4Sight figure the 1994 plan has an error. The occupation area around the edge of the Southern logyard is not correct as the logyard extends another approximately 100m to the south-east and the occupation area would normally follow it.

Figure 35: Existing Port Occupation Plan Overlaid on Aerial

The coastal permit and associated plan do not quantify the existing port occupation area. As shown in the above figure it is estimated to be approximately 19.8ha, of which approximately 16ha is within the port itself and the remainder is associated with the 10m wide strips around the other port facilities and river bridge.

Coastal Permit

The existing permit has no conditions attached to it. However, it has two advice notes and a subsequent letter from the Minister (dated 10 December 1996) clarifies a couple of other technical matters

The advice notes read as follows:

"The occupation authorised by this permit will at all times be subject to the direction and control of the Harbourmaster pursuant to powers and functions under the Harbours Act 1950 and Regulations and By-laws made under that Act. The occupation right authorised by this permit will at all times be subject to any other rights of occupation existing in respect of other persons."

The Ministerial letter (refer **Appendix R**) expressly provides for the inclusion of the areas beneath port company structures within the Port Occupation Permit, which had not been included in the permit at that time it was first issued.

4.11 Transport and Traffic

The existing transport context in and around the Port is described in detail Sections 3-6 of the East Cape Consulting (ECC) *Gisborne Port Twin Berths Project Transportation Assessment Report* (TAR) in **Appendix O.** This includes a description of the existing transport network, existing port activities and planned changes to the transport network in the area. Key elements are summarised below.

Existing Transport Network

The port is located to the south of the Gisborne central business district and is linked to the public road network via a continuous road which intersects with Wainui Rd (State Highway 35). This road has three different names along its length, Hirini Street, Rakaiatane Road and Kaiti Beach Road (from north to south).

Hirini St/Rakaiatane Rd up to the Port entry/exit is classified as an arterial road, with the no exit Kaiti Reach Rd past this point being a local road.

Wainui Rd (State Highway 35), which is connected to State Highway 2 (SH 2), is classified as an arterial road. SH 2 provides access to Gisborne from the north and south.

Figure 4 of the ECC report showing the road hierarchy is reproduced in **Figure 36**.

Figure 36: Gisborne Port Adjacent Road Hierarchy

Public transport, cycling and walking facilities in the vicinity of the port include buses running along Wainui Road, a cycleway along Crawford Road, and the footpath from the SH 35/Hirini St intersection alongside the Wharfside logyard to the Cook National Historic Reserve.

Port Areas and Access Arrangements

The key transport related features of the port and surrounding area are shown in Figure 15 of the report, which is reproduced in **Figure 37** below.

The port has three on-site log yards and various facilities to support the handling and processing of logs and other cargo. The port has seven access points (or gates). However, most port traffic enters and leaves the port via the Rakaiatane Rd port entry/exit, with some entering the Upper logyard via Crawford Rd and the associated underpass to the Wharfside logyard. Traffic is currently managed in accordance with a Traffic Management Plan (TMP), which is an internal document that is maintained by Eastland Port for management purposes.

Figure 37: Gisborne Port Transport Layout

Source: ECC Report

The port is a highly controlled environment with very limited pedestrian permeability, for safety reasons. However, there are two pedestrian gates through which authorised people access the port, at Gate 5 and Gate 7.

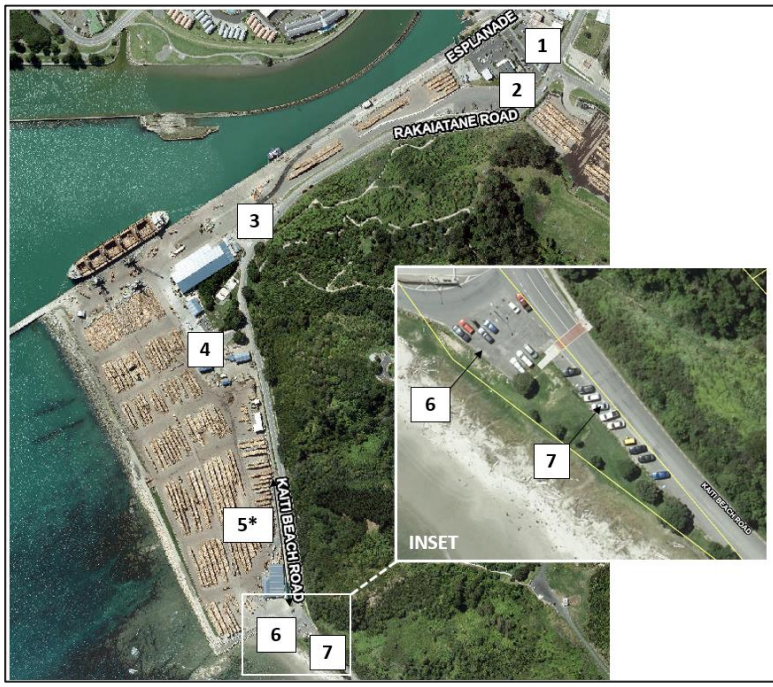
Eastland Port has recently completed a number of pedestrian/cycle works to improve connections to the surrounding area, including:

- The path on the northern side of Kaiti Beach Road;
- Southern log yard seawall improvements incorporating public access to the seaward side of the port; and
- Turnstile access at the Main Entrance (Gate 5).

Port Related Parking

A total of 124 parking spaces are provided within the port across six locations with another 24 in an indented parking bay within road reserve on Kaiti Beach Road, making a total of 148 spaces. Locations of parking and approximate capacities are summarised in **Figure 38** below taken from the ECC report.

A February 2022 survey of parking occupancy undertaken during a period of high demand, when a ship was in port, showed total parking demand reached up to 68 vehicles during the survey. Nearly half the available parking spaces, 65, remained unoccupied, or 80 if the on-street area on Kaiti Beach Road was included.



Label	Area	Capacity (Spaces)
1	New EPL Office	41
2	Staff Carpark (Gate 2)	18
3	Old EPL Office (Gate 4)	5
4	Port Entry (Gate 5)	26
5	Kaiti Beach Road*	24
6	Southern Entry	14
7	Kaiti Beach	20
TOTAL		**148**
On-Street		24
Off-Street		124

* Denotes an on-street area

Figure 38: Gisborne Port Existing Parking

Existing Port Related Traffic

The ECC report contains the following information:

- Eastland Port is currently handling an average of 10,330 tonnes of logs per day. However, at its peak, under its current configuration the port is capable of handling at least 16,135 tonnes/day. Its ability to achieve these peak volumes on a regular basis is impeded by weather and its existing single berth.
- Daily activity at the port is variable with movement of logs to and from the port and off-port storage areas managed by different logging companies, who lease different storage areas.
- Traditionally there have been daily peaks of truck activity with trucks first arriving between 7am and 9am and then making a second trip to the port between 1pm and 3pm. This has flattened out over time as more off-port storage areas have been developed enabling more consistent cartage during the day.
- The port operates 24-hours a day, 7 days a week. Staff numbers vary between weekdays and weekends and increase when a ship is in port. Staff numbers range from less than 10 on a weekend with no ship in port to a peak of close to 100 on a weekday with a ship in port.
- Average and peak heavy commercial vehicle (HCV) numbers accessing the port via Hirini Street have been calculated using survey data together with recorded and peak log cart volumes. On this basis, the port's average operational level is identified as 800 HCV/day and 70 HCV/hour peak hour volume. The peak daily volume is identified as 1,250 HCV/day and peak hourly volume as 105 HCV/hour.

Existing Traffic Network Volumes and Performance

The ECC Report details average traffic volumes for port access roads and the wider city area and state highway network, with a particular focus on Hirini Street as the main access road into the port. The information is based on a combination of survey data and Waka Kotahi and Gisborne Council datasets.

Hirini Street traffic volumes are identified as averaging between 5,000-5,300 vehicles per day (VPD) with weekend volumes of 2,800-3,500 vpd.

Morning and afternoon peaks along Hirini Street (from the port and other activities) are produced primarily by light vehicles.

Daily HCV volumes account for between 13% and 21% of the total daily volumes, and occur more evenly throughout the day, but with peaks between 7-9am and 1-3pm. HCV volumes reach a peak of 70-87 HCV /day in the early afternoon.

The intersection of Hirini St with SH35 is a key location at which port traffic transitions between the main access road to the port and the wider transport network in and around Gisborne.

The safety and capacity of the SH35/Hirini Street intersection is a recognised issue in Gisborne, with the Te Tairāwhiti Regional Land Transport Plan (RLTP) identifying that some form of intervention is required to support its existing function and general growth.

This is reflected in the ECC Report which identifies the intersection as currently operating beyond its capacity in the morning and afternoon peaks. During the inter-peak, when volumes are lower, the intersection operates at the upper limit of acceptable operation.

An analysis of crash data indicates that the SH35/Hirini Street intersection is performing worse than expected for an intersection of its layout and volumes.

The overall conclusion from the analysis of the SH35/Hirini Street intersection is that irrespective of the Proposal, the intersection is currently at or above capacity in the peak travel periods (principally due to light vehicle usage).

Future Transport Plans

The ECC report identifies a number of planned or anticipated changes to the existing transport network which are at various stages of planning. Those of relevance to the Proposal include:

- The RLTP 2021-2031 identifies $4.1M of funding, across the years 2021/22 to 2024/25 for a State Highway improvement project at the SH35/Hirini Street intersection. This project is ranked fourth in terms of regional importance (RLTP Table 3). The report notes that two of the projects ahead of the SH35/Hirini Street intersection project received funding in the latest National Land Transport Programme (NLTP) 2021-24, announced by Waka Kotahi on 31 August 2021. This suggests that the SH35/Hirini Street intersection project is one of the two highest priority projects in line for the next round of Waka Kotahi funding
- The Council has recently awarded a contract for the design and construction of the '1,000 year walk bridge' which connects Cook Landing Site National Historic Reserve with Titirangi Reserve, across Rakaiatane Rd. It will provide a grade-separated pedestrian crossing over Rakaiatane Rd, near the Cook Monument and Gate 4 of the port. The delivery timeframe for the project is not known.
- Waka Kotahi is the agency responsible for the SH35/Hirini Street intersection. Engagement with local Waka Kotahi staff indicates that it is considering a range of intersection improvements at SH35/Hirini Street, including both roundabout and signalised intersection treatments to address these issues.

4.12 Archaeological Sites and Historic Heritage

Section 6 of the InSitu *Twin Berths Project Archaeology and Heritage Effects Assessment 2022* (**Appendix J**) identifies historic heritage places and recorded archaeological sites in and adjacent to the port, drawing on information from ArchSite, the national database of recorded archaeological sites, the New Zealand Heritage List/Rārangi Kōrero and the Tairāwhiti Plan. The 2022 Report also relies on an earlier InSitu inventory of heritage places in the port, undertaken in 2015 to assist with the management of those places and planning for future developments, titled '*Eastland Port. Heritage Inventory and Whole of Port Archaeological Assessment* ('the 2015 Inventory').

Figure 9 in the report, which is reproduced in **Figure 39**, shows the indicative location of the recorded ArchSite and New Zealand Heritage List/Rārangi Kōrero sites as well as the sites identified through the 2015 Inventory.

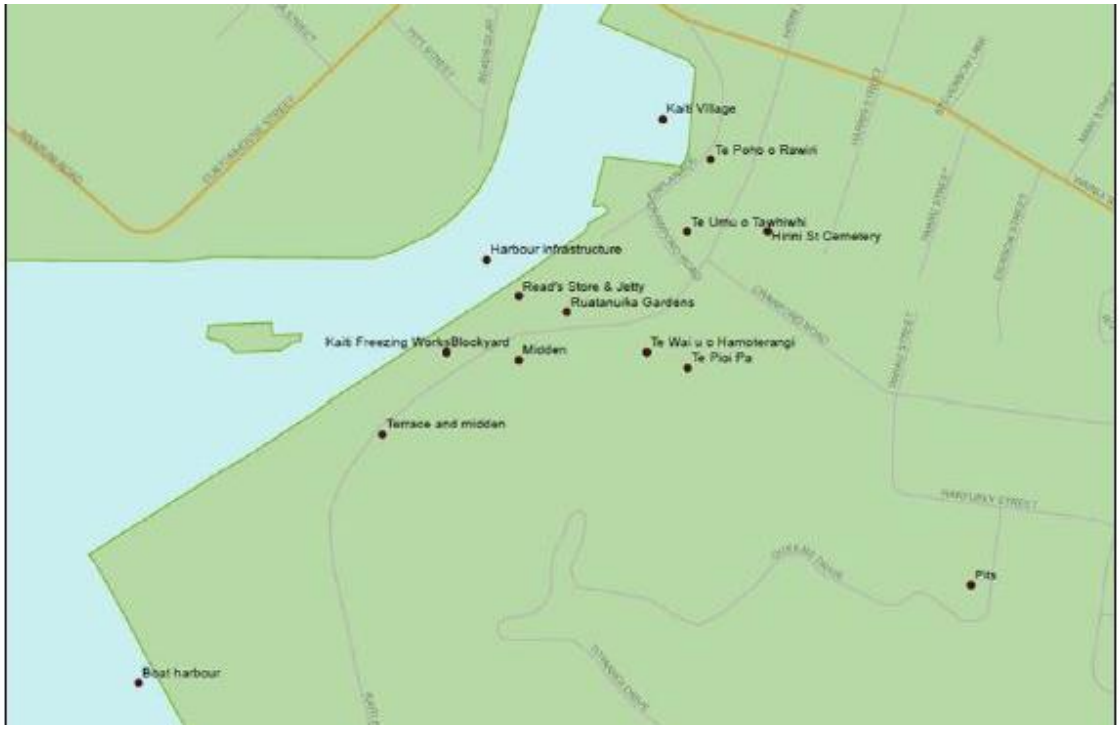


Figure 39: Plan of Port Related Heritage Places

Source: InSitu Heritage Report

4.12.1 Archaeological Sites

Section 6.2 of the InSItu Report refers to the National database of recorded archaeological sites and notes that the nearest one to the TBP site is in the Wharfside Logyard (Y18/382) and relates to the pre-1900 Block yard and the Kaiti Freezing Works. The report notes that this site was subject to archaeological investigation during the upgrade of the Wharfside logyard under the provisions of an archaeological authority granted by HNZ (No. 2016/820) and will not be affected by the TBP.

4.12.2 Puhi Kai Iti/Cook Landing Site National Reserve

The Puhi Kai Iti/Cook Landing Site National Reserve of approximately 4,560m^2 is located immediately to the north of the port entry and southern logyard. The reserve contains a monument, sculptures, seating, signage and extensive paved and landscaped areas. **Figure 40** contains an oblique photograph of the monument and surrounding reserve area, showing its relationship to the port.

The reserve is Crown land managed by DoC, in conjunction with HNZ and local iwi. It is a Category One Historic Place in Heritage New Zealand's List Rārangi Kōrero. It commemorates the first landing place of James Cook in New Zealand in 1769. The DoC website notes that the site is believed to be within a short distance of where Captain Cook first set foot on New Zealand soil and not far from Te Toka a Taiau where the first significant meeting between Māori and Europeans took place. The Council website also records that the site was the first landing place of the Horouta and Te Ikaroa-a-Rauru waka (canoes) which carried Māori to the district.

The site is not affected by this Proposal.

Figure 40: Oblique Aerial Photograph of Adjacent Puhi Kai Iti/Cook Landing Site National Historic Reserve

4.12.3 Other Historic Heritage Places and Surroundings

The InSitu Heritage report identifies two additional heritage places, the 'Boat Harbour'and 'Harbour Infrastructure', as being potentially affected by the current Proposal. Neither of these places are included in the Tairāwhiti Plan, ArchSite or the HNZ Heritage List, but are assessed by InSitu as meeting the definition of historic heritage in the RMA. Both sites are in the CMA and shown in **Figure 39** above.

Heritage Boat Harbour

The Boat Harbour is a natural reef formation at the western end of Kaiti Beach, near the harbour entrance. While it is not directly linked to any other heritage place, InSitu (section 6.4 of the Heritage report) identifies the Boat Harbour as meeting the definition of historic heritage in the RMA "*as it is a natural resource that contributes to the understanding and appreciation of New Zealand's history and cultures. It is a natural feature with Māori heritage values and is a part of the narrative around the Captain James Cook's first land-fall in Aotearoa New Zealand.*"

InSitu identifies the Boat Harbour as part of a complex of heritage places at the mouth of the Tūranganui River related to the voyaging history within Tūranganui a Kiwa; and the first contact between Māori and Captain James Cook and his crew of the Endeavour on 8 October 1769.

The historical context, extent and values of the Boat Harbour are described in detail in the InSitu Report. This includes an overview of Māori voyaging traditions and landings near the Tūranganui River and Titirangi, or Kaiti, followed by the first landing of Captain James Cook in New Zealand at the mouth of the Tūranganui River at the Boat Harbour.

Cook's first interactions with local Māori are characterised as 'short, suspicious and violent', with at least nine Māori left dead or injured when Cook left three days later. The following context is provided at section 6.5.1 of the InSitu Report:

> *'The Turanganui River is associated with significant Māori voyaging traditions and European voyaging history. Maia landed his waka 'Te Ikaroa a Rauru' at Puhi Kai Iti. Puhi Kai Iti is the landing place on the true left bank of the river and is encompassed by Wai Kahua. All the Turanganui a Kiwa people have whakapapa links to Maia, so this place is important to them all. Ngāti Oneone are the kaitiaki of this place. Since the time of Maia, Wai Kahua has been used as both a landing and departure point for waka, adjacent to the river entrance.*

The landing place Puhi Kai Iti is encompassed by Wai Kahua. Wai Kahua is a physical place, but it is also a spiritual and metaphysical concept. It represents a vision of the sea around the mouth of the Turanganui River, and the water of Poverty Bay. The currents and tides of Wai Kahua guard the entrance to the river. When they combine with the activity of Pipitaiari, a taniwha that inhabits the mouth of the river and the bay, they become a tohu (sign) of weather and sea conditions that may be either favorable or hazardous for anyone setting out to travel or to gather food; and a portent of events. When Cook arrived, Wai Kahua was active. He was led to the landing place of Maia, by the action of Wai Kahua. Wai Kahua is a place of intense spiritual and cultural significance for the people of Turanganui a Kiwa.

The first meeting between Captain Cook and Māori in 1769 is a seminal event in New Zealand's history. The Boat Harbour is thought to have been where Cook's party landed and made their way ashore. Cook's visit was however marked by tragedy which resulted in the death and injury of at least nine Māori.'

Figure 4 in the report, reproduced in **Figure 41,** depicts a sketch plan indicating the probable location of events surrounding Cook's landfall**.**

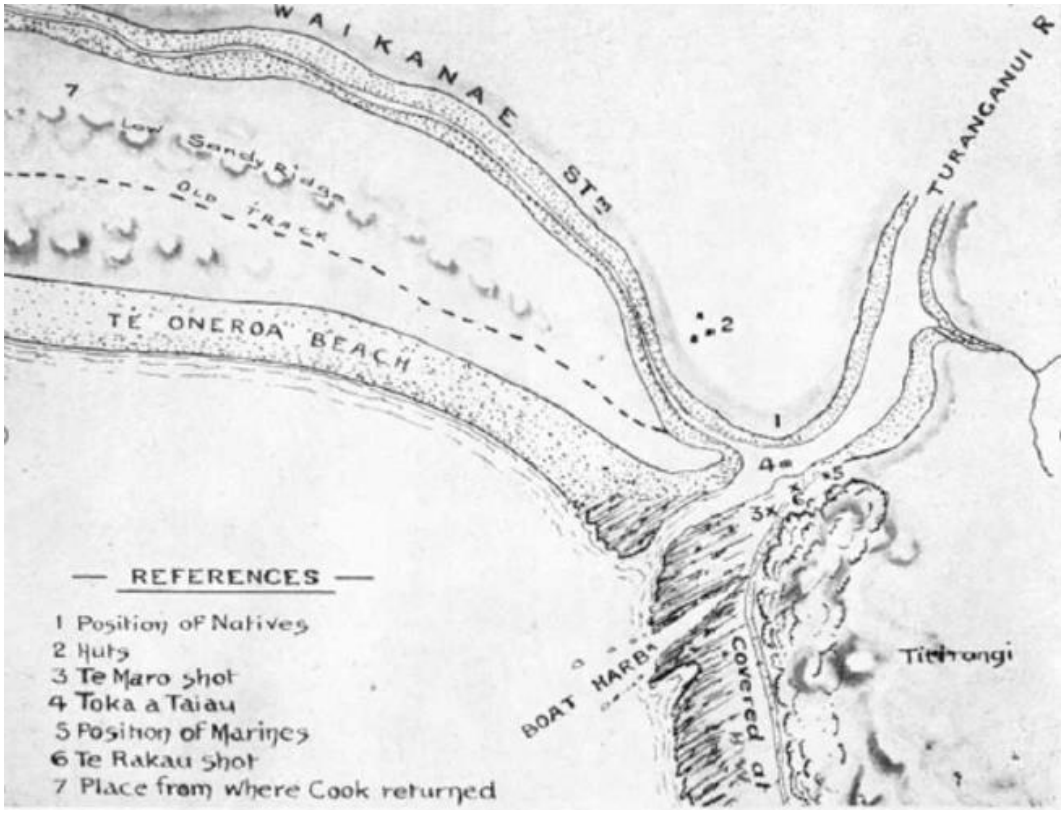


Figure 41: Historical Plan of the Boat Harbour

Source: InSitu Report

In 1906, a monument was unveiled at the base of Titirangi to mark the site of Cook's landfall. As identified above, the site, Puhi Kai Iti/Cook Landing Site, was designated a National Historic Reserve in 1990. The link between the site and the sea was formally recognised by way of a cone of vision, following concern around the effect of development and reclamation works associated with the Port on the landing site.

The Boat Harbour now lies largely beneath port reclamations occupied by the Southern logyard, however, at low tide a small section is visible extending beyond the southern boundary of the logyard.

Figure 8 in the InSitu report contains a 1920 photograph of the feature before the Southern logyard reclamation was undertaken, which is reproduced in **Figure 42**. The photograph notes that "*the line of rocks to the left of the monument marks the outer extent of the boat harbour*."

Figure 42: Historical Photograph of Boat Harbour Prior to Reclamation

Source: InSitu Report

Harbour Infrastructure

The 'Harbour Infrastructure' assessed by InSitu as meeting the definition of historic heritage in the RMA is described as "*a range of different built structures relating the use of the river mouth as a harbour and port, including the breakwaters, training wall, slipway, wharves, and wharf sheds. These are physical resources that possess archaeological, architectural, cultural, historic, and technological qualities that contribute to the understanding of the history of New Zealand. However, the elements have been constantly modified and repaired as part of the development and operations of the port. As a result, it not possible to determine which existing components may be original, pre-, or post-1900, or later repairs or alterations*."

4.13 Cultural Values of the Port and Tūranganui-a-Kiwa

There is a long and rich history of Māori settlement in Tūranganui-A-Kiwa, including in and around the location of the port.

Based on the membership of Te Tai Uru, It is 4Sight'/Eastland Port's understanding that Rongowhakaata hapū, Ngāi Tawhiri and Ngāti Maru hold mana whenua and mana moana (traditional authority) over Turanganui-A-Kiwa and the Turanganui River, (amongst other Iwi/Hapu).

The cultural, spiritual, historical and traditional importance of Turanganui-a-Kiwa and the Turanganui River to Rongowhakaata is confirmed in the Statutory Acknowledgement provisions of the Rongowhakaata Claims Settlement Act 2012.

Statutory acknowledgements are a formal recognition by the Crown of the cultural, spiritual, historical and traditional associations of iwi with a particular location.

It is 4Sight/Eastland Port's understanding that formal recognition of the associations of Ngai Tamanuhiri hapu, Ngati Rangitauwhiawhia and Ngati Kahutia with Turanganui-a-Kiwa and the Waimata River is similarly provided for in the Statutory Acknowledgement provisions of the Ngai Tamanuhiri Claims Settlement Act 2012.

Ngā Rohe Moana o Ngā Hapū o Ngati Porou Act 2019 (Ngati Porou Act) came into force on 29 May 2019. The Ngati Porou Act gives effect to a legal agreement between the Crown and Ngati Porou and is intended to contribute to the legal expression, protection and recognition of the continued mana of Ngati Porou hapū in relation to their rohe.

It is 4Sight/Eastland Port's understanding that Ngāti Oneone is the Ngati Porou hapū with mana whenua interests in the area from Tokā a Taiau (in the Turanganui River) to the Pouawa River in the northeast. The Ngati Oneone rohe includes the inner harbour and port area.

It is 4Sight/Eastland Port's understanding that Te Aitanga A Mahaki hapū Whanau a Iwi also hold mana whenua interests over Turanganui A Kiwa including the Port of Gisborne (Te Aitanga a Mahaki Waitangi Tribunal Claims Settlement is still under negotiation).

As detailed in Section 3.6 of this AEE, Eastland Port has engaged with iwi and hapū during the preparation of this application as well as in relation to previous resource consent applications for activities at the port, to assist in better understanding cultural values associated with the port and its surrounds and the effects of various port activities on those values. On this basis key cultural values of relevance to the current Proposal have been the subject of numerous hui and korero. Eastland Port understands that the cultural values include the mauri of land and water, water quality and mahinga kai. Mahinga kai includes natural kaimoana stocks and the customary rights associated with these, and also commercial and potential aquaculture interests.

The InSitu Heritage report together with a report entitled *Ecological Impacts and Planning History: An Environmental History of the Turanganui-a Kiwa Casebook Area* prepared by Dr B Coombes of Auckland University in 2000, which is referenced in the Rongowhakaata CIA relating to the 2020 dredging application), as well as in the CIA itself provide an overview of cultural values associated with the Port environment and the effect of past and current Port activities on tangata whenua values.

The Coombes report (section 6.1) documents the initial development of the Port in the 1870's and the dredging undertaken to straighten and deepen the river, keep the harbour clear from silt deposits and maintain the function of the Port. In terms of effects on cultural values it records (on pages 152-153) the formation and progressive widening of the natural (generally rock) navigation channels and destruction of a culturally significant site, Toka-a-Taiau, a rock in the middle of the river opposite the mouth of the Waikanae River.

The report notes that Toka-a-Taiau "*served as an important, if contested, boundary marker between Ngati Porou and Ngāti Kahungunu, with other iwi also claiming the rock as a boundary marker. Other narratives point to the rock as a personification of ancestors. Additionally, Toka-a-Taiau was significant as a place of the first formal meeting between Māori and English-speaking visitors.''*

Two important cultural 'outcomes' of the navigation channel rock removal and associated port development activities are identified as a loss of traditional fishing locations and the fisheries themselves, including sources of kina, pāua and kōura. The other was the loss of spiritually important rocks that were associated with anchors from the migration canoes.

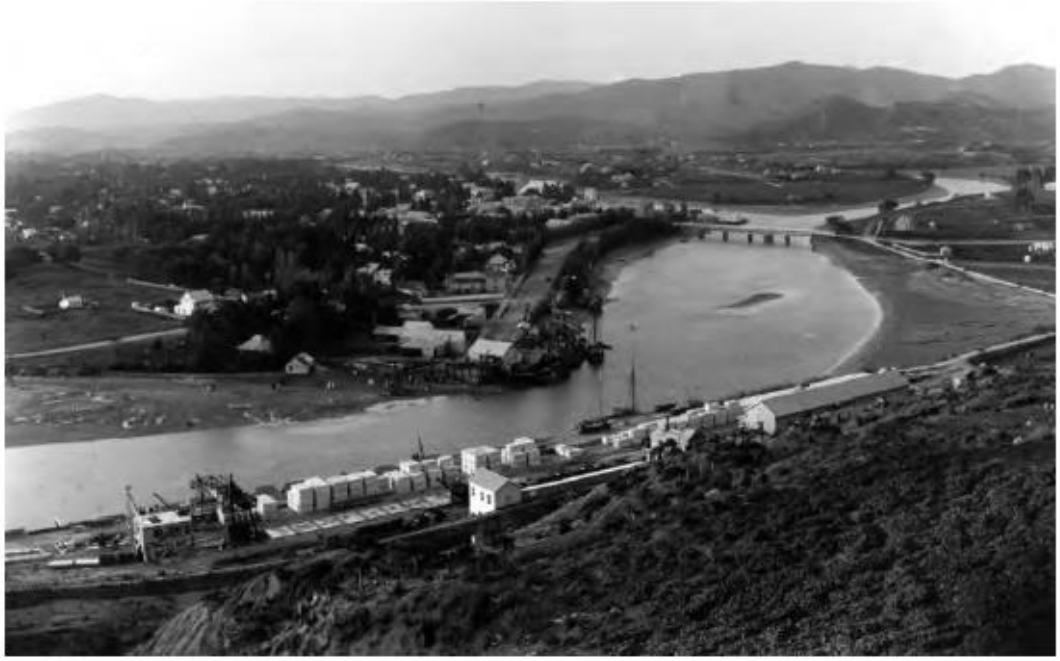
Reclamation of the inner harbour is identified as having resulted in the loss of mudflats and traditional fisheries. The loss of mudflats, which were an important habitat for pipi and other kaimoana and used extensively as a food source, is illustrated in Figure 6.3, which is reproduced in **Figure 43**.

Works to divert the river and expand the port in the early 1920's are identified as having "*destroyed or damaged several pa tuna (eel weirs) along the creek (sic Waikanae) which had been used extensively by local Māori in traditional times*." These works also resulted in considerable loss of access to traditional resources associated with river diversion and expansion of the port.

The most recent phase of port development involving reclamation of the existing Southern logyard occurred during the 1960's and 1970's. The Coombes report outlines the effects of the reclamation and the developed logyard and other facilities on the cultural values of the Kaiti Beach area. The reclamation resulted in the loss of wave cut reef platforms and fisheries, along with access to the coast in this area, in terms of being unsafe for fishing. The effects of logyard stormwater discharges on water quality are also identified.

The Rongowhakaata CIA also highlights concerns raised by iwi over the effect of historic and ongoing dredging and with respect to discharges of spoil in the OSDG on cultural values. This includes the inability of degraded areas within the port to recover due to the ongoing dredging, effects of spoil dumping on areas that were perceived to be once rich sources of kaimoana, effects on the Bay's numerous wāhi tapu sites, and the cultural and spiritual affront caused by the dumping of material derived from the land (dredged spoil) at sea.

Figure 6.3 – Reclamation of mudflats: 1891 vs 1909[a]



The mudflats depicted in the 1891 photograph – both at the bottom left and mid-right – were used extensively by local iwi for the purposes of gathering white pipi. In the 1891 photograph, a retaining wall has been constructed and the mudflats are being drained prior to their reclamation.

a. **Source:** Gisborne Museum and Arts Centre.

Figure 43: Historical Photographs of Gisborne Port

Source: Coombes Report

Te Toka a Taiau (Former Sacred Rock)

The 2009 Council coastal permit decision (CP-2008-103663-00, CP-2008-103664-00, CP-2008-103665-00, CP-2008-103666-00, CP2008-103667-00, CP-2008-103668-00) approving capital dredging and disposal, along with the related 2008 Eastland Port/Insight application report, refer to Te Toka a Taiau, a sacred rock that was located in the Turanganui River, but was destroyed by the former Marine Department (a Crown agency) in the late 1870's.

The 2022 InSitu Heritage report also highlights the cultural significance of Te Toka a Taiau, noting, at section 5.2 – Captain Cook's visit, that the first formal meeting between local Māori and Cook during Cook's first landfall at the Boat Harbour in 1769 took place on a rock in the middle of the Turanganui River. This rock, Te-Toka-a-Taiau, was a tribal boundary marker and a noted mooring place. Based on his limited perspective from the coast and frustrated by his inability to secure food and water, Cook mistakenly called Turanganui 'Poverty Bay'.

The 2022 InSitu Report goes on to note, at Section 5.5 - Port Development that:

> "*The public wharf was gazetted in 1872, and the first harbour master and pilot was appointed in 1874. Initially, large ships had to stand off the coast and small lighters (flat bottomed boats) transported people and goods from ship to shore. In 1877 rocks in the river entrance were blasted out, including Te-Toka-a-Taiau*."

The 2008 application and 2009 Council decision note differences of opinion between organisations at the time as to the location of Te Toka a Taiau. Eastland Port has undertaken an investigation into its location, the findings of which are in the *Te Toka a Taiau Location Spatial Analysis Report* in **Appendix W**. The investigation involved reviewing a series of historical maps, photos and surveys, overlaid with Eastland Port's current asset map, to attempt to establish the original location. The likely approximate location is shown in the Eastland Port oblique aerial photograph plan in **Figure 44**.

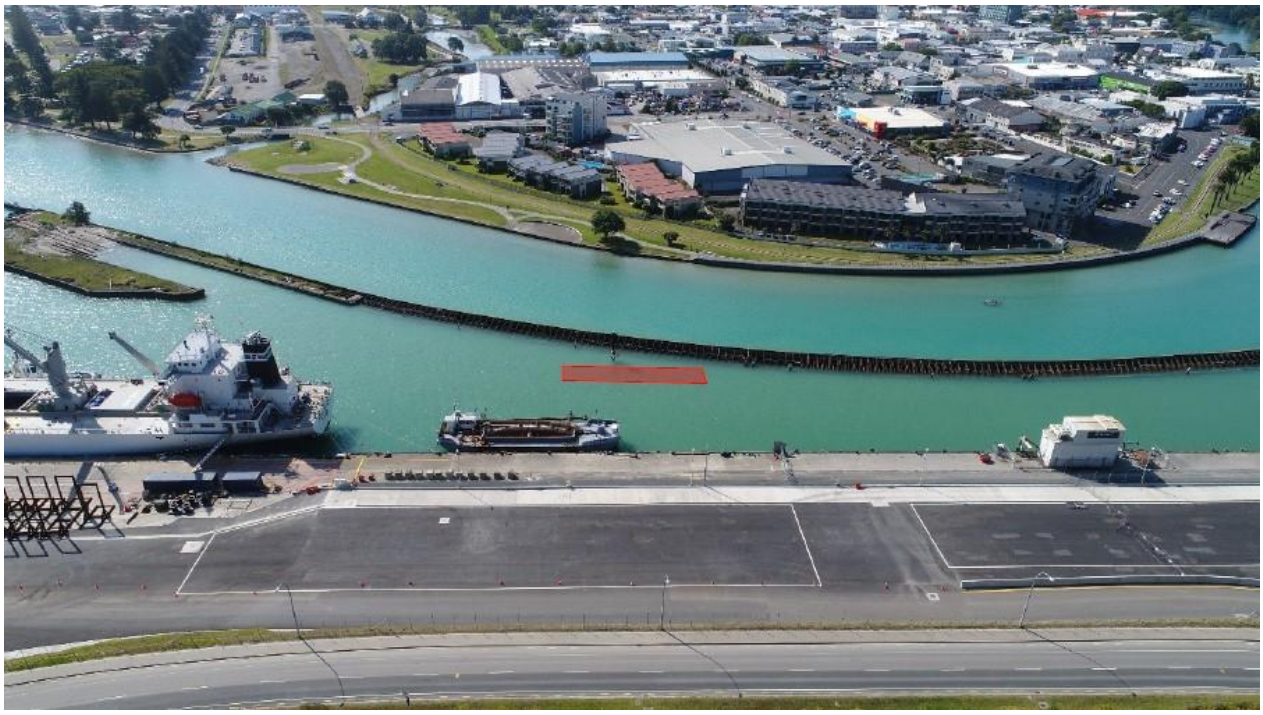


Figure 44: Eastland Port Oblique Aerial Photograph of Likely Te Toka a Taiau Rock Location

Source: Eastland Port Report

Section 1 of the Eastland Port report contains a description of Te Toka a Taiau drawn from the 2006 book *Turanganui River – A Brief History*, written by Michael Spedding for the Department of Conservation. Section 2 documents the 1876 Marine Department contract to remove rocks from the river and associated information. Section 3 contains a description of the relevant plans and reports in chronological order which refer to Te Toka a Taiau. The report notes no single piece of information found provides unequivocal evidence of the exact location of Te Toka-a-Taiau. However, the analysis indicates that Te Toka-a-Taiau was most likely located in a position opposite what is now called Wharf 6 adjacent to the river training wall, and in between the original back lead navigation light on the river training wall, and the relocated position of it in the harbour.

Eastland Port recognises the significance of Te Toka a Taiau to local iwi and two years ago assisted the Council recognise this on a roadside signboard as part of the Council's Tairāwhiti Navigations Project for the inner harbour area. **Figure 45** contains a photograph of the signboard on the northern side of Rakaiatane Rd, adjacent to the port.

Figure 45: Photograph of Te Toka a Taiau Signboard Adjacent to the Port

Nga Kohatu Tuturu o Tūranganui-a-Kiwa (Registered Wāhi Tapu Reefs)

The 2008 Eastland Port application and the 2009 Council decision also refer to four reef areas (Tokomaru, Hawea, Te Moana and Wahora) within Tūranganui-a-Kiwa Poverty Bay that were registered wāhi tapu under the former Historic Places Act 1993. The reef areas have the same registered wāhi tapu status under the Heritage New Zealand Pouhere Taonga Act 2014.

The general locations of the registered wāhi tapu reefs were shown on a plan attached to the Eastland Port application report. It is reproduced in **Figure 46**. The three northernmost reefs (Tokomaru, Hawea and Te Moana) are shown more clearly on the more recent MetOceans aerial photograph plan earlier in this AEE.

The registered wāhi tapu reef areas are considerable distances from both the port capital and maintenance dredging areas and the OSDG. Tokomaru, the northernmost reef is approximately 1km from the PNC, whilst Wahora, the southernmost, is over 2km from the OSDG.

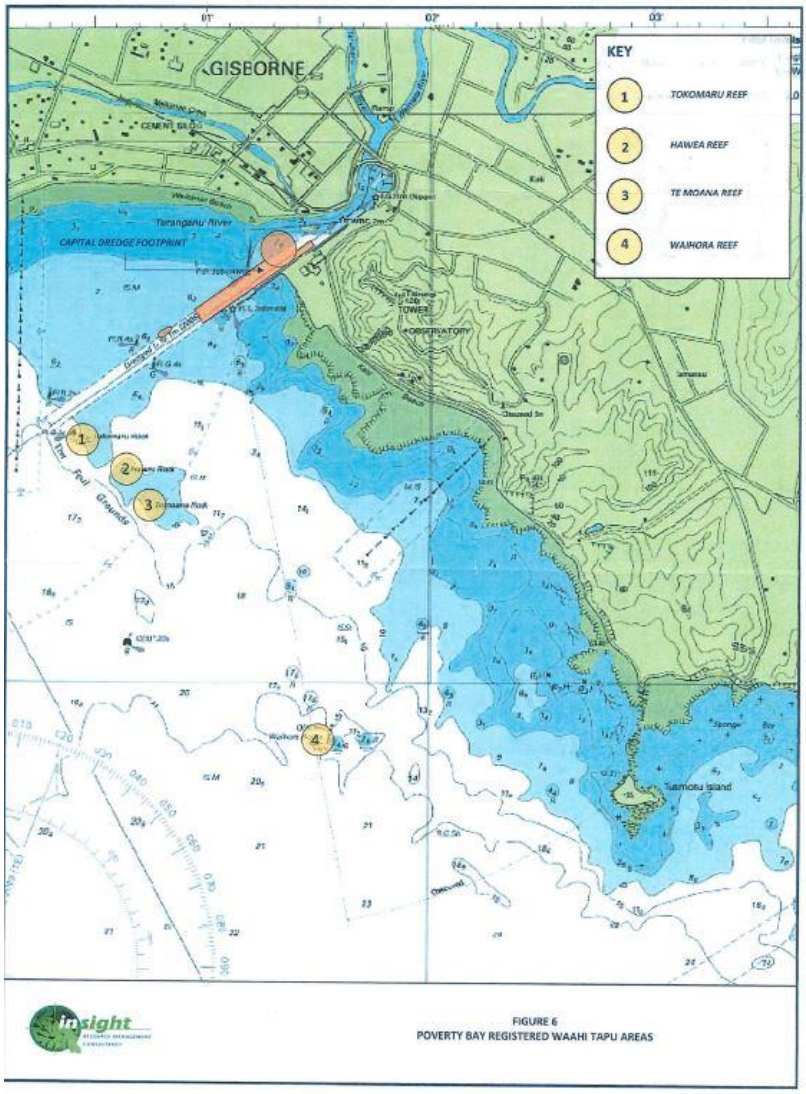


Figure 46: Map of Tūranganui-a-Kiwa Registered Wāhi Tapu Reefs

Source: 2008 Eastland Port/Insight Application Report

4.14 Landform and Visual Setting

The port is located at the north-eastern most reaches of Tūranganui-a-Kiwa Poverty Bay, on reclaimed land at the eastern edge of the Tūranganui River mouth. The site is located across the river from the Gisborne city- centre.

The port is located below and southwest of Tītīrangi Kai Iti (Tītīrangi Reserve / Kaiti Hill). Kaiti Hill has significant cultural and historical values and scenic qualities and is widely used for recreational purposes. Kaiti Beach is located immediately east of the port, with steep hillsides and cliffs further to the east, extending to Wainui Beach being significant landmarks for the township. The wider coastal environment includes natural features such as the Waipaoa River mouth, Te Kuri-a-Pāoa / Young Nick's Head and Tuamotu Island.

The port was established in the 1870's and has developed over time with works involving reclamations, dredging, installation of a river training wall, wharf and berthage construction and other structures within the CMA. Land based facilities include three log-yards and with sheds, coolstores, and various other operational buildings of an industrial nature hugging the boundary created by Kaiti Beach Road

As a result, the locality is a highly modified coastal environment which is dominated by commercial port based activities.

The port site contains very little vegetation of note. Landscaping is confined to areas along Rakaiatane Road and within and adjacent to the Cook Landing National Reserve (administered by DoC).

The wharves line the western extent of the port, transitioning south into the port breakwater. Large floodlights line the wharves to assist with overnight loading. The Southern logyard is a large expansive flat surface utilised for the temporary storage of logs. The south-eastern edge of the logyard is currently being upgraded, with public access and amenity improvements, including footpaths, picnic areas, planting and street furniture.

The port currently has operational capacity for one log-transport ship to be berthed and loaded at Wharves 7 and 8. While it is possible for an additional smaller vessel to be berthed alongside a larger logging vessel, generally under normal operational conditions, the port is characterised as having one logging vessel in berth at any one time. The port receives cruise ships and accommodates smaller coastal tide vessels and the local fishing fleet.

4.14.1 Titirangi Recreation Reserve

The Titirangi Recreation Reserve, also known as Kaiti Hill, is a large area to the east of the port managed by the Council. The photograph in **Figure 47** shows the landscape/visual relationship between the reserve and the port. The Council website notes the reserve is one of the city's most visited attractions and valued for its historic and cultural importance, as well as recreational and tourism values. The reserve has several lookouts and car parking areas, a playground, a fitness course including trails and stairs, picnic areas and seating. The reserve contains a pā and several other important archaeological sites.

Figure 47: Photograph of Port from Titirangi Hill Recreation Reserve

Proposed Pedestrian Bridge Link to Puhi Kai Iti/Cook National Reserve

The Council, in conjunction with DoC and HNZ, has plans to build a pedestrian bridge from Titirangi Reserve across to the Puhi Kai Iti/Cook Landing National Reserve and has undertaken several related developments on both sites. The bridge is scheduled for construction in late 2022, following the grant of land use consents for the project in May 2018 (Ref. LU-2018-108156-00 & LU-2018-108157-00).

4.14.2 Kaiti Beach Reserve Area

The Kaiti Beach area southeast of the Site consists of a couple of small areas of Council reserve land adjacent to the road and large areas of foreshore and seabed that extend for several kilometres to the south of the Southern logyard. The area contains sandy beaches, along with rocky intertidal areas and subtidal reefs. The area is popular for fishing, seafood gathering swimming and other water related activities. Eastland Port are currently undertaking public access and amenity improvements works at the northern end of the beach as part of the Waikahua Seawall Upgrade project.

Southern Logyard Seawall maintenance and Waikahua Seawall Upgrade Projects

The Southern Logyard Seawall maintenance and Waikahua Seawall Upgrade projects were consented by the Council in December 2017 and December 2018 respectively. The project has three stages the first two of which involve

upgrading of the western and southern seawalls at the logyard. The Council consented construction plan in **Figure 48** shows the projects.

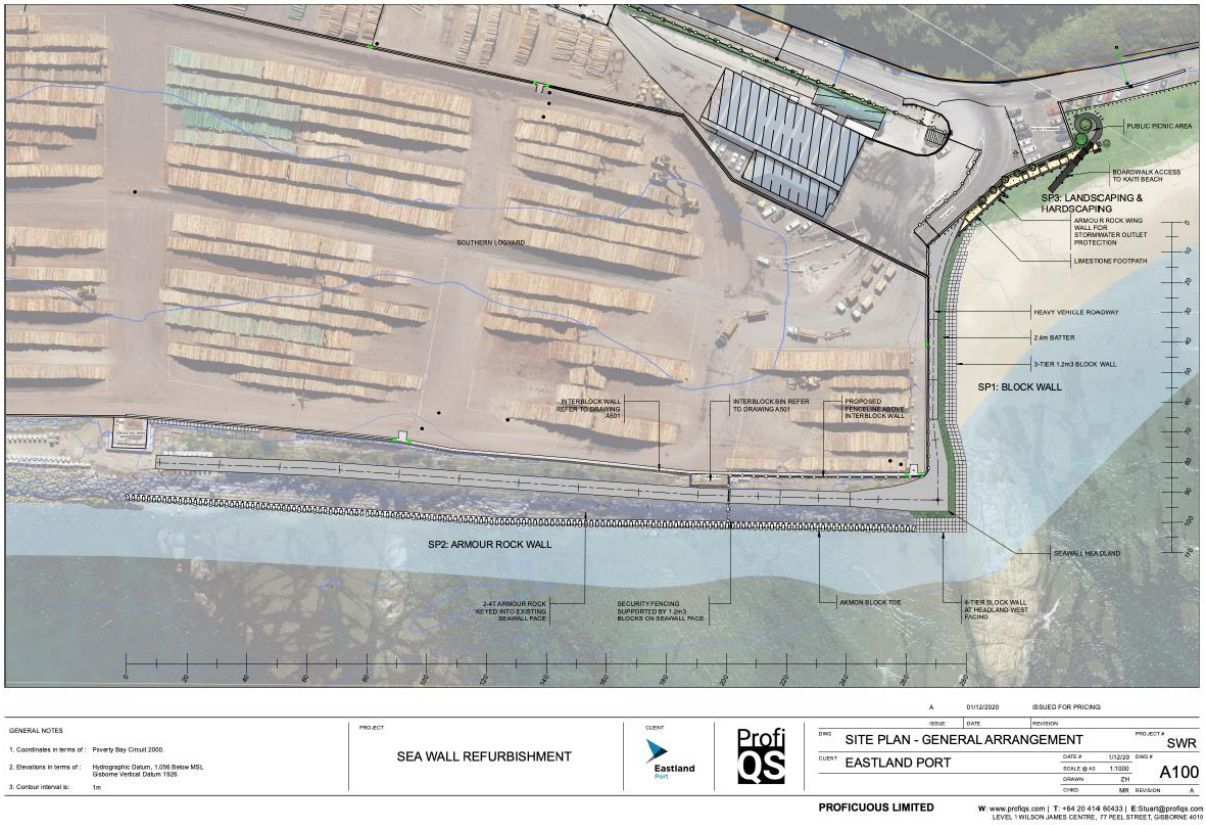


Figure 48: Southern Logyard Seawall maintenance and Waikahua Seawall Upgrade Plan

Construction commenced in June 2021 and is now largely complete. This project has provided for an improved and strengthened seawall structure, with limited public access (along the top of the seawall to the south-western corner of the reclamation) and amenity improvements, including footpaths, picnic areas, planting (including dune restoration) and the installation of new street furniture. The coastal edge of the existing reclamation area, which previously contained some weed vegetation, is now maintained weed-free. New planting associated with the Waikahua Seawall Upgrade Project includes Pōhutukawa. **Figure 49** shows the works completed to April 2022.

Figure 49: Southern Logyard Seawall maintenance and Waikahua Seawall Upgrade works completed to April 2022

Source: Eastland Port

4.15 Surf Breaks

The NZCPS Schedule on Surf Breaks of National Importance includes a surf break known as 'The Island' (Tuamotu), which is approximately 4km to the south-east of the port and approximately 4km to the east of the OSDG 4km from the port, as shown in the 4Sight plan **Figure 50**.

Figure 50: Plan of National and Regionally Recognised Surf Breaks

This same figure also shows other surf breaks that are recognised as regionally significant by the Council in a report entitled *Surf Break Identification and Protection in the Gisborne District 2011*. The findings of this report are discussed later in this AEE.

5 WHARF 8 EXTENSION

5.1 Proposed Wharf 8 Extension

The Wharf 8 extension involves extending the existing 140m long structure another approximately 130m into the area occupied by the inner breakwater. Small reclamations are proposed on both sides of the existing breakwater, totalling 900m^2. The extended structure will be approximately 16m wide, i.e., the same width as the existing wharf. Most of the extended width will be on the southern (logyard) side.

The works arise from the need to provide additional berthing space for longer Handymax logging vessels. Also to withstand the physical forces associated with the proposed Outer Port Reclamation behind it (to the south) and the deepened PNC in front (to the north) of the structure.

The Wharf 8 extension is intricately linked to the Outer Port reclamation project. The proposed extension is dependent on logging trucks and other heavy vehicles being able to access it through the adjacent proposed reclamation. As outlined earlier, the wharf will only be extended if much improved access to it is available through the proposed reclamation.

Plans and cross sections of the proposed wharf extension are in Worley *Eastland Port Reclamation Wharf 8 Extension and Outer Breakwater Engineering Report* in **Appendix F.** The extent of the works are shown in the Worley Wharf 8 Location Plan Area in **Figure 51**.

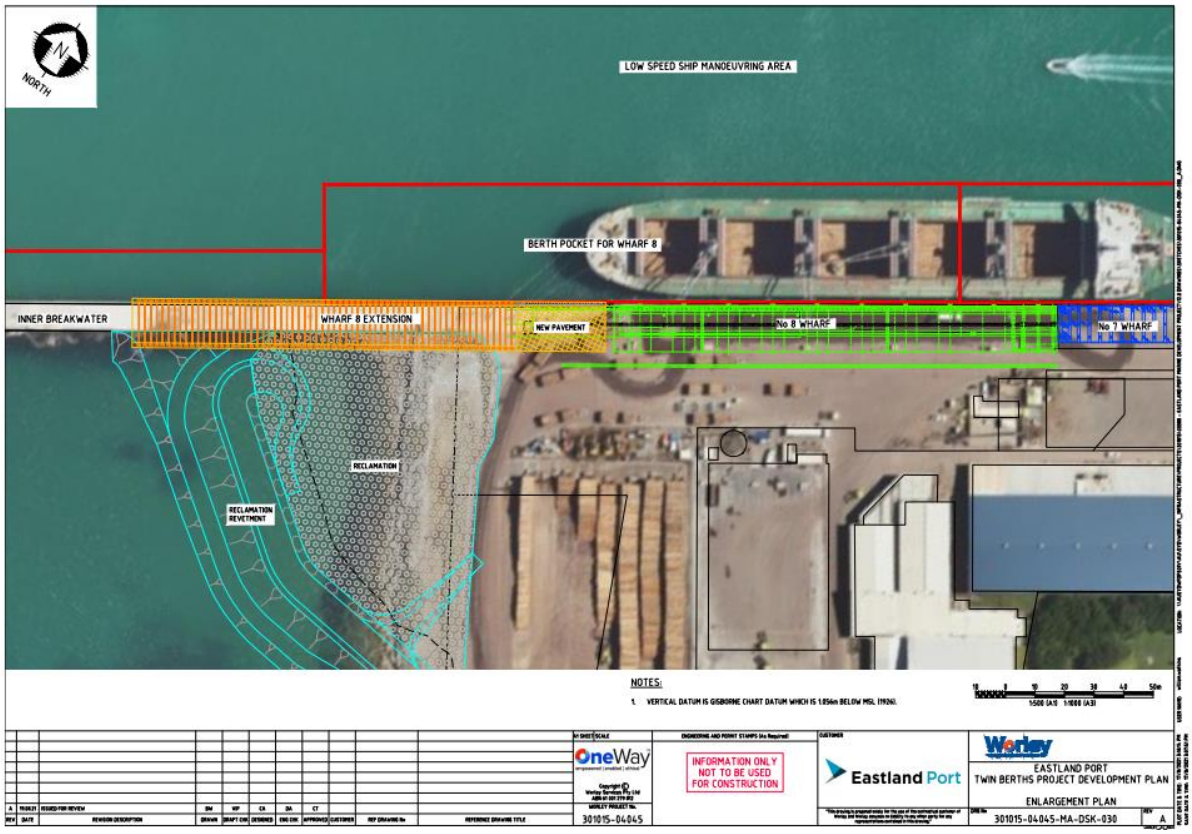


Figure 51: Wharf 8 Extension Location Plan

Proposed Works

The key components of the wharf extension include:

- Installation of new steel pile-based walls either side of existing breakwater.
- Installation of tie-rods or beams between the new walls to create a caisson (or box like structure in water).
- Delivery and placement of graded gravel to fill the caisson.
- Placement of a concrete capping slab over the extended structure.

The redeveloped wharf, including the existing (covered over) breakwater, will be approximately 16m wide and very similar width as the current wharf. It will adjoin the proposed Outer Port reclamation, as shown in the long section plan. The top of the concrete capping beam/pavement will be at RL 4.1mCD as shown on the plan and approximately 3.7m above MLWS (RL 0.4mCD).

Section 6.1 of the Worley report notes that the steel piles (of 1,250mm diameter) are to be driven and then drilled to variable depths (11-19m) depending on the material nature of the underlying seabed.

Change in Structure Height and Area

Wharf 8 is at present approximately 2,240 m^2 (140m by 16m). The proposed extension is approximately 900m^2. When coupled with the existing inner breakwater section of approximately 1,300m^2 (130m by 10m) the fully extended wharf will be approximately 4,440 m^2. The proposed wharf extension will effectively result in an approximate doubling of the available wharf space in this part of the port

The top finished level of the extended structure will be at RL 4.1mCD, so sections of the existing inner breakwater will need to be trimmed to accommodate the proposed concrete/tie rods and new pavement.

Finished Appearance

The Wharf 8 extension will look very similar to the current facility and the adjacent redeveloped Wharf 7. The northern (port) side will have a steel pile concrete capping beam finished appearance with a line of fenders (about 1m wide) just below the top. The southern (ocean) side will look the same, except for the fenders.

Ground Stabilisation and Earthworks

Section 3.3 of the Worley report notes no preliminary ground stabilisation works are envisaged for the Wharf 8 extension and nor are any land-based earthworks required. This is primarily because of the caisson type construction method.

Relationship to Approved Wharf 7 Redevelopment

The extended wharf will be immediately seaward of the redeveloped Wharf 7 subject of the 2020 resource consent decision (Stage 1 TBP). Wharf 7 is to be rebuilt and an approximately 30m long section between it and the Wharf 8 extension is to be simply refurbished by constructing an area of new pavement. The extent of the new pavement of approximately 450m^2 (30m by 15m) is shown in more detail in **Figure 51** An approximately 30m long capping beam is also to be installed along the northern side of the existing wharf as shown in the site plan figure.

5.2 Extended Wharf 8 Use and Management

Vessel Berthing Arrangements

The Wharf 8 extension will not in itself change the current vessel berthing arrangements as it is only when the adjacent Outer Port reclamation is completed that the extended wharf will be able to accommodate a larger Handymax vessel. Section 3.1 of the Worley Dredging report briefly describes the effects of the wharf extension on the berthing of log and other vessels at Wharves 7 and 8. It notes that vessels currently do not have fixed berths and move around between both wharves. Following the extension, vessels at Wharf 7 will berth in generally the same position, but with the ability to accommodate ships up to 200m long, these vessels would berth up to 30m west (seaward) of their current positions. Following the extension, vessels at Wharf 8 will generally berth approximately 80m seaward of their current position.

Stormwater Management

Stormwater from the Wharf 8 extension (and the adjoining Outer Port reclamation) is to be directed towards the Southern Logyard Northern catchment area. Proposed upgrades to the Southern logyard stormwater treatment system are detailed in Section 8 of this report.

Lighting

Eastland Port advise that no additional lighting is planned for the extended wharf. This is because the existing lighting is effective and any additional requirement for this will be addressed in time by additional consents if required.

Public Access Considerations

Wharf 8 is not accessible to the public for health and safety reasons. This situation is expected to continue following the proposed extension.

Wharf Maintenance Considerations

Section 7.2.1 of the Worley report notes that a maintenance regime will be put in place for the completed Wharf 8 extension. It is expected to involve regular inspection of the piles for corrosion, monitoring of the upper splash zone portion paint work and regular inspections of the cathodic protection system.

5.3 Reclamation

Tairāwhiti Plan Definition

The Wharf 8 upgrade effectively involves a form of 'reclamation' as this term is used in the Tairāwhiti Plan. Part E5 defines 'reclamation' (on page 20) in the following manner:

"*For the purposes of this Plan, reclamation includes both:*

a) the permanent infilling of the foreshore or seabed with sand, rock, concrete or similar material to form land above the level of Mean High Water Springs (including any embankment, causeway, or rubble mound breakwater which has a vehicle access track); and

b) the permanent drying out of any part of the foreshore or seabed below the level of Mean High Water Springs by means of the construction of a causeway, bund, seawall, other similar solid structure, or any combination thereof, which act to exclude coastal water from part of the coastal marine area." (Emphasis added).

The Wharf 8 extension will involve infilling of the seabed to create 'land' (above MHWS) and, as such, is a form of reclamation for the purposes of the Tairāwhiti Plan and the associated resource consent process.

Marine and Coastal Area Act

The definition of 'reclaimed land' under the Marine and Coastal Area Act is as follows:

'means permanent land formed from land that formerly was below the line of mean high-water springs and that, as a result of a reclamation, is located above the line of mean high-water springs, but does not include—

(a) land that has arisen above the line of mean high-water springs as a result of natural processes, including accretion; or

(b) structures such as breakwaters, moles, groynes, or sea walls

The Wharf 8 works include the placement of fill behind new pile walls and are, therefore, considered to represent 'reclaimed land' in terms of the Marine and Coastal Area Act. EPL intends to apply for a fee simple interest for the proposed reclaimed land in accordance with Subpart 3 – Reclaimed land of the Marine and Coastal Area Act.

Areas of Proposed Reclamation

The Worley plan in **Figure 52** shows the approximate extent of the 'reclamation' involved for resource consenting purposes. The 'main' (largest) reclamation is on the southern side where an approximately 5m wide strip of 'additional land will be formed' between the existing MHWS and proposed MHWS, as a result of the caisson construction work. The Worley Cross Section Plan indicates that the proposed reclamation here is approximately 650m^2 (5m by 130m).

Figure 52: Plan of Twin Berths Project Proposed Reclamations

The new pile wall along the northern side of the breakwater also constitutes a 'reclamation' under the Tairāwhiti Plan because a small volume of fill is also to be placed between the existing structure and new pile wall. The reclamation area here is approximately 250m^2 (1.9m by 130m).

The Worley plan shows the relationship of the two proposed reclamations to the existing breakwater property, being Lot 22 DP 7819 of 3,286m^2.

Development Footprint

The total area of proposed reclamation is approximately 900m^2, as recorded in **Table 3**.

Table 3: Wharf 8 Extension Development Footprint

Reclamation	**Proposed Area (m^2)**
Northern side	250
Southern side	650
Total Reclamation Area	**900**

5.4 Construction Timing and Staging

Construction Period

Section 6.1 of the Worley report sets out the construction sequence expected for the Wharf 8 extension. The construction works are expected to take approximately eight months and would need to commence before the Outer Port reclamation is undertaken.

Proposed Staging

Figure 6.1, which is reproduced as **Figure 53** in this AEE, shows four indicative stages of construction, in addition to initial site/plant mobilisation and final site/plant demobilisation.

The stages are:

- Stage 1 – Pile Installation. This stage primarily involves installation of piles each side of the breakwater. It may also involve removal of some existing breakwater material.
- Stage 2 – Precast Capping Installation. This involves installing pretension anchor rods (rods to be placed in settlement tubes) and installing the in-situ concrete infill to capping beams.
- Stage 3 – Engineered Fill Between Pile Walls. This involves placing graded gravel between the piled walls.
- Stage 4 - Casting of In-Situ Concrete Top and Additional Wharf Pavement. This involves the final concrete capping and wharf pavement extension work.

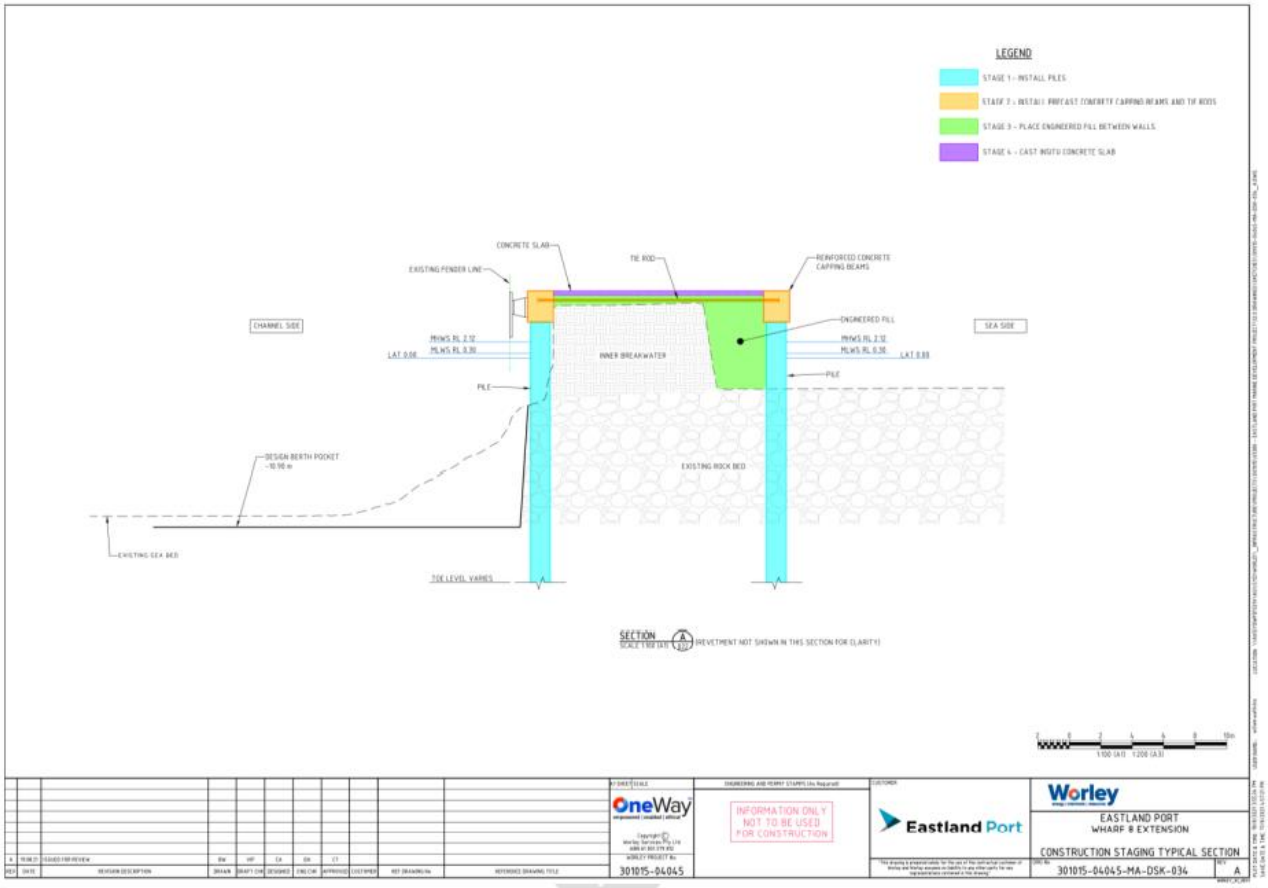


Figure 53: Wharf 8 Extension Construction Staging Plan

The stages and associated periods are only indicative and may change according to the contractor, port utilisation, weather and other conditions in place around the actual time of construction.

Construction from Land and CMA

Section 6.1 of the Worley report notes that construction is likely to be undertaken mainly from land, although some barge-based equipment may be used. This part of the report also refers to discussions with potential contractors which indicated that it may be advantageous for the southern side area to be protected from wave action to allow a land-based piling rig to work more efficiently. This could be achieved by partial or complete construction of the Outer Port revetment wall initially, to partially enclose the reclamation area and reduce the wave climate, or by fully enclosing the reclamation area such that construction of the Wharf 8 extension can be carried out.

6 OUTER PORT RECLAMATION

6.1 Proposed Outer Port Reclamation

The Outer Port reclamation involves an area of approximately 7,000m^2 adjacent to the Southern logyard that is to be used by log trucks and other heavy machinery accessing the extended Wharf 8.

Reasons for the Reclamation

The Eastland Port *Twin Berth Project Alternative's Assessment* outlines the need for the proposed reclamation, which is primarily to provide logging and other heavy vehicle access to the outer end of the extended Wharf 8, where a second Handymax vessel will be berthed. The report also describes the finished nature of the reclamation and its layout in terms of how much of the area is to be used by trucks accessing the extended wharf and for other activities. Further details on the proposed use of the completed reclamation are provided later in this section.

The Site and Relationship to Wharf 8 Extension

The Worley reclamation area site plan in **Figure 54** shows the approximate extent of proposed reclamation in relation to the Inner breakwater and Southern logyard. It will adjoin both of these facilities, the former of which will have been previously altered as part of the Wharf 8 extension. The proposed reclamation will be immediately north of the heritage Boat Harbour, shown in pink.

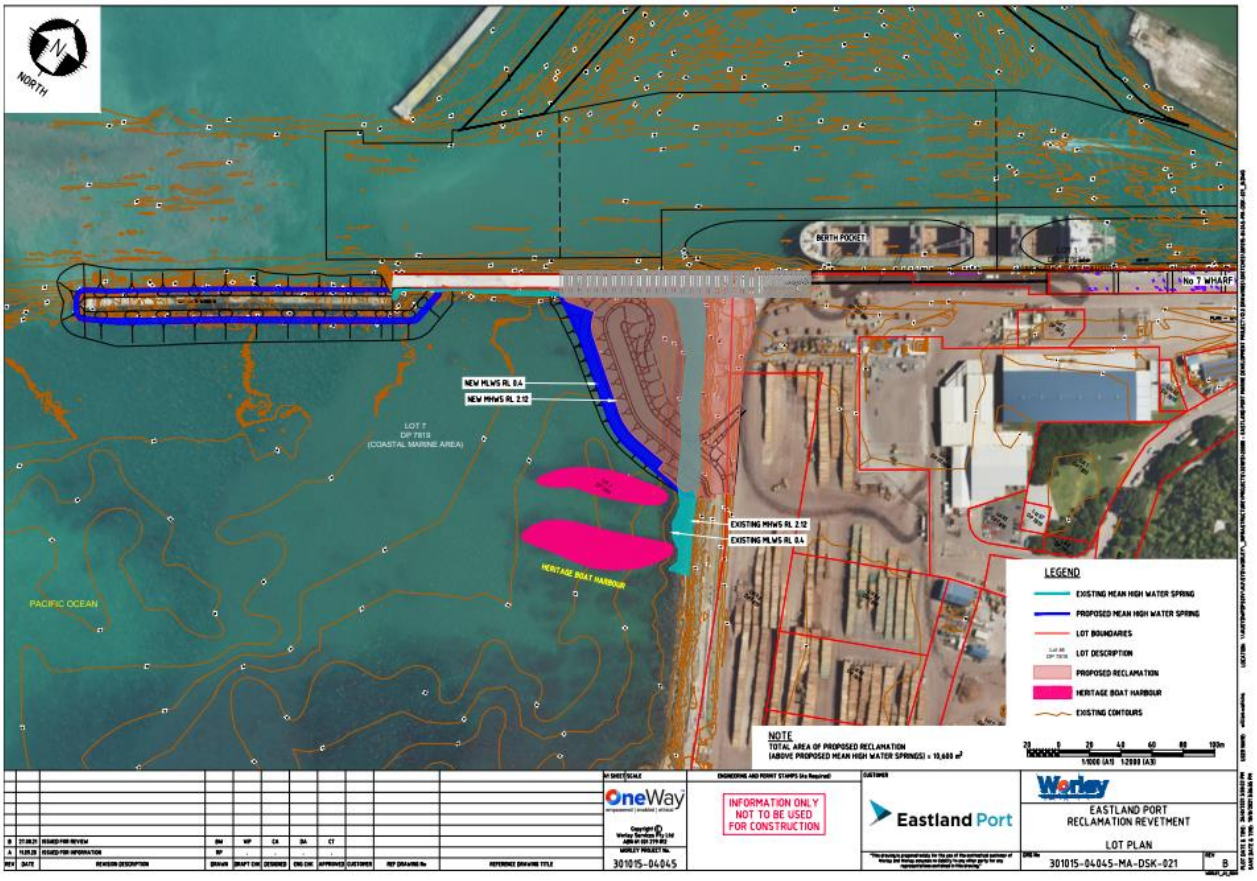


Figure 54: Outer Port Reclamation Location Plan

The Outer Port reclamation is intricately linked to the Wharf 8 extension. Wharf 8 will only be extended if much improved heavy vehicle access to the much larger and deeper berth/wharf area is available through the proposed reclamation.

Minimum Possible Area

The Eastland Port Twin Berths Assessment of Alternatives report notes that the proposed reclamation has been minimised in its footprint but still provides effective logging truck/other vehicle access to the extended Wharf 8 for efficient operations. This matter is explained in more detail later in this AEE in relation to the policy directives on 'avoiding' reclamation in the NZCPS and Tairāwhiti Plan.

6.2 Reclamation Matters

Tairāwhiti Plan Considerations

Most of the proposed reclamation falls within the ambit of a 'reclamation' as defined in the Tairāwhiti Plan. However, as already noted, some of the associated Southern logyard revetment wall demolition works will occur on land (above MHWS), whilst some of the other works, including all of the likely ground stabilisation ones, will occur on the seabed below MLWS.

Marine and Coastal Area (Takutai Moana) Act 2011

The outer port reclamation also falls to be considered as 'reclaimed land' under the MACA. Eastland Port intends to apply for a fee simple interest in the proposed reclaimed land in accordance with Subpart 3 – Reclaimed land of the MACA.

Area of Proposed Reclamation

The Worley plan in **Figure 52** shows the approximate extent of the reclamation involved, being the 'additional land being formed' between existing MHWS and proposed MHWS, following completion of the proposed works. The proposed reclamation is intricately linked to the Wharf 8 extension. The wharf extension is expected to be largely completed (i.e., all structural components are in place) before any significant works are undertaken on the proposed reclamation.

The reclamation area of approximately 7,000m^2 comprises a triangular strip of land approximately 100m at the widest northern point and only 5m wide at the southern end. The Worley plan shows the relationship of the proposed reclamation to the breakwater property, being Lot 22 DP 7819 of 3,286m^2 to the north and the logyard property being Lot 1 DP 327614 to the east.

Lot 22 comprises all of the breakwater (inner and outer sections) and is owned by the Council, whilst Lot 1 is part of an Eastland Port property containing part of the logyard and adjacent wharves.

Proposed Revetment Wall Toe and Loss of Seabed

The toe of the proposed revetment wall will extend another approximately 10-15m beyond proposed MHWS as shown on the Worley site and cross section plans, except at the northern end where it will be slightly wider and linked to the Wharf 8 extension. Table 8 in the Worley report records that the area affected between proposed MHWS and proposed MLWS will be approximately 1,250m^2 and the area lost below proposed MLWS will be approximately 650m^2. This means that the proposed reclamation and associated revetment wall will affect a CMA area of approximately 8,900m^2, i.e. 7,000m^2, plus 1,250m^2 plus 650m^2. The development footprint situation is summarised in **Table 4**.

Table 4: Proposed Reclamation Development Footprint

Reclamation	Proposed Area (m^2)
Additional land (from existing MHWS to proposed MHWS)	7,000
Intertidal (from proposed MHWS-proposed MLWS)	1,250
Subtidal (below proposed MLWS)	650
Total CMA Footprint	**8,900m^2 (0.89ha)**

CMA area occupied by existing Southern logyard revetment wall (below existing MHWS)	2,600
Actual Loss of Seabed	**6,300m^2 (0.63 ha)**

Source: Worley Report 2022

The loss of seabed is less than the CMA footprint as noted in **Table 4**. This is because the toe of the existing Southern logyard revetment wall, which is shown by the black line and labelled in the Worley site plan**,** extends on average approximately 20m out beyond existing MHWS. The existing logyard revetment area below MHWS is estimated by Worley to be approximately 2,600m^2. Of this area approximately 2,000m^2 is intertidal, shown in green shading, and the rest (unshaded) is subtidal.

6.3 Reclamation Design and Layout

Section 3 of the *Worley Eastland Port Reclamation Wharf 8 Extension and Outer Breakwater Engineering Report* describes the reclamation layout and design with reference to Figure 3.1, which is reproduced in **Figure 54.** The Worley site plan in this figure shows the extent of the proposed reclamation in relation to the breakwater and Southern logyard seawall, along with existing MHWS (RL 2.12mCD) and MLWS (RL 0.3mCD).

The reclamation area will be held in place by a revetment wall (refer **Figure 55** typical cross section plan (A)), which will comprise an outer layer of interlocking concrete armour units and an inner layer of 0.3-1 tonne rocks overlying a core of rocky fill material.

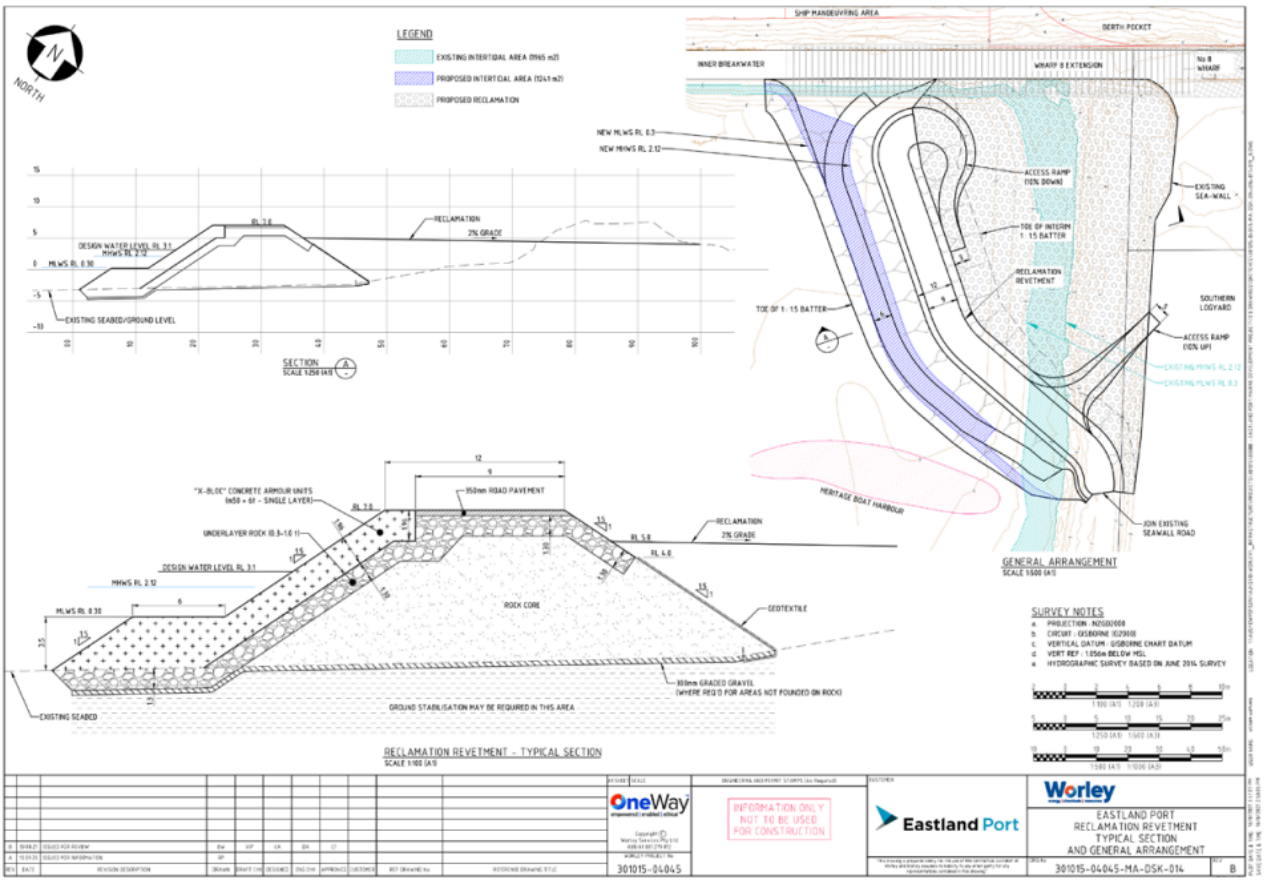


Figure 55: Proposed Reclamation Site & Typical Cross Section Plan

Once the new revetment wall is in place, part of the existing rock and rubble revetment along the outer edge of the Southern logyard will be removed to accommodate the reclamation area. This will affect an approximately 130m

length of wall. Suitable material from this revetment will be reused as fill material within the reclamation along with rocky granular fill.

The outer revetment wall and the inner reclamation fill area will be paved so they can accommodate heavy vehicles. They will be higher than the adjacent Southern logyard so as a result there will be some associated land-based earthworks.

The report notes that the section of wall to be removed is approximately 20m wide and the removal works will extend from the top (at around RL 7.0) down to approximately MHWS (at RL 2.12).

Figure 56 contains a photograph of the existing logyard revetment wall.

Figure 56: Photograph of Southern Logyard Revetment Wall that will be partially removed

Revetment demolition will be undertaken in accordance with a Contaminated Soil Site Management Plan that details the necessary procedures to mitigate any potential unexpected human health and environmental risks and procedures for managing unexpected discoveries of contamination. Suitable material will be incorporated into the reclamation, with debris and unsuitable materials removed from the site and disposed of at any appropriate facility(s).

Seabed Contours, Design Level and Relationship to MHWS and MLWS

The seabed contours in the affected area, are shown on the Worley plans. They are taken from the 2014 survey undertaken by Hunter Hydrographic Services. The plans show the positions of MHWS (2.12mCD) and MLWS (0.4mCD). The RL 3.1m design water level shown on the plans for proposed reclamation include allowances for extreme storm surge of approximately 0.4m and future sea level rise of approximately 0.65m.

6.4 Proposed Works and Materials

Proposed Works

Figures 3.2-3.4 in the Worley report show the proposed works in more detail. They are reproduced in **Figure 57, Figure 58 and Figure 59** of this AEE. The Worley report notes that the following construction works are involved:

- Ground stabilisation below the reclamation and revetment area to treat unconsolidated alluvial sediments. This may be required to improve the foundations of the revetment and reclamation area and prevent excessive long-term settlement.
- Earthworks associated with removal of part of the existing Southern logyard revetment and construction of the reclamation.

- Construction of an armoured revetment around the perimeter of the reclamation area, to protect it against wave overtopping and provide vehicular access for trucks between the new revetment, existing roadway along the crest of the existing southern revetment/logyard area.

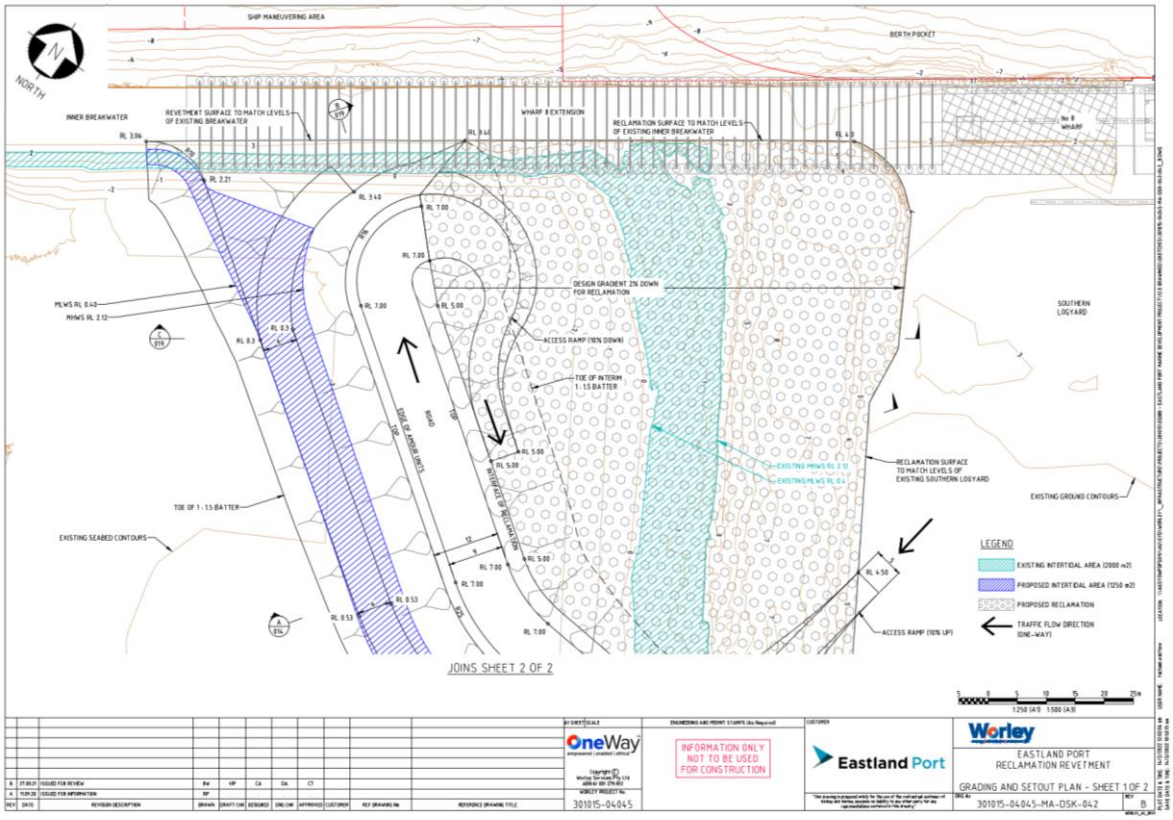


Figure 57: Plan of Northern Reclamation Area Design & Vehicle Access

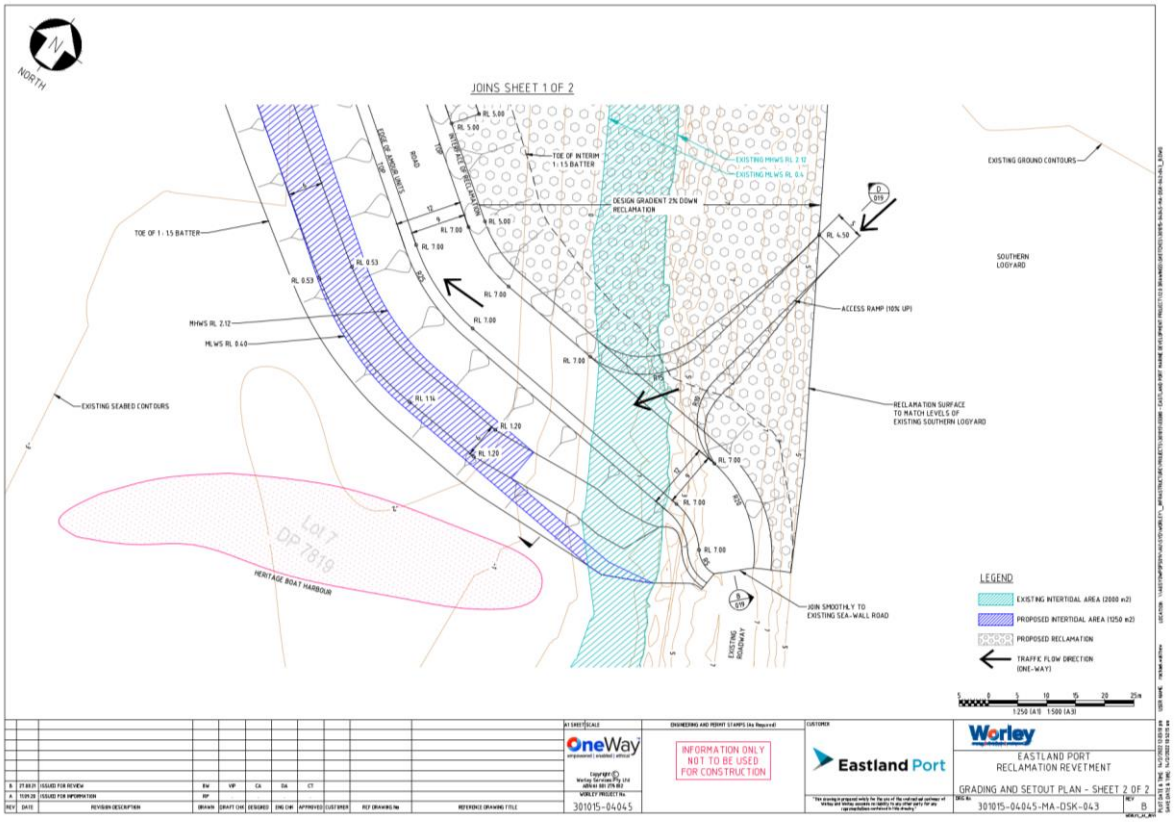


Figure 58: Plan of Southern Reclamation Area Design & Vehicle Access

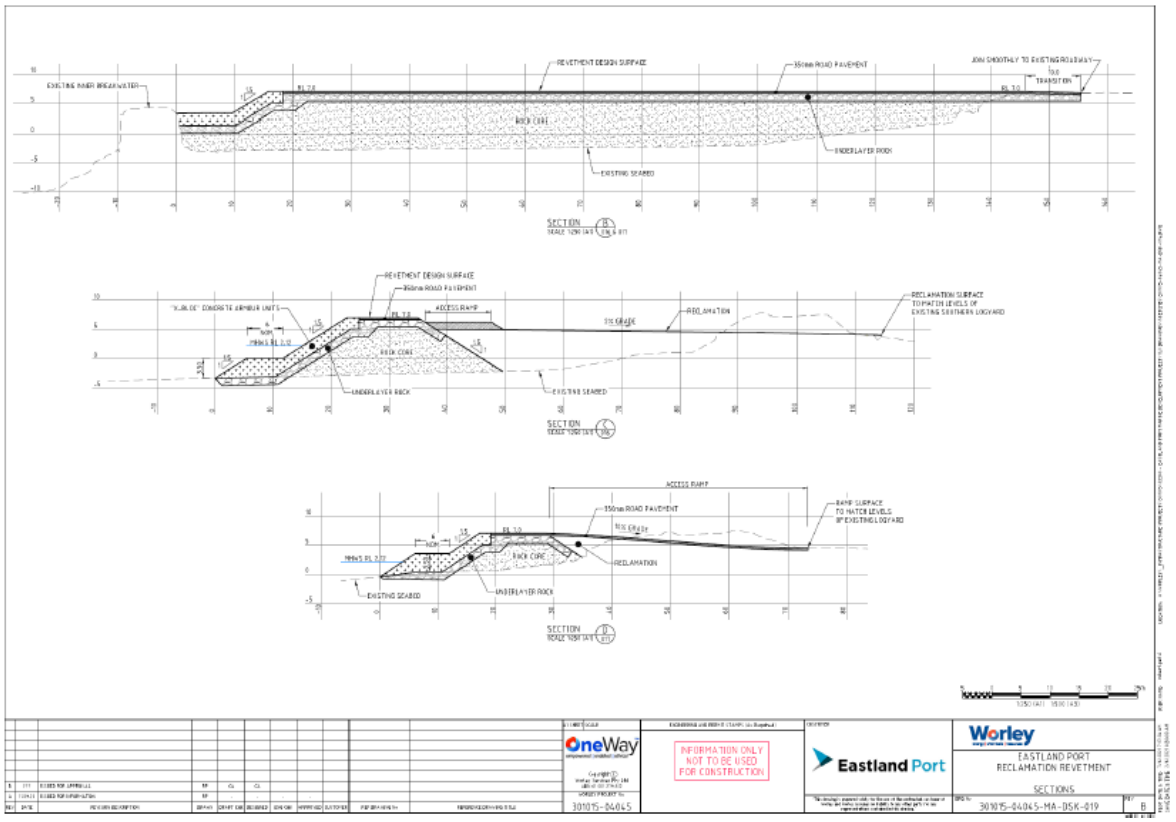


Figure 59: Reclamation Long Section and Cross Sections Plan

Materials Required

Table 1 in the Worley report outlines the quantities of imported material expected to be required to construct the reclamation, including the revetment. The estimated volumes are:

- Reclamation (300mm gravel road base) - 2,000m^2
- Revetment core (rock) – 19,500m^3
- Underlayer rock (1.3m thick) – 4,300m^3
- Revetment concrete armour units - 7,800m^3
- Reclamation fill -17,000m^3
- Ramp fill (from revetment crest to logyard) – 3,000m^3
- Road pavement (300mm deep) - 500m^3

The total quantity of materials required (excluding that involved with likely ground stabilisation) is approximately 54,100m^3.

Possible Reuse of Capital and Maintenance Dredged Material

Section 8.1 of the Worley report assesses the possible reuse of the sandy/silty and weathered mudstone/siltstone material from the proposed capital dredging operations in the Outer Port reclamation. This would reduce the volume of material to be disposed of at the OSDG. However, the report notes this material has poor engineering qualities, with low strength, poor tillage and drainage characteristics, which make it unsuitable for use within the reclamation as engineered material without significant ground improvement. It is also noted that any rocky material obtained from dredging would comprise slightly weathered mudstone and siltstone, which would be unsuitable for use in the proposed reclamation works, as the rock is likely to break down over time due to abrasion.

The report finds that if the capital and/or maintenance dredged material was to be considered for use within the reclamation, very time-consuming ground improvement works, such as surcharging with wick drains, would be required before the land could be used by loaded logging vehicles. As a result, it could be several years before a suitable level of improvement was achieved. Soil mixing techniques, such as the use of lime or cement, would not be sufficient to allow the use of dredge material within the reclamation area and would not be economically viable against the reuse of suitable material from the existing seawall and imported clean fill. Soil mixing techniques have previously been costed at $150-$200/m^3 for other Eastland Port projects.

The report records the discussions with potential contractors to assess constructability constraints. They indicate, for the construction of the revetment and reclamation foundations, the possible risk of subsidence during construction due to the localised presence of unconsolidated alluvial sediments. However, the report notes that the risk can be managed by placement of additional rock core material where needed to displace the soft sediment layer, as opposed to ground stabilisation works below the revetment.

The report records that a geotechnical analysis for the proposed reclamation area, assuming non-compressible granular fill, has been undertaken to estimate potential long-term settlement. Settlement in the area adjacent to the Southern logyard (where shallow rock and stiff/dense paleo channel sediments are expected) is estimated to be approximately 100mm over the life of the project, which is considered to be acceptable. The report considers that use of capital and/or maintenance dredged material within the reclamation area would significantly increase this potential settlement to an unacceptable level.

6.5 Proposed Wharf 8 Truck Access

The approximate extent of the access required for log trucks and other heavy vehicles to access the extended Wharf 8 is shown in the Worley plans. A roadway approximately 9m wide with 3m shoulders will come off the existing Southern logyard seawall roadway and have a vehicle turning area (of approximately 28m diameter) at the northern end. Two approximately 5m wide access ramps are shown providing access from the extended Southern logyard seawall/reclamation revetment wall down and up to the lower level logyard and reclamation area.

The Worley report notes that the access ramps are designed to facilitate a safer one-way flow of traffic along the top of the revetment without the need for a turnaround area at the top of the revetment.

Figure 59 contains a long section plan (Section B) of the proposed revetment along the line of the proposed roadway extending from the outer (Inner breakwater) end around to the inner (Southern logyard) end. Cross sections C and D in the same plan are through the roadway turnaround area and access ramp.

6.6 Proposed Revetment Design

Function & Components

Section 3.2 of the Worley report describes the function and design of the revetment wall. It is primarily to provide protection to the reclamation from erosion due to wave action and lower the risk of wave overtopping onto the reclamation. The revetment will also assist with protection of the extended Wharf 8 structure and the provision of vehicular access from the Southern log yard to this wharf.

The revetment will consist of a crushed-rock core, a secondary rock armour layer, nominally comprising 0.3-1.0 tonne rock boulders, and a primary (or outer) armour layer. The Worley typical cross section plan (A) shows the inner under layer being approximately 1.3m wide and the outer concrete armour being approximately 1.96m wide.

The total revetment wall width will be approximately 3.26m. A revetment toe being a 'nominal' 6m wide and 3.5m deep, is also shown on the Section A typical cross section plan. The footprint of the Reclamation Area has been designed to avoid the Heritage Boat Harbour site, with a buffer of at least 5m provided to avoid construction impacts at the landing site. The report notes that the construction of revetment toe is likely to involve the removal of material or ground stabilisation to treat the soft alluvium beneath the foundations. This work would improve the geotechnical stability of the revetment and prevent long-term settlement of the reclamation area. It is explained in more detail later in this report.

Revetment Wall Height

The Worley plan shows the crest of the revetment, which will be approximately 9m wide, being at RL 7.0mCD. The top of the revetment will have a rock road base (DGB20 or similar), along with asphaltic/concrete seal surface nominally 50mm thick, which like the reclamation itself, can be used by trucks. As noted in the Worley report, the top of the revetment at RL 7.0 will be the consistent with the existing Southern logyard revetment, which varies, but is generally at RL 7.0.

The coastal processes and geotechnical engineering basis of the revetment wall height is explained in Section 3.2 of the Worley report, primarily with reference to the results of wave tank modelling. The Worley general arrangement plan in **Figure 55** shows the current positions of MHWS and MLWS, along with their expected positions following completion of the reclamation. Once completed the upper approximately 4.9m of the revetment wall will be visible, whilst at MLWS approximately 6.7m will be visible. The reclamation itself will be at least 2m lower (at RL 5.0mCD) and then graded at a 2% slope to match the existing Southern logyard reclamation.

6.7 Proposed Concrete Armour Units

Section 3.2.2 of the Worley report describes the 6-tonne proprietary concrete armour units (X-bloc, or possibly Accropode or Core-loc) expected to be used in the project. **Figure 60 and Figure 61** contain photographs of the X bloc units in a yard and in place on similar projects taken from the Worley report. The units shown in the photograph are larger than the 6 tonne units that would be installed on the revetment, which would be 2.0m in height/width.

Section 3.1 notes that approximately 1,300 concrete armour units, each of approximately 6 tonnes, are expected to be used to construct the outer revetment wall. Section 3.2.1 explains the 3-dimensional scale modelling undertaken by the Manly Hydraulics Laboratory (MHL) in conjunction with Worley to determine the size, shape and finished height of the armour. The modelling was based on the angle of wave incidence and other coastal processes affecting the site.

Figure 60: Photographs of Concrete Armour Units Expected to be Used on the Proposed Reclamation

Figure 61: Photographs of Concrete from Similar Reclamation Projects

6.8 Proposed Earthworks

Land and CMA Based Works

Section 3.1 of the Worley report describes the earthworks involved in construction of the reclamation and associated revetment wall. The term 'earthworks' is used in the Worley report to describe the disturbance of the land both above MHWS (on 'dry' land) and below MHWS (on 'wet' land in the CMA), which are the subject of separate rules in the Tairāwhiti Plan. For the purposes of the Proposal description the different areas/volumes of material in the CMA and on land have not been distinguished. They are later in this AEE in relation to the different port management zones/overlays and other plan rules.

Fill Material and Surfacing

The report notes that the reclamation core will consist of granular fill (17,000m^3) and be topped with a suitable road-base material such as DGB20 (500m^3). This is so the pavement can withstand log handling equipment loads, provide adequate surface drainage and reduce maintenance costs associated with the equipment damaging the ground surface. The top pavement is to be designed based on the shuttle trucks, container handling equipment and highest load log handling equipment currently utilised at the port.

Sections 3.1, 6.4 and 7.3.2 of the Worley report discuss the nature, including 'cleanliness' of the rock material to be used including the bund core (19,500m^3) and the fill material and the associated mitigation measures to be put in place to control sediment discharges into the CMA. They are summarised later in this report in relation to the methods of construction and associated staging of the works.

6.9 Southern Logyard Seawall Demolition

Part of the existing southern logyard rock/rubble revetment wall, where it is within the proposed reclamation footprint area, will be removed, with suitable material to be reused within the adjacent proposed reclamation.

The 4Sight DSI concludes that, in terms of concentrations of contaminants of potential concern, soil is generally suitable for re-use/retention on-site from a human health and environmental risk perspective. It is, however, anticipated that some material may be unsuitable for reuse in the reclamation (for example due to engineering stability), and some sorting of material on site may be required.

All works associated with removal of the existing southern logyard seawall will be undertaken in accordance with a Site Management Plan (SMP) prepared by a Suitably Qualified and Experienced Person (SQEP), which details the necessary procedures to mitigate any potential unexpected human health and environmental risks, and procedures for managing unexpected discoveries of contamination.

Further, given the identified presence of Asbestos Containing Matter (ACM) pipe in the sub-surface, soil disturbance works will also be undertaken in accordance with WorkSafe's Approved Code of Practice, the New Zealand Guidelines for Assessing and Managing Asbestos in Soils (NZGAMS) guidelines for Class B asbestos removal, and be overseen by a licenced asbestos removalist.

Any seawall material that cannot be reused in the reclamation and requires removal from the site will be disposed of at a suitably licensed facility, while any soil that is to be imported to the site for use in the reclamation or for the purpose of reinstating the ground in the vicinity of the removed seawall will be cleanfill.

6.10 Possible Alternative Designs and Materials

Alternative Designs

Section 5.2 of the Eastland Port Twin Berths project Alternatives Assessment Report outlines the feasibility of constructing an alternative deck on pile or other similar structure instead of a reclamation. This assessment is provided, in light of the policy directives on alternatives in the NZCPS and Tairāwhiti Plan that effectively require such an assessment.

The key finding of the Eastland Port report is, given the areas exposure to an energetic wave climate, a revetment is required to protect the area from wave action.

Alternative Materials

Section 8.3 of the Worley report outlines the reasons for using interlocking concrete armour units for the rock revetment wall, rather than rock or pattern-placed units. They are the same as those outlined earlier in relation to the Outer Breakwater upgrade

The use of rock is not recommended because the local quarries do not have rock of appropriate size or quality to be used as armouring in what is a very high energy coastal environment. Pattern-placed units, such as Seabees, are also not recommended because the revetment needs to be flexible in response to settlement and wave loadings. Also, pattern-placed units require very tight tolerances for placement and are more difficult to install, especially in high energy environments.

6.11 Heritage Boat Harbour Considerations

Location of Remaining Boat Harbour Elements

The InSitu report in **Appendix I** documents the historical record and other investigations into the location of the Heritage Boat Harbour and its likely remaining elements. The key records, including the effects of past port development activities on the Boat Harbour, in Sections 5 and 6 of the report, were highlighted earlier in this AEE.

Eastland Port and 4Sight investigations show that the only known survey plan to record the location of the Boat Harbour is the 1915 Gisborne Town Plan. It recorded a "Boat Harbour- Captain Cook Landing Place.'' It has been transposed onto a 2018 port layout plan and is reproduced in **Figure 62**. This plan indicates the 'boat harbour' was approximately 140m along the Southern logyard revetment wall. This plan also indicates that only a very small part of the Heritage Boat Harbour extends beyond the existing Southern logyard revetment wall and effectively remains in place now.

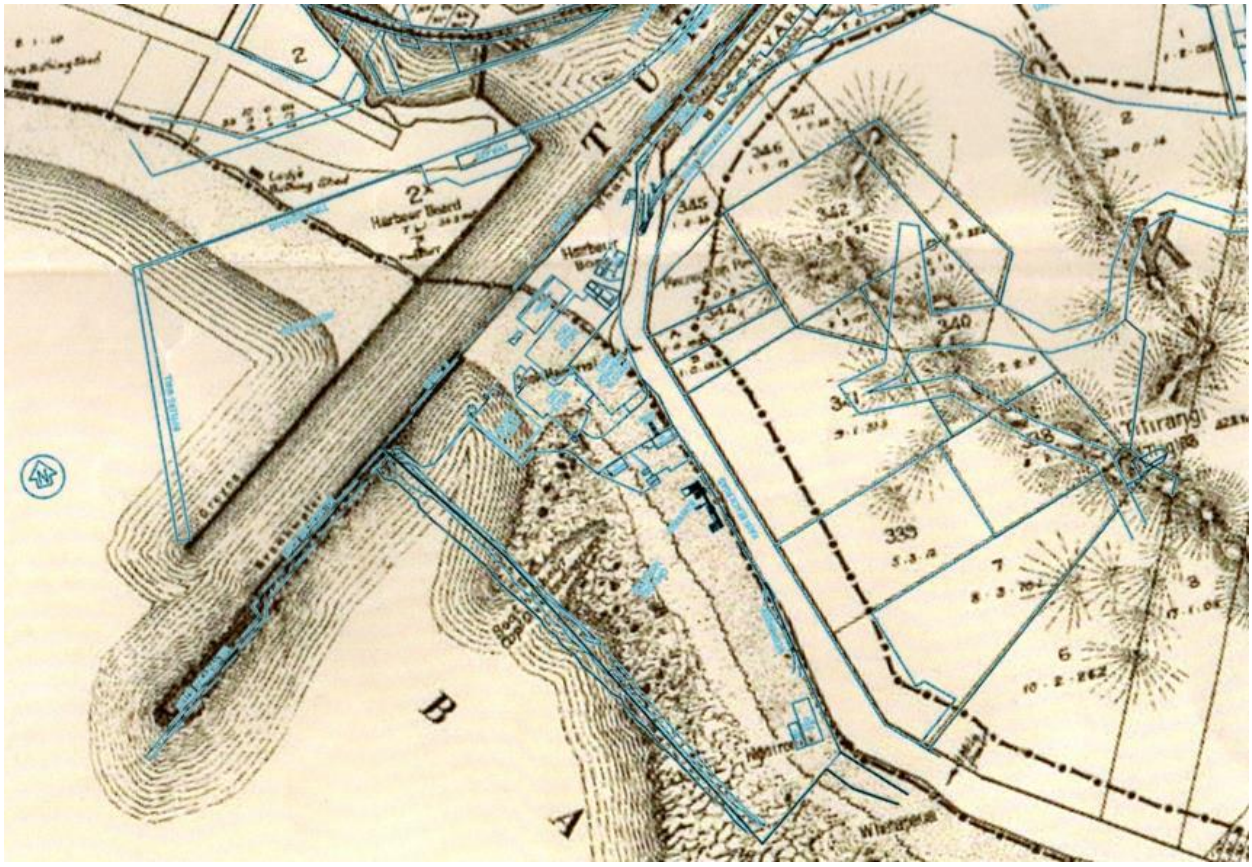


Figure 62: Gisborne Town Plan of 1915 Showing Heritage Boat Harbour Overlaid on Current Port Layout Plan

Source: Eastland Port

Aerial photographs of the port in 1982 (prior to the most recent Southern logyard reclamation) show two patch reefs and a shallow area of water in between that are considered to constitute the remains of the Boat Harbour at this time. The approximate extent of the current port, including the Southern logyard, is overlaid on one of these aerials and reproduced in **Figure 63.** It shows the approximate extent of the Boat Harbour that was lost with the Southern logyard reclamation and the parts that remain, being the two areas of patch reef and 'shallow' water area in between.

Proposed Reclamation Separation Distance

Section 7.3 of the Worley report notes that the footprint of the reclamation area and revetment wall has been designed to allow a minimum distance of 5m from the northern edge of the northernmost patch reef, which has not been surveyed at this point.

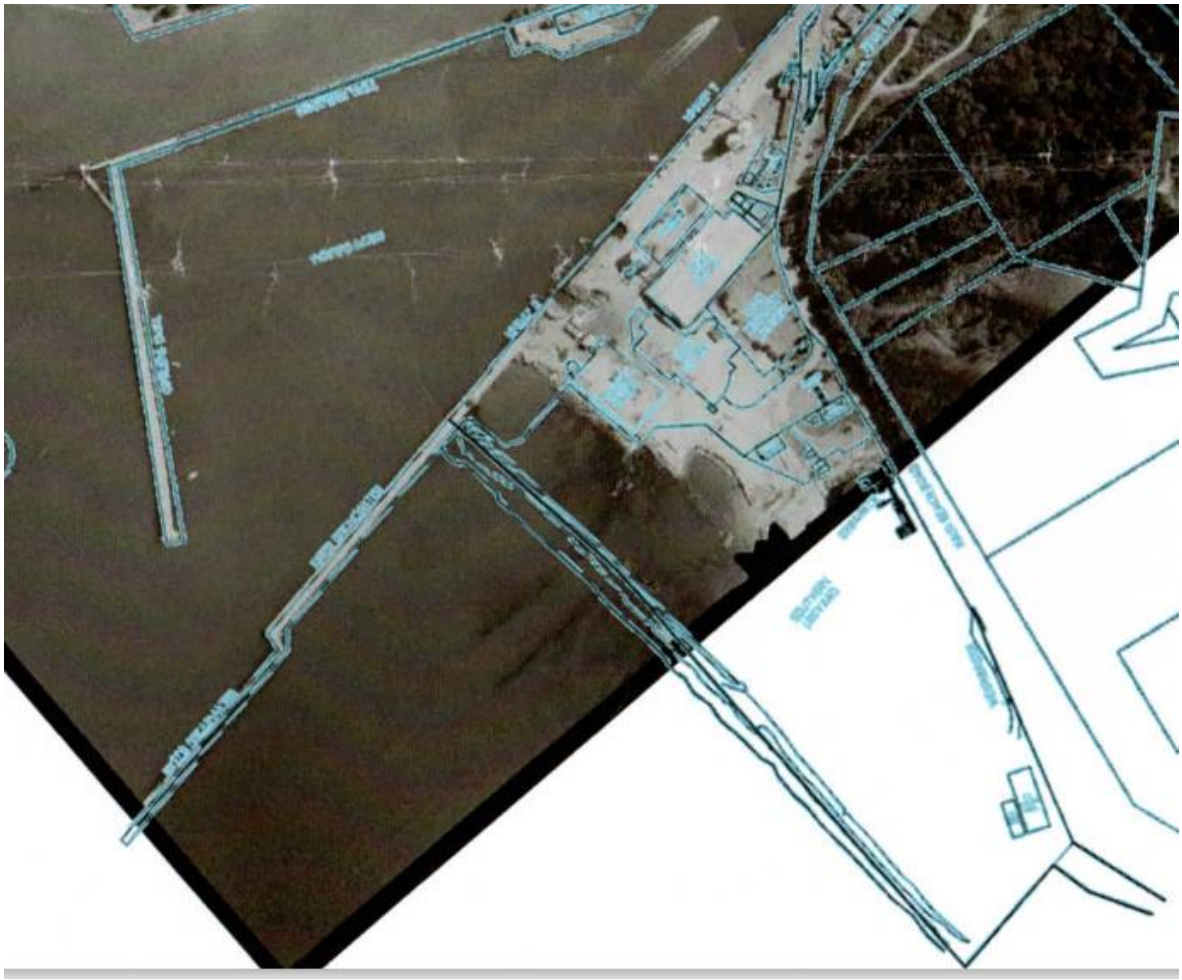


Figure 63: Current Outer Port Layout Overlaid on 1982 Aerial Photograph

Source: Eastland Port

6.12 Construction Timing and Staging

Section 6.2 of the Worley report sets out the construction aspects of the proposed reclamation.

Timeframe

The construction works are expected to take approximately three years to complete.

Proposed Stages

The five-stage construction process (in addition to site/plant mobilisation and demobilisation), is illustrated in Section 5 of the report, that is reproduced as **64** in this AEE.

The construction stages are expected to be:

- Stage 1- Working Platform Construction (6-12 months). This involves construction of a working platform to RL 3.0mCD for equipment from the existing Southern logyard. It will be built out in discrete 'bands' from the south-eastern corner and move in a north-westerly direction towards the inner breakwater. The working platform will comprise crushed rock fill or quarry run, possibly with suitable material from within the existing logyard revetment wall. The approximate extent of the working platform of 2,900 m^2 (20m by 145m) is shown in yellow in the Worley figure. Some ground improvement works may be required as the works proceed because the seabed material is expected to be softer and deeper moving out from the shoreline. The working platform would be protected with armor units as it is constructed, to minimise the area of rock core material that is exposed to wave action during construction.

- Stage 2 - Revetment Toe and Wall Construction to Half Finished Height (5-7 months). The revetment toe and lower revetment wall are then expected to be built around/over the working platform also in 'bands', concurrently with the construction of the working platform in Stage 1, progressively working out from the south-eastern corner towards the inner breakwater. The lower revetment wall is to be built at around RL 3.5mCD with concrete armour units to provide sufficient protection to the working platform from wave action during construction. The wall will be approximately 'half' of the finished revetment wall height (RL 7.0mCD). Ground improvement works may also be required for the toe construction area if any softer material is encountered as the works proceed. The progressive armouring of the working platform rock bund will protect it from wave action and loss of material. The half-finished height bund/revetment wall will connect to the largely completed Wharf 8 extension and effectively enclose the undeveloped inner reclamation area, which will contain some enclosed sea water (3 months).
- Stage 3- Progressive Construction of Revetment Wall to Finished Level (9-12 months). This stage involves progressively raising the revetment wall and armouring to around RL 6.0mCD (4-6 months) and then up to the finished level of RL 7.0mCD (2-3 months). Then a road pavement for easier construction vehicle access will be formed along the wall crest (1-2 months). As construction of the revetment progresses, geotextile fabric will be installed on the inside edge, and cover with quarry run material to prevent deterioration of the geotextile (1 – 2 months).

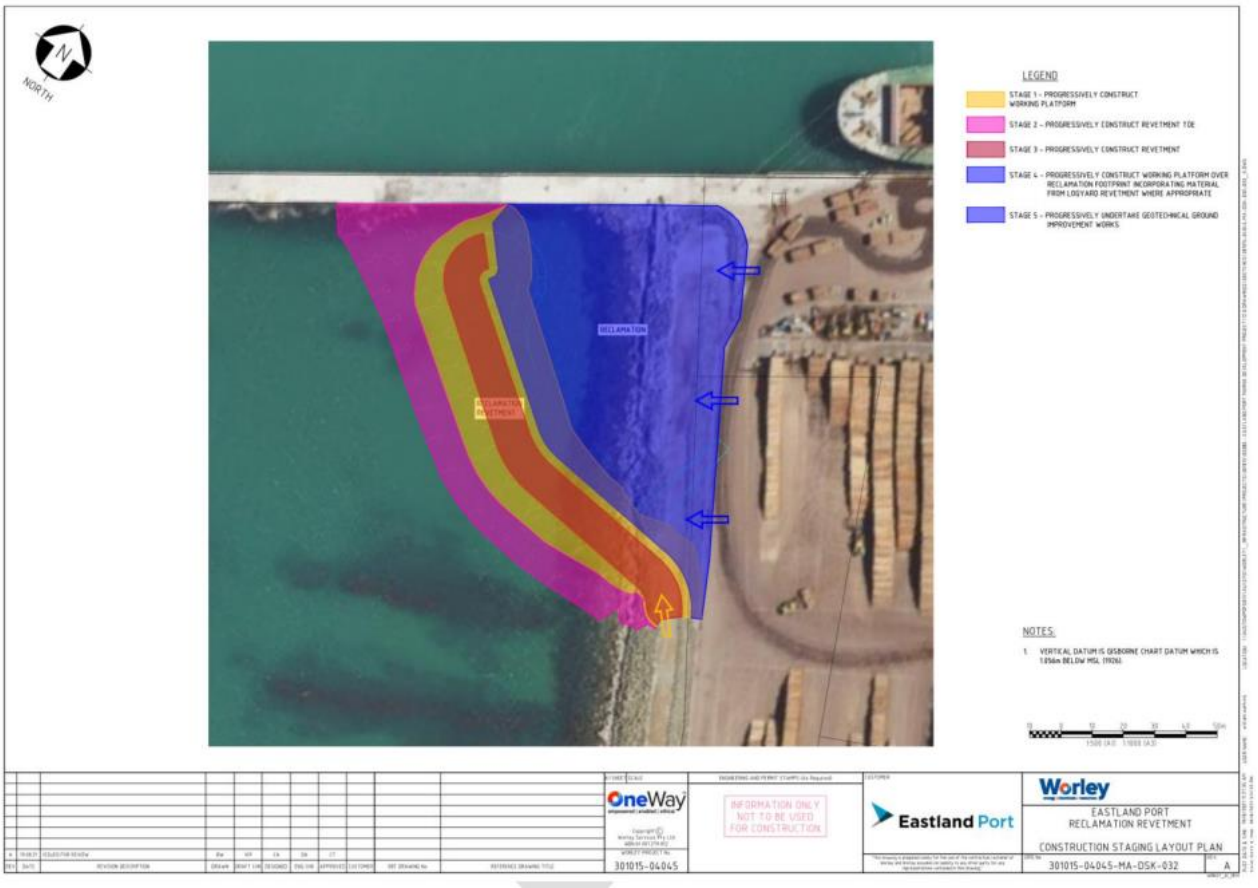


Figure 64: Proposed Reclamation Construction Plan

- Stage 4 – Additional Working Platforms for Ground Improvement Works (4-6 months). This stage involves construction of further working platforms up to around RL 3.0mCD out from the existing Southern logyard from which further ground improvement works may be undertaken, generally in areas 10-15m wide. The areal extent of the possible ground improvement works for the inner fill have not been determined at this point, but they will all be within the fully enclosed revetment wall area that will contain some entrapped seawater.
- Stage 5 –Construction of Inner Reclamation Area (4-6 months). The final stage involves filing of the inner reclamation area, also in 'bands' or discrete areas, to finished level and grade using engineered fill/crushed rock and then surfacing it suitable for heavy traffic use. This work is expected to be undertaken from both the Southern

logyard area and newly completed revetment wall. The enclosed seawater will filter out through the revetment wall as the reclamation area is progressively filled.

6.13 Likely Ground Stabilisation Works

Section 6.5 of the Worley report outlines the nature of the ground stabilisation measures likely to be undertaken as part of the revetment wall and reclamation fill construction process. It documents the four different possible measures being, deep soil mixing combined with high strength geofabric, mass stabilisation, a combination of both, and jet grouting. Figures 6.4-6.6 in the report contain illustrative diagrams of the different possible ground stabilisation measures.

Deep Soil Mixing (DSM) combined with High Strength Geofabric

This involves the mixing of the grout with in-situ soil using a rotary mixing auger as shown in Figure 4 of the report. The cement binder is applied under pressure with the outcome to consist of a number of interlocking column panels. In turn, this will increase the ground bearing pressure and minimise the magnitude of settlement as well as reducing the risk of differential ground movements. The report notes that this would involve founding the interlocking columns on the competent paleochannel sediments below the soft sediments.

Mass Stabilisation

Mass stabilisation is described as a ground improvement method where the soft soil mass is mechanically mixed with dry binder to improve its engineering characteristics to a maximum depth of 5-6m as shown in the Worley report figure. The Worley report notes that with this technique, the binder is pulverised under high air pressure and then mixed with the in-situ soil using an excavator with an extension holding a special rotating head. The choice of binder depends on the soil moisture content, and it could consist of either cement or mixtures of cement and lime.

Combination of DSM and Mass Stabilisation

This involves a combination of mass stabilisation and deep soil mixing (DSM) columns. Mass stabilisation over a depth of 2.0m to 3.0m may be adopted to create a stable working platform with a sufficient bearing capacity to support the operating forces imposed by the deep soil-mixing equipment, followed by interlocking DSM columns to deeper depths if required.

Jet Grouting

This technique involves the use of rotating nozzles at the end of a hollow tube to inject binder using high pressure jets and may be appropriate for improving the stability of the Outer Breakwater refurbishment. Pre-drilling through seabed obstructions would be required to allow insertion of the rotating nozzles for treatment to a depth suitable to provide adequate support for the breakwater structure. The injection pressure may be varied to create large diameter columns of in-situ soil mixed with the binder agent. Figure 6 in the report shows the methodology employed during the jet grouting process.

Extent and Timing of Works

The Worley report notes that ground stabilisation works may be required throughout the construction although are most likely in Stages 1, 2 and 4. Table 1 in the report indicates that if ground stabilisation works are required then up to 2,500m^3 could require removal for construction of the rock core/revetment wall and another up to 5,000m^3 could require removal before construction of the fill area.

6.14 Reclamation Related Sediment Discharges

Working Platform and Revetment Wall Construction

Section 3.1 of the Worley report notes that the working platform is to be constructed from locally sourced rock material that will form the core of the proposed revetment. Table 1 in the report records that approximately 19,500m^3 of rock material is to be used in the completed revetment wall.

Section 3.1 notes that the rock bund will be progressively armoured as it is constructed and at any one time only the leading edges of the working platform would remain unprotected by concrete or secondary rock armour units. It is estimated that no more than 40m^2 of unprotected core area would be below MHWS at any one time as it is

progressively constructed towards the north-west and would therefore be a potential source of fine sediment to the CMA.

Section 6.2 of the Worley report discusses the proposed heights of the working platform at RL 3.0mCD, then its progressive raising and armouring to RL 3.5mCD, then RL 7.0mCD. Once Stage 2 and 3 of the works is complete and the proposed reclamation area has been enclosed by the full height of the revetment and working platform, construction of the inner contained fill area would commence as this would be protected from wave overrun and possible damage.

Section 6.2 notes that geotextile cloth is proposed to be used on the inner revetment wall face but not on the outer revetment wall face.

This is because of its high energy exposure and likelihood of any cloth promoting instability and movement of the armouring. The Worley typical cross section plan shows the positioning of the geotextile cloth between the inner rock core face and the reclamation fill material.

Section 7.3 of the Worley report discusses the relatively permeability of the armouring and its ability to prevent the loss of fine material from the crushed rock core. The core would be armoured by a secondary rock armour layer that would be designed to act as a rock filter and prevent fines from migrating through the outer armour layers.

The secondary rock armour layer would be designed so that the armour rocks are large enough to not be washed through the voids between the concrete armour unit layer. Although the two layers of concrete armour will be approximately 2m deep the concrete armour layer would comprise approximately 60% voids by volume.

Section 3.1 of the Worley report notes that the working platform is to be constructed from locally sourced rock material that will form the core of the proposed revetment. Table 1 in the report records that approximately 19,500m^3 of rock material is to be used in the completed revetment wall.

No Reclamation Area Dewatering

Section 3.1 of the Worley report describes how the reclamation fill operations (behind the new revetment wall) are to be carried out and how the 'trapped' seawater is expected to dealt with. As the reclamation area is filled, the seawater 'trapped' behind the revetment is expected to simply filter through the structure and no engineered dewatering is expected.

6.15 Investigation of Public Access to the Heritage Boat Harbour

Existing Situation

The remains of the Heritage Boat Harbour are not readily accessible to the public because of their location on a very exposed section of coastline some distance from the parking and other facilities in the northern Kaiti Beach area. No public access is possible through the Southern logyard and the security fence around the outer edge of the logyard makes it very difficult to access the area using the revetment wall. Low tide access to the Boat Harbour is possible, although it involves traversing large areas of rocky reef and a walk of approximately 500m from the existing carpark.

Waikahua Seawall Project Public Walkway

The improved public access to the northern Kaiti beach area that will result from completion of the Waikahua Seawall project were outlined earlier in this report. The walkway and other works will considerably enhance public access to this area, but not to the area much further north where the heritage boat harbour is. The large intertidal Kaiti reef area, along with the remaining (not upgraded) section of Southern logyard seawall to the north will continue to provide a significant obstacle to public access along this section of the coast, even at low tide. **Figure 65** shows the extent and nature of the public walkway facilities being constructed as part of the Waikahua seawall upgrade project.

Figure 65: Plan of Waikahua Seawall Walkway

Source: Eastland Port

The seawall upgrade is now largely complete.

Investigation of Possible Walkway Extension to the Heritage Boat Harbour

The Waikahua Seawall walkway will provide all tide access to the south-eastern corner of the Southern logyard. This corner of the logyard is approximately 400m to the south of the Heritage Boat Harbour. Eastland Port have carried out investigations into extending the walkway north to the Heritage Boat Harbour following completion of the Outer Port Reclamation.

However, because of the need to manage health and safety risks and to protect and enhance the le Kororāhabitat along the Southern logyard seawall, starting with the Waikahua section, public access along this same area is not feasible. **Figure 66** shows the approximate extent of the walkway extension that was investigated by Eastland Port. It was the red lined area from the end of the Waikahua seawall walkway (shown in purple) to the boat harbour access labelled on the plan.

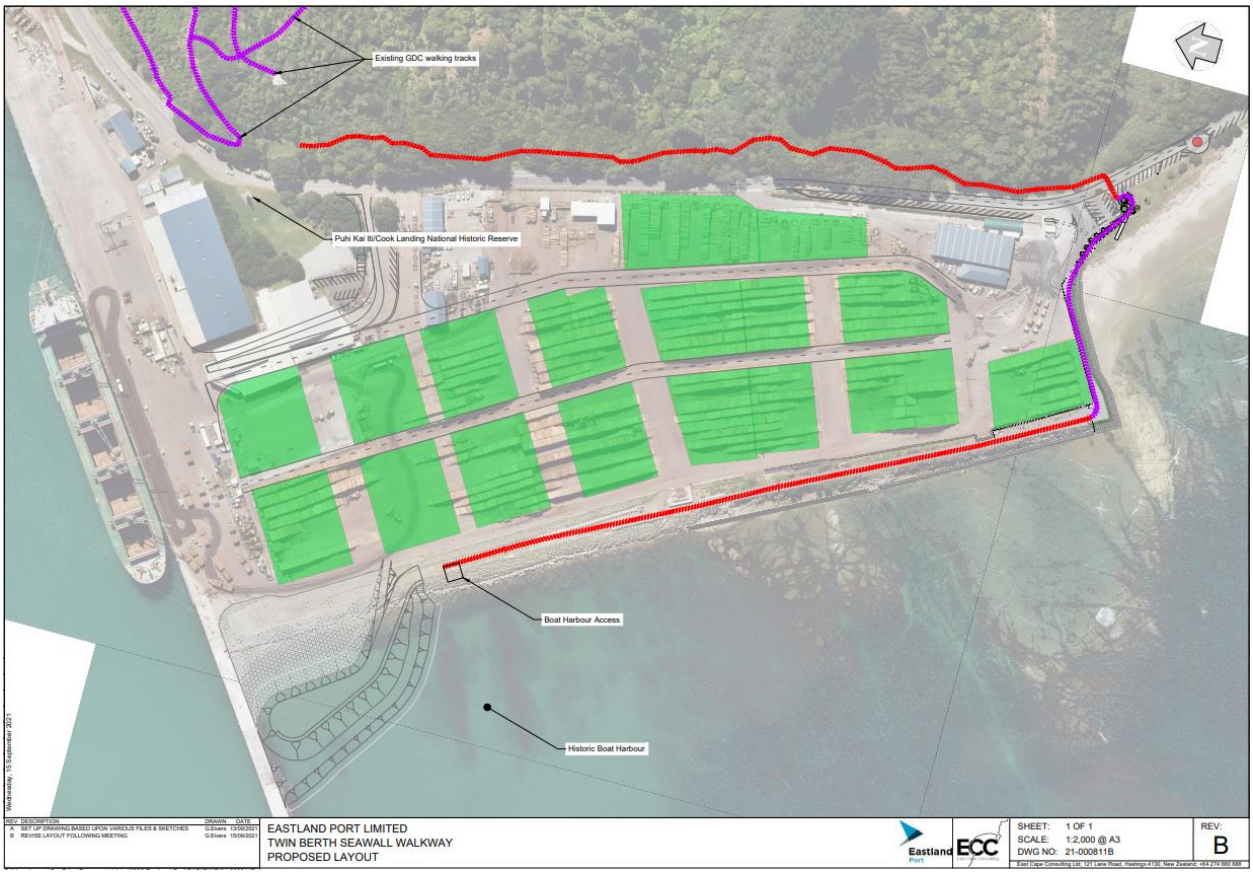


Figure 66: Plan of Walkway Route Investigated to the Heritage Boat Harbour

Proposed Reclamation Esplanade Area Considerations

The District Council has powers under Section 108(2)(g) of the RMA to require an esplanade reserve or esplanade strip of any width be set aside on the proposed reclamation. Such reserves or strips can be of any width in accordance with the procedures in Part 10 of the RMA and provisions in the Tairāwhiti Plan. However, most are between 3m and 20m wide and commence from MHWS, not the lowest point or 'toe' of the reclamation.

The Tairāwhiti Plan rules do not require esplanade reserves and strips on reclamations. However, the plan policies suggest such provision is generally expected to be made. Policy C3.5.3(9), however, creates an exception to this directive "*Where the provision of esplanade reserves, esplanade strips or covenants would not promote the sustainable management of natural and physical resources."*

Under s30 of the Marine and Coastal Area Act all approved reclaimed land vests in the Crown (rather than the Council), with the Crown's ownership interests being managed by the Minister for Land Information and Land Information NZ (LINZ). However, as a port operator, as defined in Part 3A of the Maritime Transport Act 1994, Eastland Port is eligible to, and intends to, apply to the Minister for the grant of fee simple title of the reclaimed land.

7 OUTER BREAKWATER UPGRADE

7.1 Overview

The Outer Breakwater upgrade involves placing purpose built 24-30 tonne concrete armour units along each side of the approximately 200m long outer breakwater and a concrete capping along the top of the refurbished facility. The re-armouring works will be carried out after initial ground stabilisation works are undertaken.

Section 2.1 - Need for Redevelopment, of the Worley report briefly outlines the basis of the proposed outer breakwater upgrade in relation to its poor current condition and the underlying geotechnical conditions. As noted earlier the structure has been settling for the last seventy years, whilst some sections have failed and are below MHWS.

Key Components

Section 4 of the Worley report describes the outer breakwater upgrade works with reference to Worley Figures 4.1 & 4.2, which are reproduced as **Figure 67 and Figure 68** in this AEE. Section 3.2 contains information of the proposed armouring units, whilst Section 4.1 outlines the quantities of material involved. Section 6.3 explains the construction sequence.

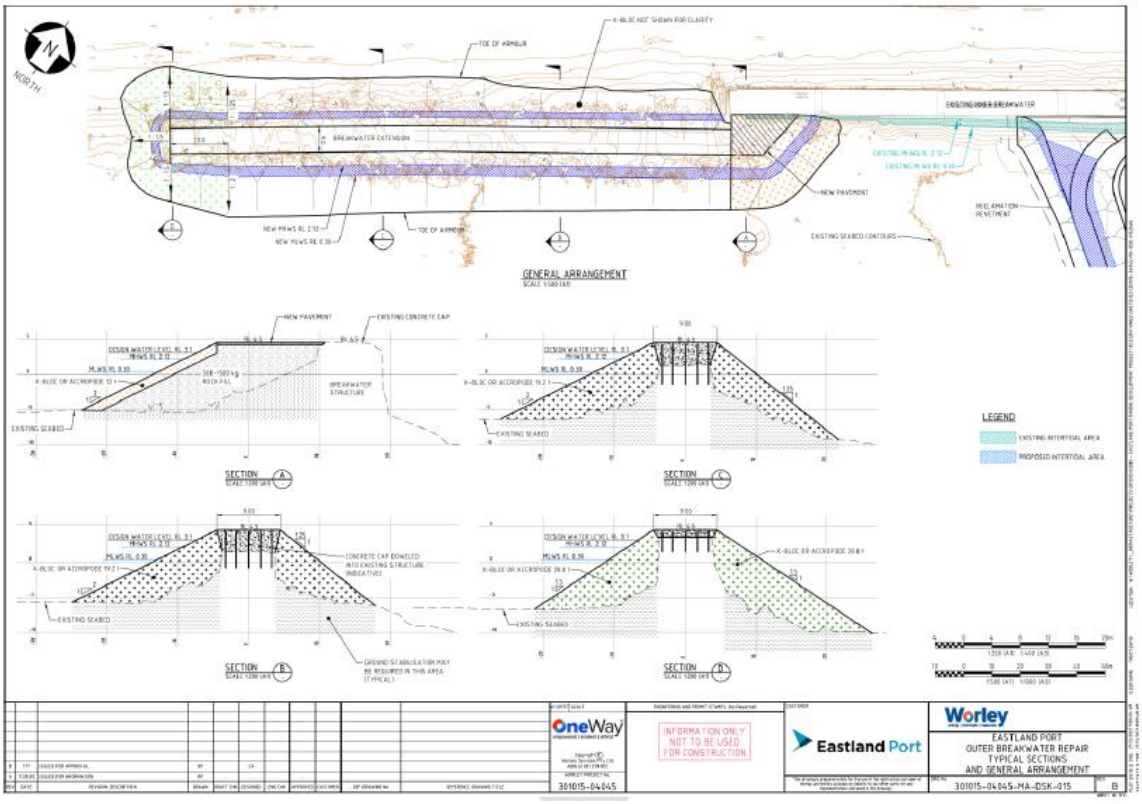


Figure 67: Outer Breakwater Upgrade Site Plan & Typical Cross Sections

The key components of the proposed breakwater upgrade are:

- Interlocking concrete armour units are to be placed each side of the structure over a distance of approximately 195m.
- A small area of re-armouring of the inner breakwater will also occur in an approximately 30m long 'transition zone' (shown brown dotted and hatched in the two figures) to allow construction access. This section will remain in place to provide enhanced maintenance access to upgraded structure.
- The new armour units at the outer or breakwater 'head' are expected be around 28.8 tonnes, with smaller 19.2 tonne units for the inner breakwater 'trunk' and 12 tonne units for the 'transition zone' or knuckle.

- The Southern (Ocean side) slope will be 1V:2H and the Northern (PNC) side slope will be steeper at 1V:1.25H to avoid the shipping channel.
- The top concrete cap will be approximately 9m wide and of variable depth related to the uneven height of the current structure.
- The concrete cap will require epoxy doweling into the existing structure to accommodate horizontal shear from wave forces. It will also be keyed into the new armour units on each side.
- The new armour units and concrete capping are expected to be put in place using the existing inner breakwater although some marine based plant may have to be used.
- The upgraded facility is designed to be capable of accommodating heavy vehicles/machinery.

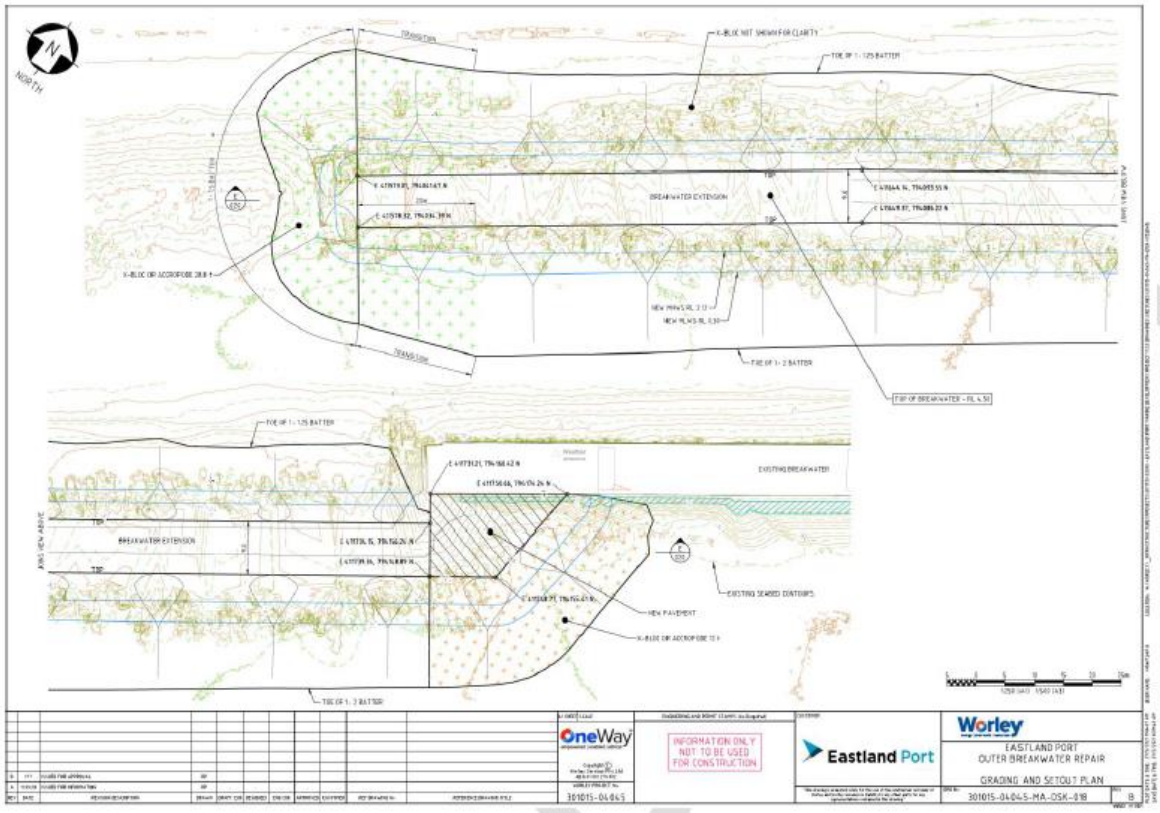


Figure 68: Outer Breakwater Construction Grading & Setout Plan

Seabed Contours, Design Level and Relationship to MHWS and MLWS

The seabed contours in the affected area, are shown on the Worley plans. They are taken from a 2014 survey undertaken by Hunter Hydrographic Services. The Worley plans show the positions of MHWS (2.12mCD) and MLWS (0.4mCD). The RL 3.1m design water level shown on the plans include the same allowances for 'extreme' storm surge (approximately 0.4 m) and sea level rise (0.65m), as for the other project components.

7.2 Reclamation Matters

Tairāwhiti Plan Definition of Reclamation

The Outer Breakwater upgrade effectively involves a form of 'reclamation', as this term is used in the Tairāwhiti Plan, where it is defined as follows.

"*For the purposes of this Plan, reclamation includes both:*

a) *the permanent infilling of the foreshore or seabed with sand, rock, concrete or similar material to form land above the level of Mean High Water Springs (including any embankment, causeway, or rubble mound breakwater which has a vehicle access track); and*

b) *the permanent drying out of any part of the foreshore or seabed below the level of Mean High Water Springs by means of the construction of a causeway, bund, seawall, other similar solid structure, or any combination thereof, which act to exclude coastal water from part of the coastal marine area*." (Emphasis added).

The additional concrete armouring of the Outer breakwater structure will create 'additional land' above MHWS. Also, the top of the new facility will be accessible by heavy vehicles even though it will not contain a defined 'track'.

For the purposes of the current resource consent application, the works to the outer breakwater are, therefore, assessed as a 'reclamation' under the Tairāwhiti Plan

Marine and Coastal Area Act (MACA)

The definition of 'reclaimed land' under te MACA differs from the definition of 'reclamation' under the Tairāwhiti Plan. For the purposes of the MACA 'reclaimed land' is defined as follows:

'means permanent land formed from land that formerly was below the line of mean high-water springs and that, as a result of a reclamation, is located above the line of mean high-water springs, but does not include—

(a) land that has arisen above the line of mean high-water springs as a result of natural processes, including accretion; or

(b) structures such as breakwaters, moles, groynes, or sea walls

Given breakwaters are clearly excluded from the definition of 'reclaimed land' under MACA, the Outer breakwater will not constitute 'reclaimed land' under that Act. Section 18 of MACA will apply to the Outer breakwater structure, which will be regarded as personal property under MACA. It will not form part of the common marine and coastal area and nor will it be subject to EPL's application for fee simple interest in reclaimed land.

7.3 Proposed Outer Breakwater Upgrades

Area of Proposed Reclamation

For the purposes of the current resource consent application, the works to the outer breakwater are assessed as a 'reclamation' under the Tairāwhiti Plan. The existing outer breakwater has a land area of approximately 1,350 m^2 (8m wide by 170m long). The Worley plan in **Figure 55** shows the approximate extent of the proposed reclamation involved, being the 'additional land being formed' between existing MHWS and proposed MHWS as a result of the rock armouring, transition zone and concrete capping works.

The proposed reclamation is estimated to be approximately 2,400m^2 and comprises a strip of land approximately 3m wide on the steeper sloped northern side, approximately 4m wide around the western (outer) end, and approximately 5m wide on the more gentle sloped southern side and around the inner 'knuckle' ('transition') area. The Worley plan also shows the relationship of the proposed reclamation to the existing breakwater property, being Lot 22 DP 7819 of 3,286m^2. Lot 22 DP 7819 comprises all of the breakwater (inner and outer sections) and is owned by the Council.

New Breakwater Toe

The toe of the upgraded breakwater will vary from approximately 8-16m beyond the new MLWS as shown on the Worley plans. The affected subtidal area is approximately 5,520m^2 as recorded in Table 8 of the Worley report. The greatest toe width (loss of subtidal habitat) will be at the outer end and on the southern side of the breakwater.

Breakwater Upgrade Development Footprint

The outer breakwater currently has a 'footprint' of approximately 8,000m^2 (on average 40m by 200m) because much of the concrete/rock rubble base shown in the **Figure 59** cross section plans has broken/eroded away and is on the seabed. The 'footprint' is very approximate and simply based on examination of existing seabed contours from the bathymetric survey to determine the approximate extent of existing concrete/rubble on the seabed and drawing a polygon using GIS software to encompass the area.

Following the upgrade the breakwater seabed 'footprint' will be extended to approximately 10,700m^2. The Worley plans show that the X-bloc type re-armouring units will extend out some distance beyond the current concrete/rock rubble base. On average the upgraded structure will be approximately 45m wide and a similar length to the existing structure at approximately 200m, which together with the transition area to the Inner breakwater makes a total structure footprint of approximately 10,700m^2. **Table 5** summarises the difference between the seabed 'footprint' of the existing and proposed outer breakwater reclamation as well as the area of breakwater located above MHWS and at the inter tidal and subtidal levels.'

Table 5: Outer Breakwater Upgrade Development Footprint

Outer Breakwater	Existing Area (m^2)	Proposed Area (m^2)	Area Difference (m^2)
Land (above MHWS)	1,350	3,750	+ 2,400 (Gain in dry land area)
Intertidal	100	1,500	+1,400 (Gain in intertidal)
Subtidal	6,550	5,520	-2,380 (Loss of subtidal)
Total	**8,000**	**10,700**	+2,700 (additional 'footprint')

Source: Worley Report 2021

7.4 Proposed Concrete Armour Units and Capping

Type of Armour Units

- Section 3.2.2 of the Worley report describes the proprietary concrete armour units (X-bloc, or possibly Accropode or Core-loc) expected to be used in the project. Figure 3.5 contains photographs of the different types of units (12.0, 19.2 and 28.8 tonne) expected to be used, whilst Figure 3.6 contains photographs of X-bloc units being installed on breakwater construction projects. The two figures were reproduced earlier in **Figure 60 and Figure 61** in this AEE. The Worley report notes that the units shown in the left- hand side photograph of

Figure 56 approximately corresponds to the largest units that will be used on the head of the Outer Breakwater, i.e. 28.8 tonne (3.2 m height and width).

Section 3.2.1 of the report explains the 3- dimensional scale modelling undertaken by the Manly Hydraulics Laboratory (MHL) in conjunction with Worley to determine the size, shape and finished height of the armour based on the angle of wave incidence and other coastal processes in play here. It also refers to the X-bloc Guidelines for Concept Design, being one of the likely product suppliers.

Number and Weight of Armour Units

Section 4.1 (Table 4) of the report records that approximately 1910 concrete armour units (of 28.8, 19.2 and 12.0 tonnes) will be required. Their in-situ volume is estimated to be 40,000m^3. The footnote to the table notes that the volume of concrete is only approximately 40% of the total because the units will have a porosity of approximately 60% (i.e. 60% by volume of the armour layer will comprise the voids between the armour units).

Other Materials

Table 4 records that approximately 6,250m^3 of rock fill (500-100kg) is required for the 'transition zone' next to the inner breakwater and another 540m^3 of road material is also required for the new pavement in the Wharf 8 transition

zone. In addition, approximately 4,700m^3 of ready-mix type concrete will need to be brought to the site for the concrete capping. The total volume of imported material required to upgrade the breakwater is approximately 51,490m^3.

Concrete Capping and Finished Height

The concrete capping will raise the crest (top) of the breakwater to a uniform height of around 4.5mCD. This is approximately 2.38m above MHWS (at 2.12mCD). The three typical cross section plans in **Figure 59** show that the depth of concrete capping will vary from approximately 0.9m -3.2m to account for the variable (sunken) height of the existing structure.

The volumes and figures discussed in this section will be subject to final detailed design.

7.5 Possible Alternative Designs and Materials

Alternative Designs

Section 8.2 of the Worley report refers to an appended 2015 Worley report that assessed three alternative options for the refurbishment of the Outer Breakwater. They were:

- Option A – Encapsulate the existing structure with a piled retaining wall caisson type structure founded to levels that would allow channel deepening.
- Option B – Demolish the existing structure and use the spalls to rebuild a new rubble mound breakwater to the east, far enough away to allow for channel deepening.
- Option C – Encapsulate the existing structure with a rubble mound. For future channel deepening the channel-side toe would need to be supported by a cantilever sheet piling wall.

The alternative options A and B are illustrated in Figure 8.1 of the Worley report.

Option A (Caisson) was discounted based on construction risk and cost. The report notes that for pile driving for a future toe support or for a caisson type structure, the presence of dislodged material from the existing Outer breakwater poses an unacceptable risk for construction, as all blocks would need to be located and removed. While removal of many of the blocks could be achieved, there would be high risk in driving piling and trimming the seabed for the placement of the existing and new blocks for a coffer-dam solution. Very experienced divers would be required and construction vessels would need to be in the busy PNC.

Option B (New Rubble Mound Structure) was identified as having merit because of its inherent flexibility, which is a significant advantage over a rigid coffer-dam type structure, in that it can suffer considerable damage but still provide protection. A rubble mound structure can also be easily repaired, and the materials for the rubble mound (concrete blocks) are more durable than the steel piles and reinforced concrete that would be required for the coffer-dam option. However, encapsulating the existing breakwater as per the proposed design, in lieu of constructing a separate rubble mound structure, would allow the cost of upgrading the structure head to be deferred into the future. The seabed 'footprint' of the chosen Option C (encapsulated breakwater) is also smaller than that of a completely new breakwater.

Alternative Materials

Section 8.3 of the Worley report notes that interlocking concrete armour units have been selected for armouring the outer breakwater, in lieu of rock or pattern-placed units. Investigation shows that local quarries do not have rock of appropriate size or quality to be used as armouring. Pattern-placed units, such as Seabees, were discounted in favour of interlocking concrete armour units. The reason for this is to allow the revetment and breakwater structure to be flexible in response to settlement and wave loadings, and for ease of construction, as pattern-placed units require very tight tolerances for placement.

7.6 Construction Timeframe and Staging

Construction Period

Section 6.3 of the Worley report outlines the expected construction sequence for upgrading the outer breakwater with reference to Figure 6.3, which is reproduced as **Figure 69** in this AEE. The two- stage construction process, in addition to site/plant mobilisation and demobilisation, is expected to take approximately 2-5 years to complete.

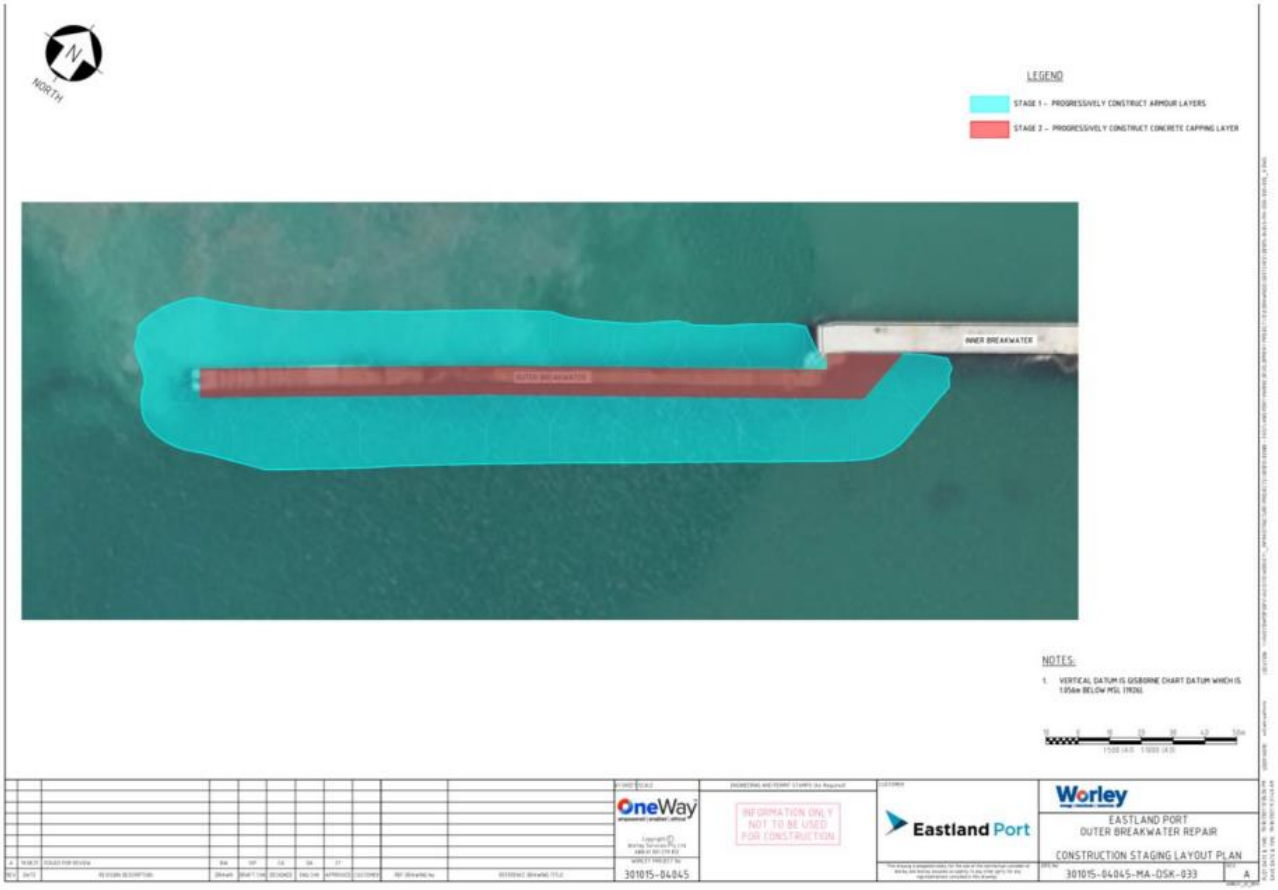


Figure 69: Outer Breakwater Indicative Construction Plan

Proposed Staging

The proposed stages are:

- Stage 1 – Progressive Manufacture and Installation of Armouring (8-16 months). The manufacturing (off site) is expected to take 2-4 months. It may involve use of the existing Southern logyard or the proposed Outer Port reclamation area as a local handling area. Construction of the 'knuckle' transition between the Inner and Outer breakwater sections will involve the placement of rock fill and armouring of the slope. The armour installation is expected to involve a crane working from east to west and take 6-12 months.
- Stage 2 -Completion of Armouring (4-6 months) and Progressive Construction of Concrete Capping (1-2 months). This involves completion of the armouring and concrete capping work.

Likely Land Based Construction

Section 6.3 of the report highlights the preferred approach of installing the armour by crane from the existing breakwater. However, it notes the uncertain geotechnical conditions present and with the size of crane required (moving units up to 28.8 t) that marine based plant (on a barge) may be required. The report also raises the possibility of a crushed rock platform being established alongside the breakwater, although notes that the high energy wave environment makes this very unlikely.

Possible CMA Based Construction

Section 6.3 notes that from the discussions with contractors it may be feasible to use a crane for placement of the concrete armour units mounted on a barge or jack-up platform, both of which would be subject to operability constrains due to weather and swell. The more sheltered PNC side of the breakwater offers the more favourable barge based working conditions. Another possible option discussed in the report is creation of a crushed rock working platform for construction plant alongside the existing structure. However, the platform would be difficult to maintain during the construction period due to the high wave energy that occurs at the site.

7.7 Possible Preliminary Ground Stabilisation Works

Section 6.3 of the Worley report highlights that ground stabilisation measures may be required before any re-armouring occurs. Any such ground stabilisation works would be very similar to those expected to be required for the Outer Port reclamation.

Four possible alternative methods are identified in Section 6.5 with reference to associated figures in the Worley report. They are deep soil mixing combined with high strength geofabric, mass stabilisation, a combination of both, and jet grouting. Figures 6.4-6.6 in the report contain illustrative diagrams of the possible ground stabilisation measures.

The report refers to discussions with potential contractors that highlight difficulties with undertaking ground stabilisation work because of the numerous obstructions around the existing structure, notably the displaced concrete cube armour units. If ground stabilisation works are not feasible then the report notes that Eastland Port will top up the armour layers as necessary, should localised slip failures or subsidence occur in the future.

7.8 Breakwater Use and Maintenance

Stormwater Management

The upgraded breakwater will, like the existing facility, have no purpose-built stormwater drainage system. Rainfall will simply be shed off the structure into the adjacent coastal waters.

Public Access Considerations

The outer breakwater, along with the inner breakwater, is not accessible to the public, except for emergency landing situations. Public access to the port is confined to some inner port wharves and other specified areas, as discussed earlier in this report. The current no public access situation to the outer breakwater will not be altered as part of the proposed breakwater upgrade.

Maintenance Considerations

Section 7.2.1 of the Worley report notes that the upgraded outer breakwater is expected to require only limited maintenance. Some topping up of armour units and/or replacement may be required should there be any settlement or dislodgement.

8 SOUTHERN LOGYARD STORMWATER UPGRADE

8.1 Overview

The Cheal Consultants Ltd (Cheal) *Twin Berths & Southern Logyard Stormwater Management Report* in **Appendix H** describes the proposed stormwater upgrade works in the Southern logyard area in detail.

The Cheal Stormwater Upgrade Concept Plan in **Figure 70** shows the general nature of the new extended/upgraded stormwater system, including the two existing sub-catchments making up the Southern Logyard, described as the Southern Logyard North catchment (SLY North) and the Southern Logyard South catchment (SLY South). It also shows the existing stormwater outlets from the two catchments; one of which discharges to the inner harbour (northern discharge) and the other in the seawall nearer toward the Kaiti Reef (southern discharge).

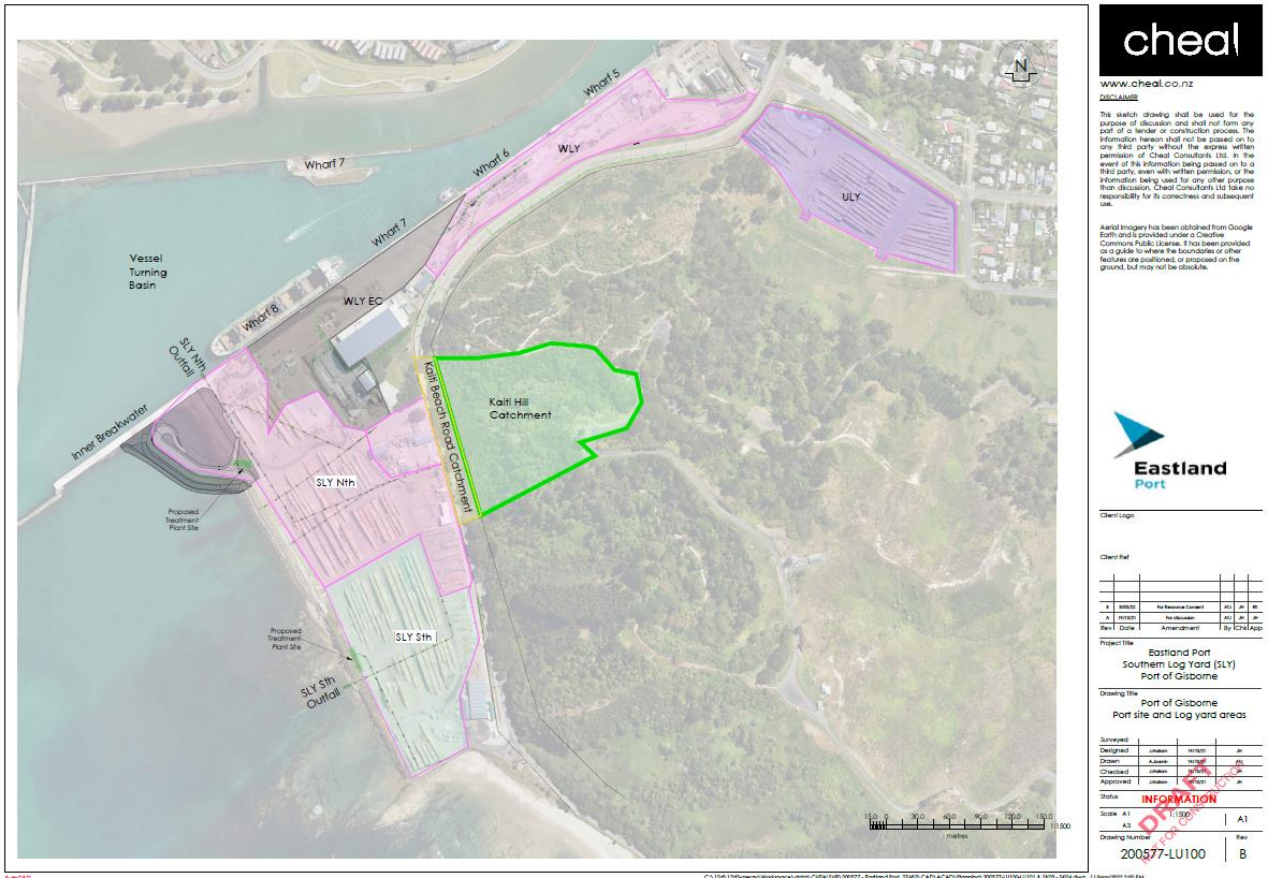


Figure 70: Twin Berths & Southern Logyard Stormwater Management Concept Plan

All of the stormwater from the Wharf 8 extension and Outer Port reclamation is to be directed to the SLY North catchment (shown in pink in the Figure 70). Additional stormwater from Kaiti Hill and Kaiti Beach Road will also be directed to the SLY North, resulting in an increase in the size of the catchment from 5.25ha currently to 10.04ha.

No change is proposed to the size of the existing SLY South catchment (shown in green in the Figure 70), which is 3.42ha.

The objective of the stormwater management upgrades is to provide treatment for the new reclaimed area and improve the quality of runoff discharges from the SLY to the same quality achieved elsewhere on port, by reducing suspended sediment concentrations.

In order to improve discharge quality, a secondary treatment system, consistent with those recently installed in the Wharfside Logyard (WLY) and Upper Logyard (ULY), is proposed to supplement the existing stormwater systems. This will consist of:

- Underground detention chambers, consisting of large diameter (1600mm) pipes to aid settling of solids and provide additional detention capacity.
- Chemical dosing to improve particle settling.
- Lamella clarifiers, which are more efficient and have greater flow capacity than the existing primary filtration systems

The secondary treatment infrastructure will be located between the existing filtration systems and the existing outfalls in each of the sub-catchments, as illustrated in the Cheal diagram in **Figure 71**, forming a treatment train.

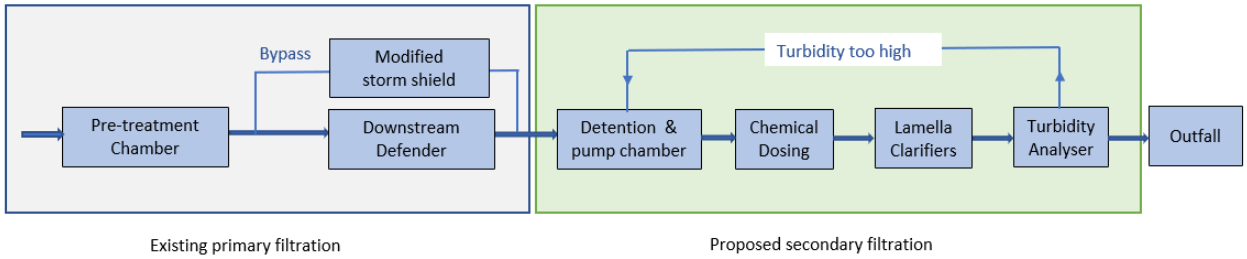


Figure 71: Southern Logyard & Twin Berths Area Stormwater System Diagram

Source: Cheal Report

Each of the catchments will have two clarifiers with individual capacity of up to 110m^3/hr. These units are mounted above ground such that pump stations will be required to lift water high enough to generate the required flow through the clarifiers. The Cheal report notes that the pumps will temporarily increase the turbidity, but that chemical dosing of the stormwater before it enters the clarifiers will accumulate the fines in clumps that are both larger and denser and can be removed during the settling process. As noted in the report this is a key step that is missing in the current stormwater treatment system.

After passing through the clarifiers, the treated stormwater will go through a turbidity analyser, which controls whether the water can be released to the outfall or returned to the detention storage for recycling recirculation through the clarifiers. The report notes that the turbidity analyser does not measure TSS directly, it uses light measurement to determine the cloudiness of the water.

As with the other log yards, the secondary treatment process for each of the northern and southern sub-catchments aims to collect the runoff volume from a 90 percentile storm, which is 21mm depth for the Gisborne area.

However, the southern logyard catchment area is much greater than that of either the ULY or WLY and accomodates external catchments (Kaiti Hill and Kaiti Beach Road), meaning the system performance is sensitive to the effects of shorter duration 21mm storms. Further, the fixed flow capacity of the lamella clarifiers also places constraints on the disposal capacity of the treatment systems to manage storms where 21mm of rain falls over a short period of time (1-2 hours). The systems analysis undertaken in the Cheal report indicates these factors contribute to a potential for ponding to occur in both the SLY North and SLY South and for discharge of untreated stormwater direct to the CMA.

In order to avoid the potential for ponding and discharges of untreated stormwater during short duration, high intensity rain events, an additional treatment system, using a Hydrodynamic Vortex Separator (HVS), is to be installed to treat the bypass flows. As detailed in the Cheal Report, the HVS will be installed within the pipe system to allow for full sub-surface conveyance of excess runoff during the 21mm design storm, while also reducing the extent of ponding in the yards to insignificant levels. This will also avoid overland flows.

It is proposed the SLY Nth and SLY Sth yards will each have a separate bypass treatment system. The bypass flow point will be determined by a weir inside the last manhole before the detention system. When the flow overtops the weir, it is then routed through the HVS before ultimately discharging to the existing outfall pipe. This is depicted schematically in **Figure 72** below.

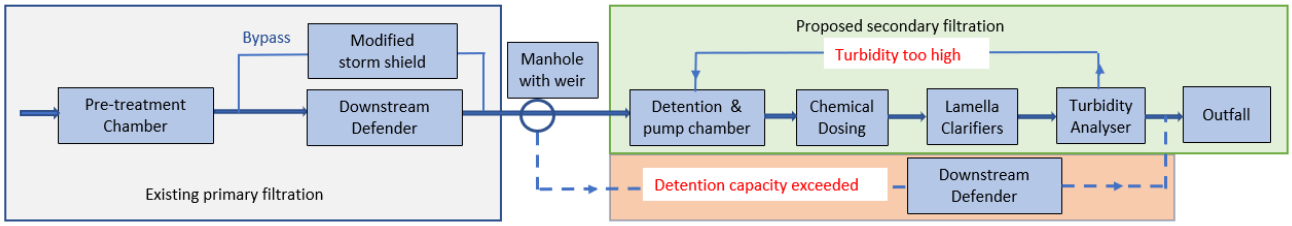


Figure 72: Proposed Treatment Train Schematic with bypass system

The lamella clarifier system has a fixed flow capacity which will reduce the rate of flow, compared to the current rate, to the outfall. As such the stormwater outfall into the port will not require upgrading to cater for the additional volume being discharged.

8.2 Southern Logyard North Catchment

The extent of the existing SLY north stormwater catchment area, the locations of the main drainage pipes and new treatment facilities, along with the existing port outfall are shown in Cheal Northern Catchment Site Plan in **Figure 73**.

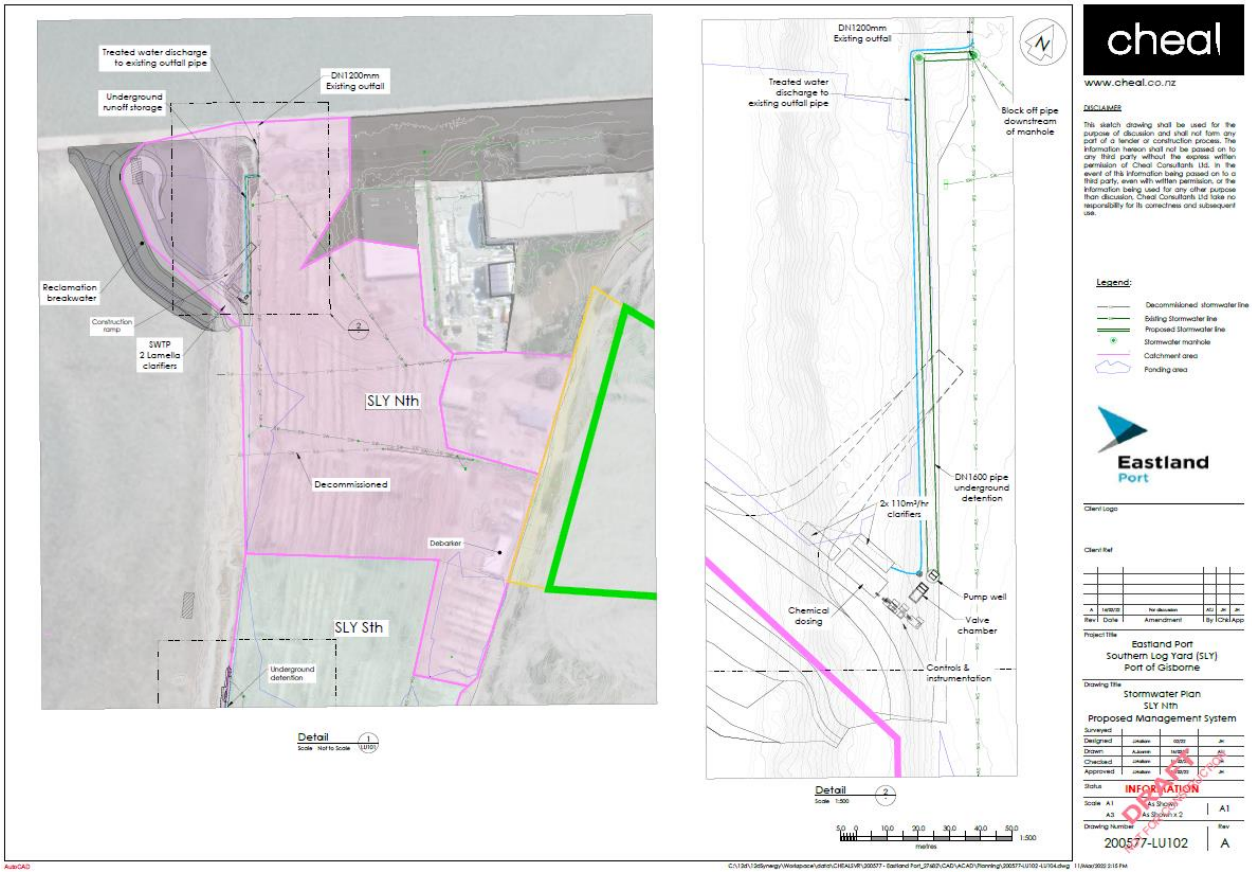


Figure 73: Northern Stormwater Catchment Area Site Plan

The new lamella clarifiers (2) are to be located towards the south-eastern corner of the proposed Outer Port reclamation as shown in the detailed plan.

The new treatment system will treat all stormwater from the Northern catchment area (of approximately 5.94ha and shown in purple on the plan), plus public road and reserve areas to the east (of approximately 4.1ha and shown in green), making a combined catchment area of approximately 10.04ha.

The treated stormwater will be discharged through the SLY North outfall into the port under the extended Wharf 8.

8.3 Southern Logyard South Catchment

The location of the new stormwater treatment infrastructure to be installed in the SLY South catchment and the extent of the existing catchment area of approximately 3.42ha to be served by the new facilities is shown (in green) in the Cheal plan in **Figure 74**.

Figure 74: Southern Stormwater Catchment Area Site Plan

The new lamella clarifier is to be located along the western (seaward) edge of the logyard adjacent to the existing outfall, shown in the detailed plan. It will only treat stormwater from the Southern catchment area.

8.4 Earthworks

The stormwater system upgrades involve earthworks to provide for the installation of large diameter pipes, pump wells and valve chambers beneath the logyard surface. The chemical dosing plants and lamella clarifiers will be constructed above ground.

Section 13 of the Cheal Report identifies that for the SLY North, earthworks will involve disturbance of approximately 650m² area to facilitate underground or above ground infrastructure. There will be no change to elevation of either the existing yard surface, or the proposed reclamation surface level, due to the construction of the stormwater infrastructure.

For the SLY South involve cutting a recess into the logyard revetment wall. The volume of cut material is estimated to be approximately 600m^3 from an affected area of approximately 500m^2.

Typical measures to avoid ingress of sediment laden water in the storm drainage system will be implemented during construction works and may include physical stormwater barriers and controls around excavation and material handling areas, with filter socks placed around adjacent inlet grates.

As identified above, the site is a HAIL site due to its location on reclaimed land and use for port related activities. The 4Sight DSI in **Appendix Q** characterises the nature and extent of residual soil contaminants anticipated to be encountered across the site during intrusive works, based on a review of previous investigation work undertaken across the site as well as the sampling of soil within the existing southern logyard seawall.

Specific sampling within the area of the proposed stormwater works was not undertaken as part of the DSI. However, based on previous investigations, soils characterised as part of the DSI were considered to be representative of soils likely to be encountered as part of stormwater redevelopment works.

On this basis, the concentration of contaminants of concern in soils affected by stormwater works are anticipated to be below the adopted NESCS Soil Contaminant Standards (SCS) for the protection of human health for Commercial / Industrial land use (consistent with the proposed future use of the Site) and generally below the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZWQG) Default Guideline Values (DGVs) for sediment quality, with the exception of marginal exceedances of copper, lead and/or zinc in four samples.

All soil disturbance works associated with stormwater system upgrades will be undertaken in accordance with a Site Management Plan (SMP) prepared by a Suitably Qualified and Experienced Person (SQEP), which details the necessary procedures to mitigate any potential unexpected human health and environmental risks, and procedures for managing unexpected discoveries of contamination.

Further, given the identified presence of Asbestos Containing Matter (ACM) pipe in the sub-surface, soil disturbance works will also be undertaken in accordance with WorkSafe's Approved Code of Practice, the New Zealand Guidelines for Assessing and Managing Asbestos in Soils (NZGAMS) guidelines for Class B asbestos removal, and be overseen by a licenced asbestos removalist.

Any material that requires removal from the site will be disposed of at a suitably licensed facility, while any soil that is to be imported to the site will be cleanfill.

8.5 Logyard Use and Management

Logyard Use

Eastland Port advise that no significant changes to activities in the Southern logyard will result from the stormwater system upgrading.

Revised Stormwater Management Plan

The current SMP for the logyard expected to be updated as part of the proposed stormwater upgrading works. A consent condition requiring this is expected.

9 OUTER PORT CAPITAL DREDGING & DISPOSAL

9.1 Overview

The proposed capital dredging work affects the PNC, VTB, Wharves 8, 7 and associated vessel manoeuvring areas. The area involved is shown in **Figure 75**. The capital dredging area extends from the western (seaward) end of the PNC to a tug manoeuvring area just past the eastern (inland) end of Wharf 7. It will affect a seabed area of approximately 18.46ha. The total volume of material to be capital dredged is estimated to be approximately 140,600m^3. The depth of capital dredging required will vary from 13.5m Below Chart Datum (BCD) in the Outer PNC to 7.5m BCD in part of the VTB.

The port deepening is required to accommodate the larger classes of vessels (Handymax and Supramax log vessels) expected to use the port in the near future. With no additional dredging undertaken most Handymax sized vessels would not be able to leave Eastland Port with a full consignment. While Supramax vessels would still be load restricted, capital dredging to the depths proposed would enable load volumes of up to 53,000 tonnes in good conditions compared to a maximum of approximately 40,500 tonnes currently. This would bring them close to full uplift of 55,000 tonne for Supramax vessels. Existing Port maintenance dredging consents do not enable dredging to the depths required to accommodate such vessels

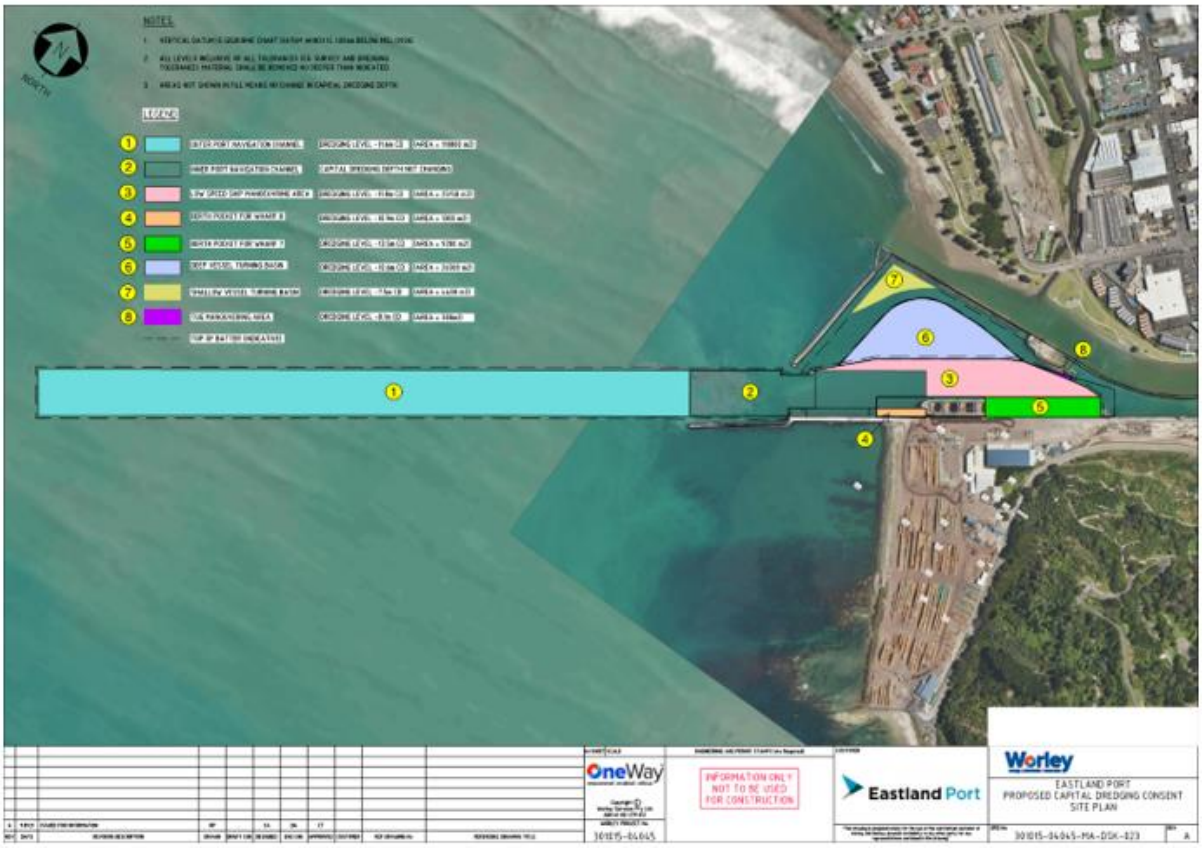


Figure 75: Outer Port Capital Dredging Area Plan

9.2 Existing Port Seabed Bathymetry

Detailed information on the seabed material within the port area to be dredged and the current port seabed bathymetry is provided in a 2019 Geotechnical Investigation undertaken by Tokin & Taylor and Geophysical Surveys undertaken by Marine & Earth Sciences (MES) in 2016, both of which are referenced in the Worley report.

Figure 76 below is sourced from the MES report and shows the different seabed levels in the PNC, VTB and Wharf areas based on a geophysical survey of the seabed and sub-seabed conditions**.**

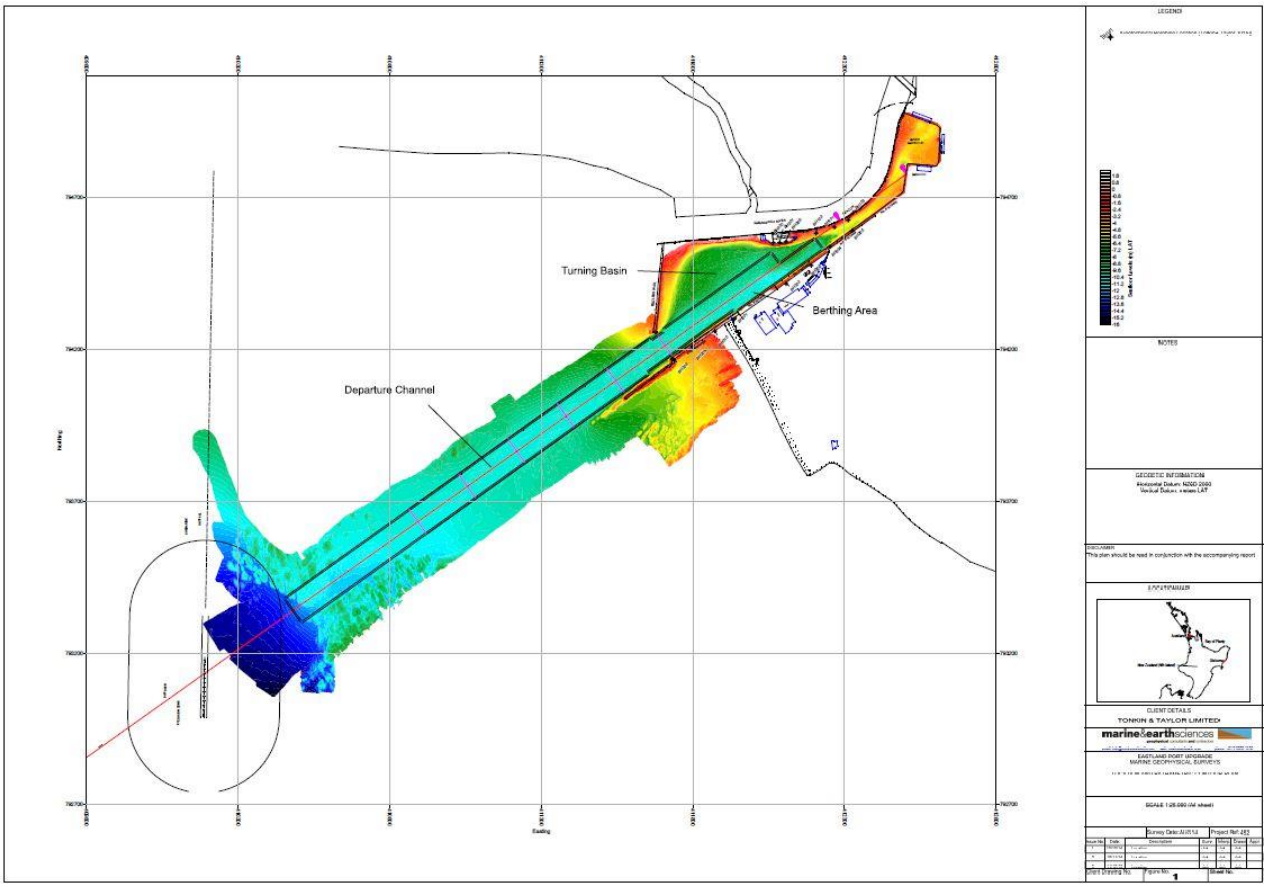


Figure 76: Plan of Gisborne Port Bathymetry

The port seabed contours range from approximately 0.8m below LAT in the inner harbour to over 13m below LAT at the outer end of the PNC.

The plans record a number of port features, including dredge scour marks, areas of outcropping rock, and a sand wave zone. Bore hole locations are also recorded.

9.3 Proposed Port Capital Dredging Area, Volumes and Levels

The *Worley Capital and Maintenance Dredging and Disposal Report* in **Appendix G** details the extent and nature of the capital (and ongoing maintenance) dredging and disposal activities proposed.

The Worley Gisborne Outer Port Capital Dredging Plan reproduced in **Figure 25** shows the total area of proposed dredging, including the PNC. The more detailed Capital Dredge Level Plan in **Figure 77** shows the individual VTB and wharf related capital dredging areas in more detail, including dredge levels.

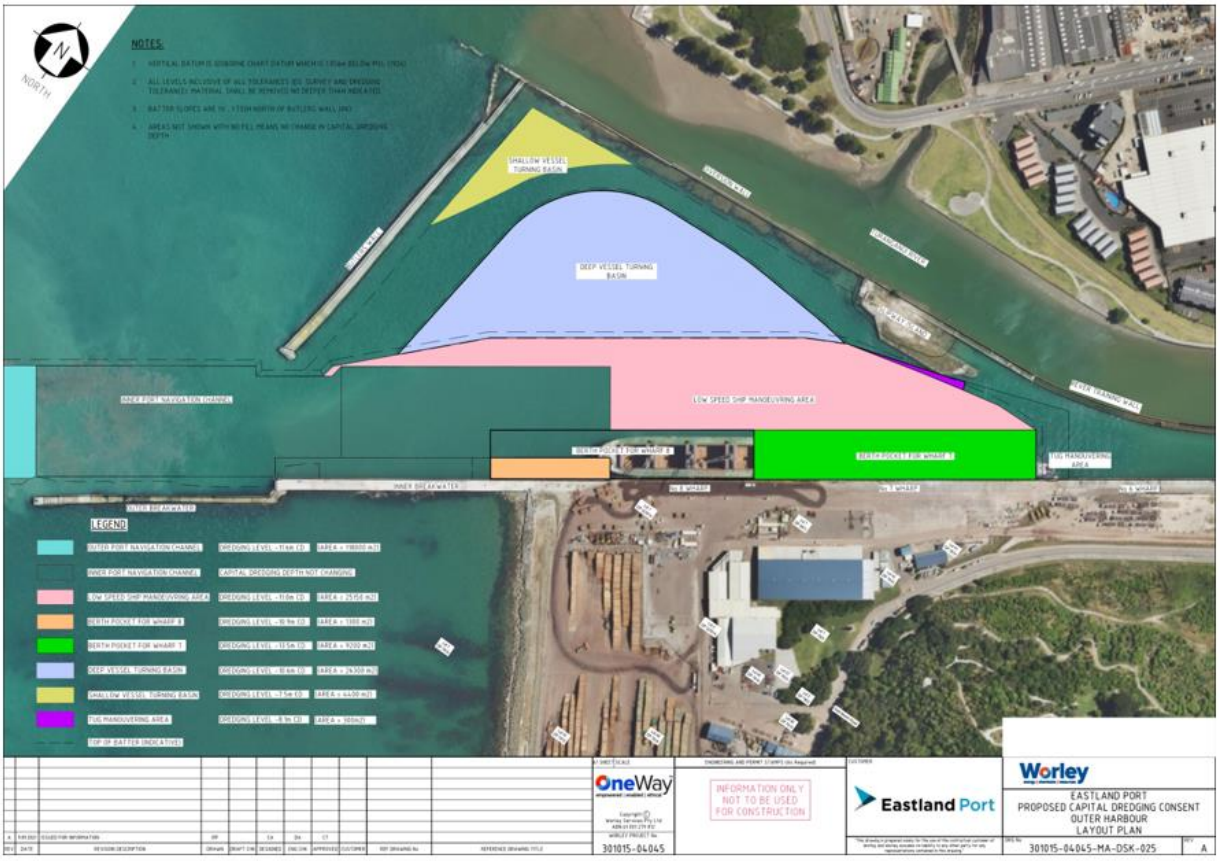


Figure 77: Outer Port Capital Dredge Levels Plan

The Worley report explains the basis of the proposed dredge design levels relative to existing maintenance/capital dredge levels, the underwater keel clearance required for the berthing of larger vessel classes and the need to have suitable 'buffer' distances from the different port structures, notably Butlers Wall, the Turanganui River Training Wall and the redeveloped wharves. It also includes information on previously approved capital dredging from previous coastal permits. The total area of proposed capital dredging is approximately 18.5 ha and the total volume is approximately 140,600 m^3. By way of comparison, the 2009 coastal permits issued by the Minister of Conservation authorised the removal of approximately 88,300m^3, from an area of approximately 15.1ha. The 2009 coastal permits did not include capital dredging of the outer approximately one third of the PNC, which accounts for some of the difference in areas and volumes. Proposed dredge levels were also generally less for vessels back in 2008/2009.

The term 'design level' is used in the Worley Report, rather than 'declared dredge level' as has often been the situation in the past. This is because due to construction tolerances associated with dredging and hydrographic surveying, it is not possible to dredge to the exact 'declared dredge level', i.e. the minimum level the dredge must achieve during a dredging campaign and which is subsequently used to determine the maximum draft of vessels using a port. The report notes that at Gisborne Port, like other ports, an allowance (or tolerance) is required above the declared dredge level to avoid any undermining of adjacent structures. This is at least 0.6m and consists of a dredge tolerance of at least 0.5m and a survey tolerance of at least 0.1m.

The Report also uses the term 'level' rather than the 'depth', primarily because measurements all relate to levels in metres below Chart Datum (CD).

The capital dredging design levels and volumes for the different areas are summarised in **Table 6** below. Key parameters are described below, with reference to the colouring used in **Figure 77** above to identify the location of relevant areas:

- **Outer Port Navigation Channel (PNC) -Area 1 (coloured blue).** The -11.6mCD design level here is 0.6m below the current -11.0mCD maintenance dredging level subject of the 2015 coastal permits and the 2020 renewal application. The additional 0.6m being sought is to allow for additional underwater clearance from the larger

vessels expected to use the port in the near future. Vessels in the Outer PNC are subject to higher vertical movement (pitch, roll and heave) and the additional depth is required for safe navigation.

- **Inner Port Navigation Channel – Area 2 (no dredging and not coloured)**
- **Wharf low speed manoeuvring areas -Area 3- coloured red.** The -10.6mCD design level of the Deep Turning Basin is only 0.1m lower than the current maintenance dredge level (-10.5mCD) and simply required to cover survey and other tolerances. This part of the low-speed manoeuvring area needs to be deepened to allow deep draught vessels space to pass vessels at Wharf 8. The capital dredging in this area will be to -11.0mCD at area and the same as currently in the adjacent inner PNC, which does not require any capital dredging.
- **Wharf 8 berth pocket -Area 4- coloured orange.** The -10.9mCD design level for part of Wharf 8 is to accommodate a 185m long Handymax vessel with a 10.8m draught adjacent to the proposed wharf extension. The capital dredging here is confined to an approximately 100m long by 13m wide section of the seabed (1,300m^2) immediately adjacent to the proposed wharf extension (shown in orange on the plan). The inland (western) part of Wharf 8 area is not proposed to be capital dredged because it is already being at sufficient depth and this part of the wharf has some structural limitations.
- **Wharf 7 berth pocket -Area 5- coloured green.** The -13.5mCD design level proposed for the Wharf 7 berth pocket is designed to accommodate a 200m long vessel with a draught of up 12.8m. The berth pocket (shown in green) will be approximately 230m long and 40m wide (9,200m^2). The dredge accounts for the ship draught, sedimentation between dredging, scour protection and the Eastland Port Standard Operating Procedure (SOP) that effectively requires a 0.7m seabed clearance for vessels.
- **Deep vessel turning basin -Area 6- (coloured olive).** This area requires capital dredging to a Design Dredge Level of -10.6 mCD (previously -10.5mCD)**.**
- **Shallow Vessel Turning Basin – Area 7 (coloured yellow).** Capital dredging required to remove some rock near the top corner to bring down the level to the current consented dredging level
- **Tug Manoeuvring Area – Area 8 (coloured purple).** A small section near the Slipway Island requires capital dredging to a Design Dredge Level of -8.1 mCD (section previously not capital dredged)

Table 6: Gisborne Port Proposed Capital Dredging Summary

Port Area	Dredge Level (m below chart datum)	Area of Dredging (ha)	Volume of Dredging (m^3)
PNC- Outer	-11.6mCD	11.80	70,500
PNC- Inner	-11.0mCD	0	0
Low Speed Ship Manoeuvring Area	-11.0mCD	2.51	25,800
Wharf 8 Berth Pocket	-10.9mCD	0.13	4,700
Wharf 7 Berth Pocket	-13.5mCD	0.92	33,600
VTB- Deep	-10.6mCD	2.63	2,700
VTB- Shallow	-7.5mCD	0.44	2,700
Tug Manoeuvring Area	-8.1mCD	0.03	600
Total	**Variable**	**18.46**	**140,600**

Source: Worley Report

Capital Dredging Volume

The total capital dredge volume is estimated to be approximately 140,600m^3, as set out in **Table 6**. Approximately 50% of the proposed capital dredging (70,500m^3) will take place in the PNC. The Low Speed Manoeuvring Areas (25,800m^3) and Wharves 7 & & berth pockets (38,300m^3) account for around 18% and 27% respectively.

9.4 Material to be Capital Dredged

The nature of the material to be dredged is explained in Section 5.1 of the Worley report. It makes reference to the earlier MES and T+T reports, along with the more recent MetOceans reports.

MES Geophysical Survey Report

The 2016 MES report has six sections, an appendix and several figures.

Section 4 - Results, contains a table summarising the side scan sonar findings in the different areas of the port, the key points of which are outlined below:

- PNC- clays and fine silts are dominant but there is a major zone of outcropping rock at the southern end and minor outcrops along the northern boundary; and
- VTB & Wharf Berths- clays and fine silts are also dominant here with coarser silts and sands around Wharves 5-7, which may be related to vessel propeller wash. Rock outcrops are near the end (southern) of Butlers Wall and along the Turanganui River training wall.

Figure 4 in the report shows the underlying sediment thickness and identifies the locations of the rock outcrops in the PNC (the red patches = zero depth of unconsolidated sediment). This figure is reproduced in **Figure 78**.

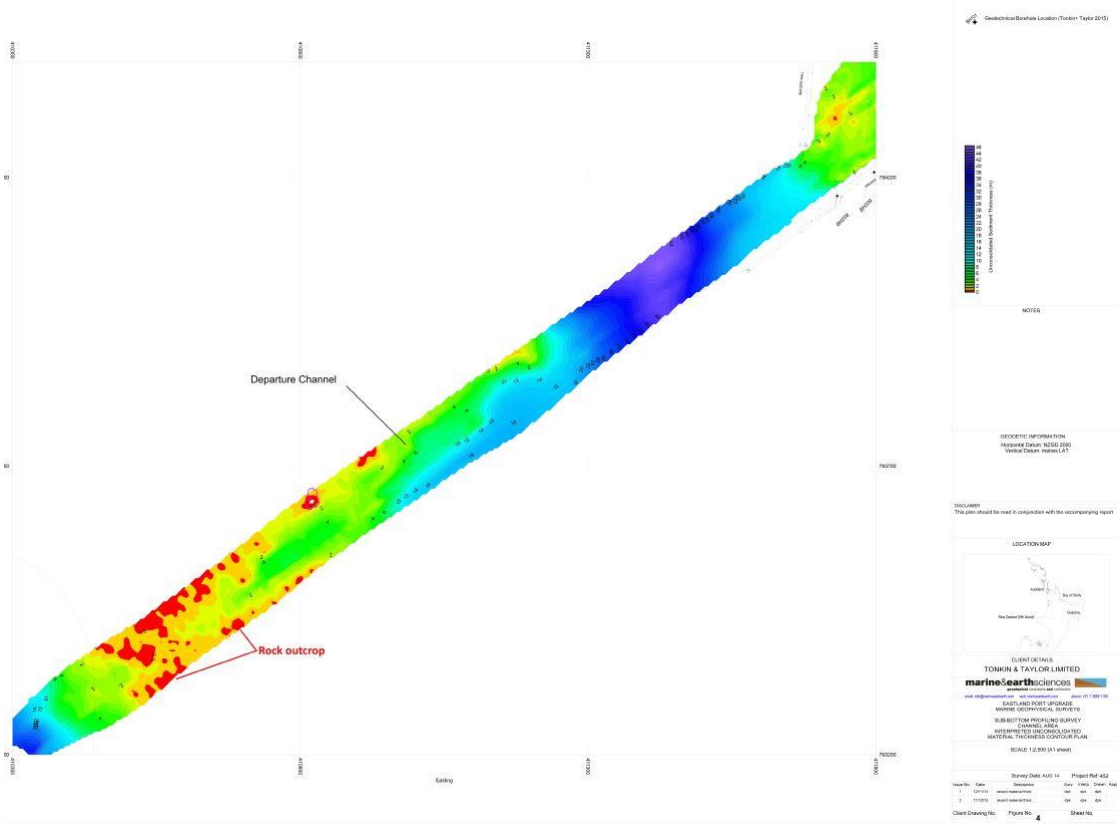


Figure 78: Diagram of Port Navigation Channel Unconsolidated Sediment Depth

Source: MES Report

Worley Dredging and Disposal Report

Section 5.1 of the Worley report notes the following matters:

- The nature of the material will vary with 'hard' rock in some areas, along with 'semi-consolidated' clay, sand and silt, through to 'soft' silty sandy material. The top 'soft' layer of material is effectively that which is regularly maintenance dredged and in this sense its removal will be 'true' capital dredging.
- The depth of the top unconsolidated ('soft') material varies in different areas of the port but is generally in the 2-4m range.

- The composition of the top 'soft' layer also varies with mostly (60%) silt in the VTB, and mostly sand (70-80%) in the PNC (Ref. Table 5.1 in Worley report for more details).
- Rock is expected to be encountered in the PNC, Deep Turning Basin and Wharves 7 and 8 berth pocket areas.
- The rock material is expected to be unweathered siltstone or slightly weathered mudstone based on borehole findings in the Wharf 7 area and other investigations.
- The largest amount of rocky material is expected to be removed from the Deep Turning Basin where investigations indicate that the rock level is above -10.0mCD in places and the design dredge level is -10.6mCD, and Wharf 7 berth pocket where the design dredge level is -13.5mCD and investigations indicate rock is present between -10m and -12mCD.
- Very limited removal of rock is expected for the Wharf 8 berth pocket where the design dredge level is much shallower at -10.9mCD and rock has been recorded at approximately -10.7mCD.
- Within the Outer PNC there are areas where the rock levels are interpreted to be above -12mCD. As the dredge level is proposed to be -11.6 mCD in the outer PNC, which is 0.6 m below the existing maintenance dredge level, there is a risk of encountering bedrock during dredging at the outer PNC.
- The volumes of rock expected to be removed from each area are detailed in Table 6. The total amount of rock expected to be removed is approximately 32,500m^3.

Figures 5.1 and 5.2 in the report show indicatively the depths of the 'top' unconsolidated and 'bottom' rocky material (shown in red) in the different port area and the design dredge levels. They are reproduced as **Figure 79 and Figure 80** in this AEE. Overlaid on the plans are the capital dredging design levels (in black).

MetOceans Summary Report

The MetOceans *Summary Report* identifies that the relative distribution of cohesive versus sandy material varies significantly throughout the port area from the channel basin (80%-20%) to the outside of the port (20%-80%).

9.5 Proposed Capital Dredging Methods

Worley Report

The methods of dredging are explained in the Worley report. A Trailer Suction Hopper Dredge (TSHD), such as the privately owned Albatros, which currently does the port maintenance dredging, is expected to be used for some of the capital dredging. A Back-Hoe Dredger (BHD) or a Cutter-Suction Dredger (CSD) is likely to be used in less accessible areas, especially close to existing port structures and where harder rocky material is to be removed. The capital dredge spoil disposal operations are also explained in the Worley report. The dredge spoils are loaded directly or indirectly into a barge and towed to the OSDG before being disposed of.

MetOceans Report

The MetOceans *Summary Report* also contains information on the proposed capital dredging operations, including details and photographs of the different dredges expected to be used. It also includes information on dredging plumes associated with the different dredges, the barge transport of the dredge spoils to the OSDG and the effects of disposal at the OSDG.

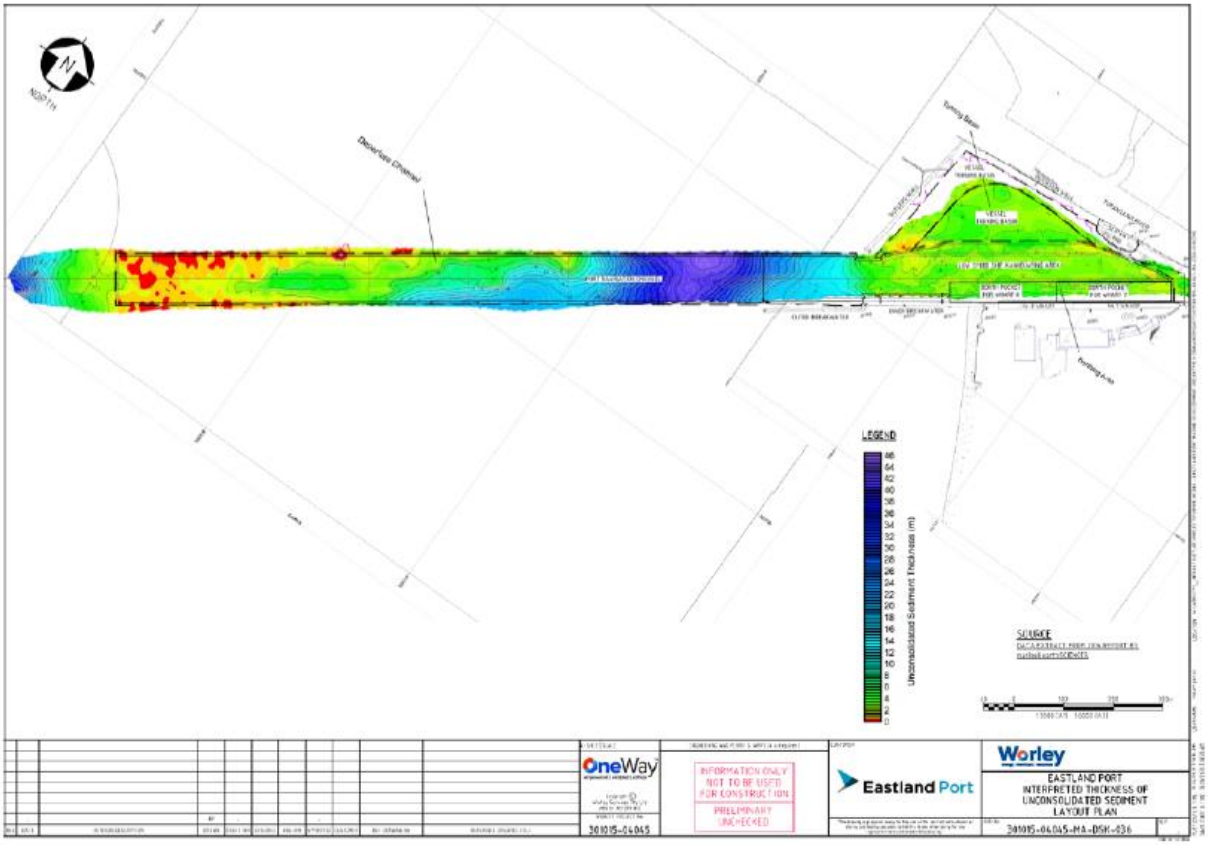


Figure 79: Plan of Soft Unconsolidated Material in the Outer Port

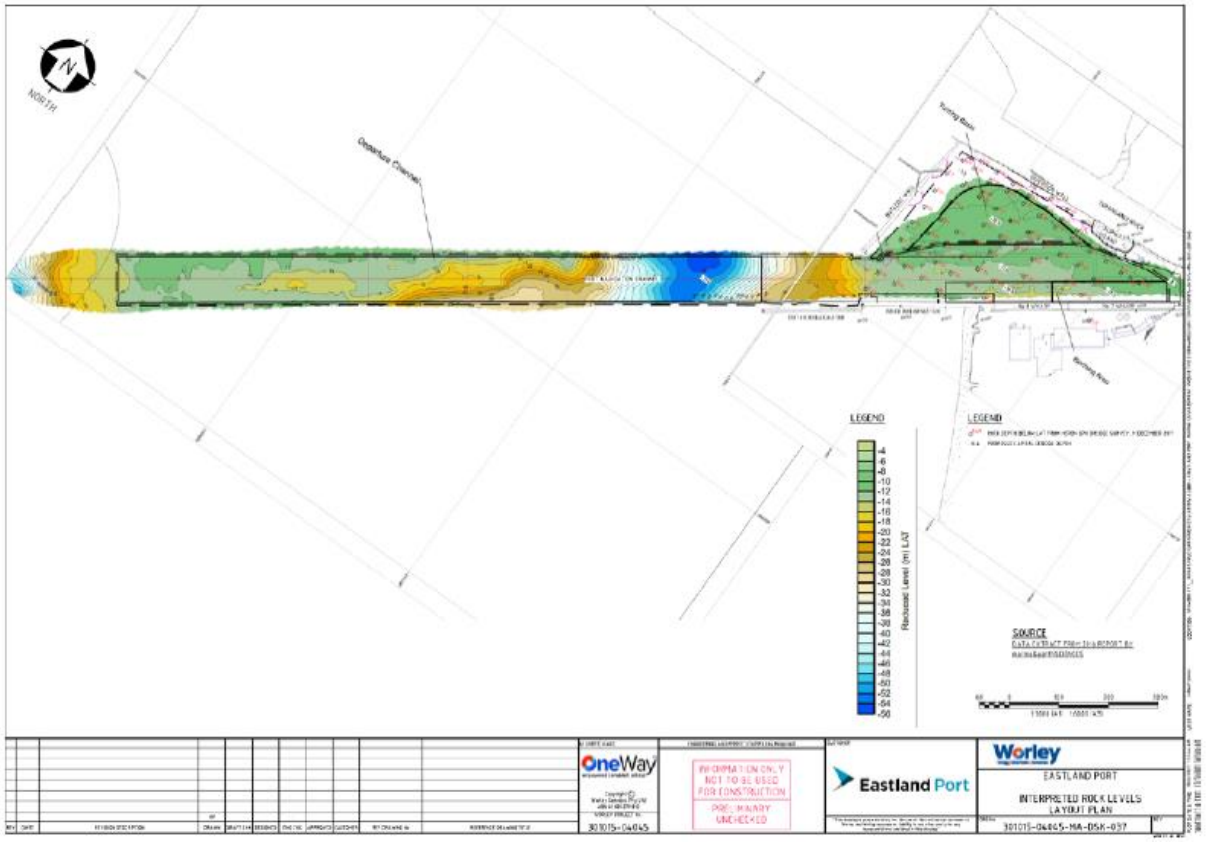


Figure 80: Plan of Interpreted Rock Levels in the Outer Port

Trailer Hopper Suction Dredge Operations

Section 6.1 of the Worley report describes the TSHD method for dredging the unconsolidated material, which is sucked by pumps into pipes with dragheads into a hopper storage facility. The dredge sails into the area to be dredged reduces speed to 1-3 knots and then lowers dragheads (pipes with large mouths) to the seabed. As the dredge moves the dragheads disturb the material and it is sucked (by pumps) along with some water into a hopper storage facility. The report notes that generally the dredges are equipped with overflow systems to cater for the slurry material with the heavier sediment settling into the base of the hopper.

The MetOceans report notes that following the initial pumping typically approximately 20% of the material is solid by volume. Additional material is then pumped into the hopper with the excess water being collected on the Albatros. This contrasts to the now retired Pukunui, where water overflowed across the deck rather than being collected. Once the hopper facility is full the material is then transported to the disposal ground.

Table 7 below contains information on the size and capacity of the Albatros, which is likely to be used for most of the capital dredging, in comparison to the former Pukunui**. Figure 81** contains a photograph of the Albatros dredge.

Table 7: Gisborne Port Trailer Suction Hopper Dredge Information

Vessel	Former Pukunui	Current Albatros
Length	30m	75m
Draft -Empty	1.2m	3.2m
Draft – Full	2.4m	3.8m
Hopper Volume	480m^3	1860m^3
Hopper Infilling Time	2 hours	2-5 hours
Tivel Time to and from Disposal Site	2 hours	2 hours

Source: MetOceans Report

Figure 81: Photograph of Albatros Trailer Suction Hopper Dredge

As outlined in the table, the Albatros is a much larger vessel than the former Pukunui and has a much greater (almost four times) hopper capacity.

Backhoe Dredge Operations

Section 6.3 of the Worley report notes that the BHD operation involves removing seabed material using a backhoe arm with a bucket at the end mounted on a small barge. The excavated material is then deposited into a barge for transport to the disposal ground. As with the TSHD operation the bucket loads being dumped into the hopper vessel contain sediment and water, some of which is discharged over the sides.

The report notes that BHD's have a much lower productivity rate (take longer) than TSHD's but are more accurate, can remove 'weak' rock, can remove less water and can operate in shallower water. Also, when equipped with a hydraulic hammer they can remove 'hard' rock material. The report notes that BHDs are likely to be used to dredge the Wharf 7 and 8 berth pockets and the adjacent low speed manoeuvring areas when these facilities are being redeveloped/extended.

The MetOceans report notes that it can take 1.5-4.0 hours to fill a hopper barge, using a backhoe depending on the nature of the material being removed and other factors. **Figure 82** contains a photograph of a BHD operation in the Wharf 8 area. A BHD has been used relatively frequently at the port, with the most recent use being at Wharves 7 & 8 in 2019.

Figure 82: Photograph of Backhoe Dredging Operation at Gisborne Port

Cutter Suction Dredge Operations

Section 6.2 of the Worley report describes CSD operations, which involve a rotating cutter head at the suction inlet which helps to loosen the sediment before it is sucked up and pumped into a hopper barge or other vessel. **Figure 83** contains a photograph of a CSD operation.

Eastland Port advise that a CSD possibly could be used to remove some of the rock material and accordingly it is included in the AEE project description. Although CSD's have not been used at the port to management's knowledge, they are used in other NZ ports.

Rock Removal

Section 6.4 of the Worley notes rock dredging is expected to be undertaken using a BHD, which may also need to be equipped with a hydraulic hammer, for example, the Eccentric XR60 ripper. This attachment is designed for dredging rock material such as the slightly weathered mudstone and siltstone, with a strength varying between 2Mpa and 9Mpa, that is expected to underlie the soft sediments.

Figure 83: Photograph of Cutter Suction Dredge Operation

The report notes that no rock blasting is expected to be undertaken within the proposed capital dredging area. It notes that because vibrations from blasting may impact the structural/geotechnical integrity of the adjacent wharf structures, if blasting were to be explored as an option, site-specific blasting studies would need to be undertaken.

Capital Dredging Programme

The capital dredging operations will be carried out in a staged manner over the construction period. . The timing of the dredging will relate to the timing of the Wharf 8 extension, Outer Port reclamation and Outer Breakwater upgrades, respectively, as only part of the port CMA can be affected by construction works at any one time. Each capital dredging stage will occur over a period of 3 to 6 months. The availability of contactors/dredges and prevailing weather conditions will also be important factors affecting the timing.

Eastland Port advise that the Wharf 7 berth pocket, associated low speed manoeuvring area, PNC and VTB are expected to be capital dredging first to align with the end of the Wharf 7 construction. This will allow larger ships and tugs to safely access Wharf 7 while Wharf 8 is being extended. The Wharf 8 berth pocket extension capital dredging is expected to be conducted in line with the end of Wharf 8 extension and Outer Port reclamation construction.

Hours of Operation

Section 6.5 of the Worley report notes that most of the capital dredging operations are expected to be undertaken primarily during daylight hours. However, during winter they may extend 4-5 hours into the night and with the Alabatros a 24 hour a day operation is possible but unlikely. This matter is discussed in more detail later in this AEE in relation to the rules/standards in the Tairāwhiti Plan and NZ Construction Noise Standards and the Marshall Day expert report. The Tairāwhiti Plan rules define 'daytime' (7am -6pm) 'evening' (6pm-10pm) and 'night-time' (10pm and 7am) noise emission periods.

9.6 Proposed Transport and Disposal of Dredge Spoils

The dredge spoil disposal operations associated with the capital dredging operations are very similar to those currently undertaken with the authorised regular maintenance dredging.

The dredge spoils are loaded directly or indirectly into a barge and towed to the OSDG before being disposed of. Further details on the loading, transportation and dumping of the dredge spoils are provided in the MetOceans Report. The dredge spoil is to be spread evenly over the ground using a variety of starting locations and figure eight tracks, as outlined in the MetOceans report. Records of the starting locations and tick used will be recorded. The disposal operations, like the dredging, is expected to be undertaken primarily during daylight hours, subject to the provisos noted earlier.

The MetOceans report notes that general suspended sediment concentration (SSC) plume pattern from the disposal operations consists of relatively contained plume in the surface and mid-depth layers, becoming more dispersed (with radius of approximately 200m) in the bottom layer, due to the formation of a density current. Predicted deposition patterns are predominantly circular, with thinner northwest-directed features resulting from the deposition of the passive plumes. The MetOceans report predicts for the Albatros vessel (hopper volume of 1,860m^3) SSC levels will generally fall below the 10 mg/litre 'threshold' within 50-200m of the release in the surface and mid-depth levels, and within 250m of the release in the bottom levels.

10 OUTER PORT MAINTENANCE DREDGING & DISPOSAL

10.1 Proposed Maintenance Dredging Area and Levels

Proposed Maintenance Dredging Area

The Outer Port proposed maintenance dredging area is much larger than the proposed capital dredging area as it includes some areas that are not being capital dredged. The area of approximately 25.0ha is shown in Worley Site Plan Figure 4.1 reproduced in **Figure 84**.

The maintenance dredging area extends from the outer (western) end of the PNC to part way along Wharf 6 where there is a tug manoeuvring area.

The proposed maintenance dredging area is very similar to the existing consented area and the area subject to the 2020 applications, except that the boundaries of the defined locations (VTB, berth pockets, PNC etc) are proposed to be adjusted when compared to their existing boundaries to account for the larger vessel sizes, and associated draft requirements, that will be enabled by the current Proposal. In addition, an additional area of approximately 1,250m^2 associated with the extended Wharf 8 berth pocket is to be maintenance dredged, that has not previously been subject to dredging activities. This equates to approximately 0.6% of the total maintenance dredging area. For these reasons, the scope of the maintenance dredging now proposed is considered to vary from that sought in December 2020 and it is considered appropriate to seek new consents for maintenance dredging in association with the current Proposal.

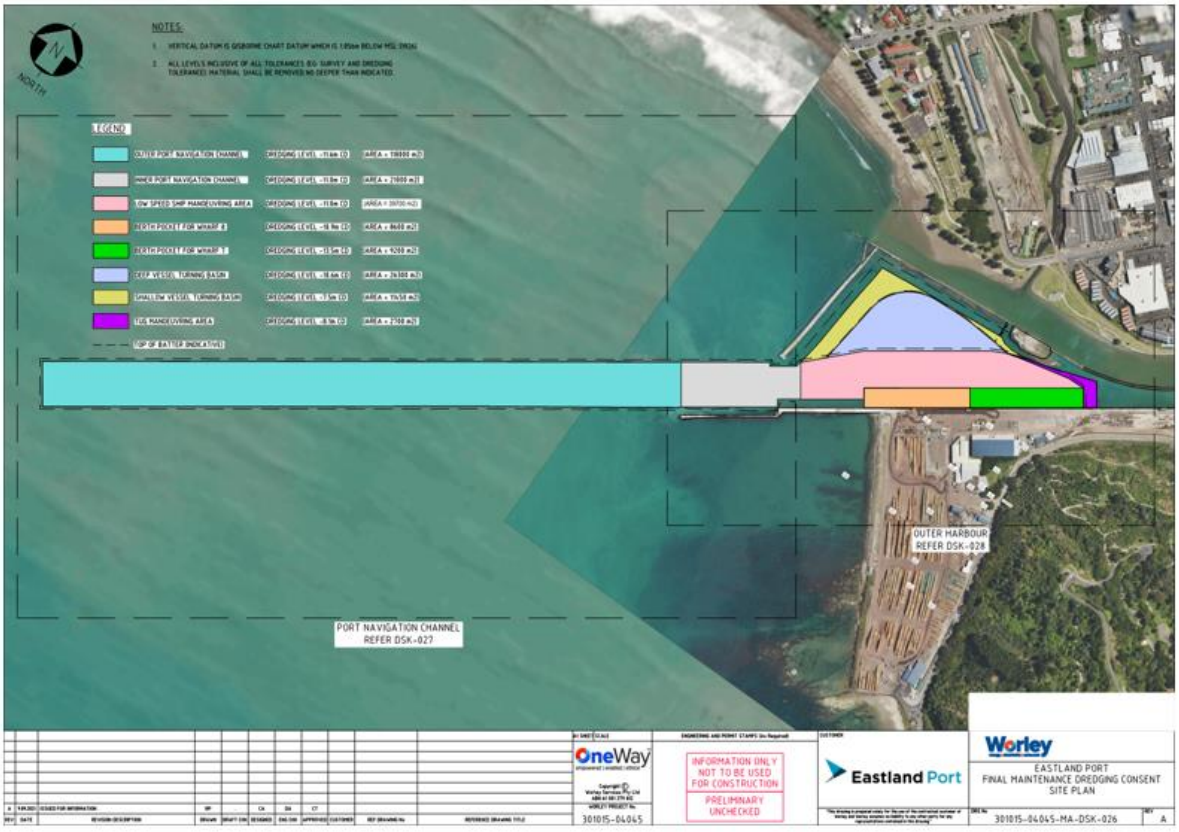


Figure 84: Outer Port Maintenance Dredging Area Plan

Proposed Maintenance Dredge Levels

Table 8, which is drawn from Table 4.1 of the Worley report, records the proposed maintenance dredge areas and levels, along with the existing maintenance dredge levels.

Table 8: Outer Port Proposed Maintenance Dredge Depth Areas and Levels

Port Area	Existing Maintenance Dredge Level (m below chart datum)	Proposed Maintenance Dredge Level (m below chart datum)	Proposed Area (ha)
Outer PNC	-11.0m	-11.6m	11.8
Inner PNC	-11.0m	-11.0m	2.1
VTB -Deep	-10.5m	-10.6m	2.6
VTB- Shallow	-7.5	-7.5m	1.1
VTB Batter			1.0
Low Speed Ship Manoeuvring	-11.0, -10.9, -10.5, -9.7 & -7.5m	-11.0m	4.0
Wharf 8 Berth Pocket	-10.9m	-10.9m	0.9
Wharf 7 Berth Pocket	-9.7m	-13.5m	0.9
Wharf 7 Berth Pocket Batter	-9.7m to surrounding bed level	-9.7m to surrounding bed level	0.3
Tug Manoeuvring Area	-8.1m	-8.1m	0.3
Total	**Variable**	**Variable**	**25.0**

Source: Worley Report

10.2 Proposed Annual Maintenance Dredging Volume

Consent is being sought to maintenance dredge up to approximately 140,000m^3 of material a year. This estimate is primarily based on analysis of past maintenance dredging records, with the maximum in recent years being approximately 138,200m^3 in 2011. The Worley report notes that the long-term average annual maintenance dredging volume is expected to be in the range of 70,000- 80,000m^3, but that allowance should be made for up to 140,000m^3 to account for future weather conditions, including the effects of the La Niña and El Niño weather patterns and increased sedimentation during some storm events.

10.3 Material to be Maintenance Dredged and Methods

Material to be Maintenance Dredged

The nature of the material that is regularly maintenance dredged is explained in the MetOcean *Summary Report,* and Worley *Capital and Maintenance Dredging Report*. Some background information is also provided in the earlier T&T and MES reports.

Sediments and rock in the port are described as "*marine sediments (silty clays) overlying Miocene aged Tolaga Group siltstone and mudstone"*. Thicker colluvium and weathered rock profiles exist adjacent to the Wharfside logyard. Section 5.2 of the of the Worley report refers to MetOcean and 4Sight investigations of the surficial material to be maintenance dredged. It notes that the material is predominantly silt, except in the PNC where it is predominantly sand.

Maintenance Dredging Methods

The methods of maintenance dredging are outlined in Section 6 of the Worley *Capital and Maintenance Dredging Report* and the MetOcean *Summary Report*. The reports note that the Albatros is expected to be used for most of the maintenance dredging as is currently the situation. Also, a BHD may be used in less accessible inner port areas.

Frequency of Proposed Maintenance Dredging

The maintenance dredging is to be carried out periodically throughout the year, like at present, with the most frequent dredging occurring in the outer PNC and VTB. Section 4.4 of the Worley report notes that based on a review of recent annual port maintenance dredging records, dredging occurs on average approximately 99 days a year, with the range being 51 days (in 2016) to 134 (in 2014).

Most of the maintenance dredging at Eastland has traditionally been undertaken during the 'summer' period of October through to April when weather conditions allow for the most efficient dredging. However, maintenance dredging does occur at times over the 'winter' months and with the retirement of the ports own dredging capability, dredging will be contracted on an as required basis and as dredge capacity is available.

The Worley report notes that based on records over the last six years in any one month during summer maintenance, dredging can occur almost every day, i,e. up to 29 days. Figure 4.5 in the Worley report showing the monthly variation is reproduced in **Figure 85**.

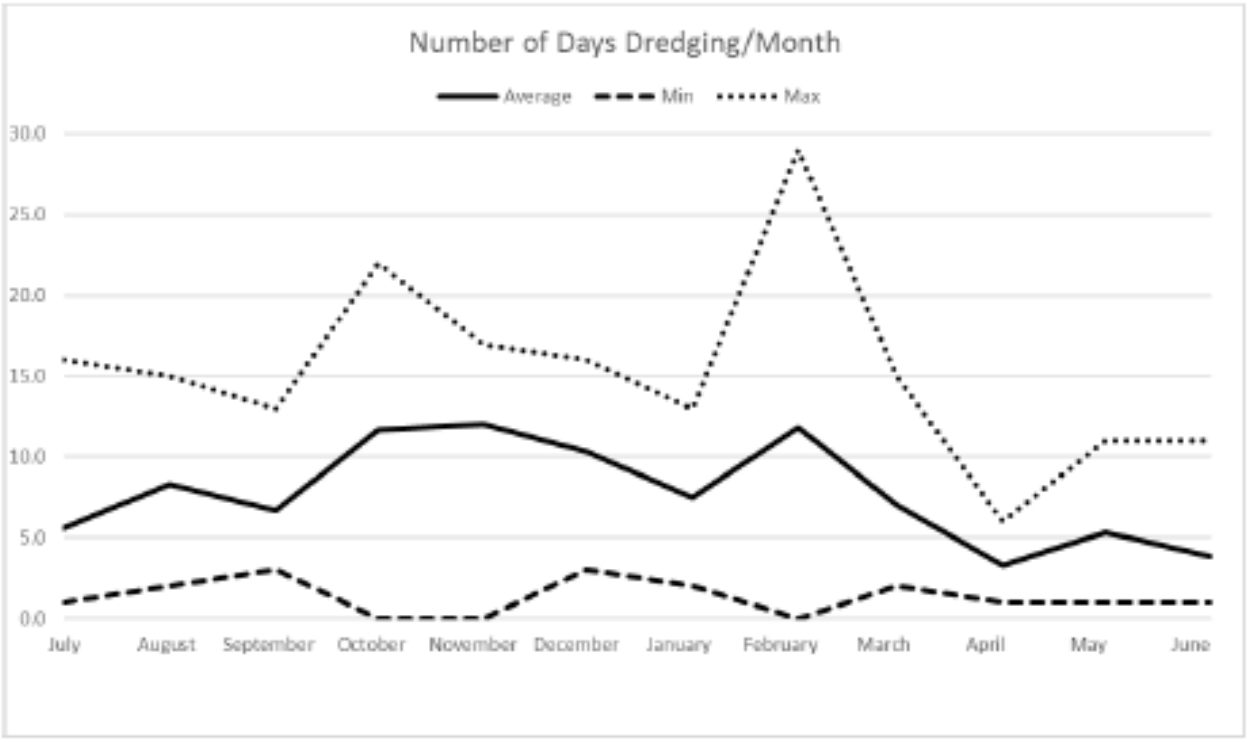


Figure 85: Gisborne Port 2014-2019 Maintenance Dredging Activities

Source; Worley Report

Section 4.5 of the Worley report discusses sedimentation 'hotspots' in the port based on an analysis of dredging data over the 2014-2019 period. Figure 4.6 in the report shows that the inner PNC accounts for around 50% of the total volume, with the centre PNC, the VTB and outer PNC and outer PNC also making significant contributions.

Hours of Operation

Eastland Port advise that the maintenance dredging operations, be generally undertaken primarily during daytime hours, i.e., between 7am and 6pm. However, during 'winter' the maintenance dredging operations may extend into the 'evening' by 3-4 hours, i.e., until 10pm. 'Night-time' (after 10pm) maintenance dredging is unlikely, although may occur at times, if weather conditions prevent maintenance dredging for a long period of time.

10.4 Proposed Transport and Disposal of Dredged Material

The dredge spoil disposal operations associated with the proposed maintenance dredging operations will be the same or very similar to those undertaken currently. The dredge spoils are loaded directly or indirectly into a barge and

towed to the OSDG before being disposed of. Further details on the loading, transportation and dumping of the dredge spoils are provided in the MetOcean Report.

The disposal operations, like the dredging, are expected to be undertaken primarily during daylight hours, subject to the provisos noted earlier. The MetOcean report notes that generally suspended sediment concentration (SSC) plume pattern from the disposal operations consists of relatively contained plume in the surface and mid-depth layers, becoming more dispersed (with radius of approximately 200m) in the bottom layer, due to the formation of a density current. Predicted deposition patterns are predominantly circular, with thinner northwest-directed features resulting from the deposition of the passive plumes.

11 PORT OCCUPATION AREA

11.1 Proposed Port Coastal Occupation Area

The 4Sight plan in **Figure 86** shows the proposed port occupation area.

The proposed area of approximately 19.25ha is similar to the existing area, apart from the following:

- The occupation area adjacent to Wharves 6, 7 and 8 is reduced to account for the slightly larger land footprint of the new redeveloped facilities.
- The occupation area adjacent to the former Slipway is increased to account for the smaller land footprint of the remediated facility.
- No occupation area is proposed along the edge of the Southern logyard.
- A 10m wide occupation area is proposed around the edge of the redeveloped Outer breakwater, along with the edge of the Outer Port reclamation.

The two 10m wide areas either side of the railway bridge remain included.

The basis of the proposed changes to the occupation area are explained in the next few sections.

Under s124 of the RMA the existing port occupation permit will remain in place at least until the outcome of this current application is determined.

11.2 Former Slipway Area

The proposed port coastal occupation area around the former slipway is slightly different to that at present simply to account for the reduced footprint associated with the redevelopment approved as part of Stage one of the TBP. **Figure 87** contains a copy of the Council approved redevelopment plan. The plan was approved by the Council and not altered as a result of the Environment Court proceedings.

The plan shows the areas to be 'declaimed' or returned to seabed (in brown) and 'reclaimed' or lost as seabed (in blue) as a result of the remediation works. The solid blue line shows the new position of MHWS which marks the difference between 'the land' and the CMA and shows the outline of the reduced occupation area in the vicinity of the slipway.

Figure 86: Plan of Proposed Gisborne Port Occupation Area

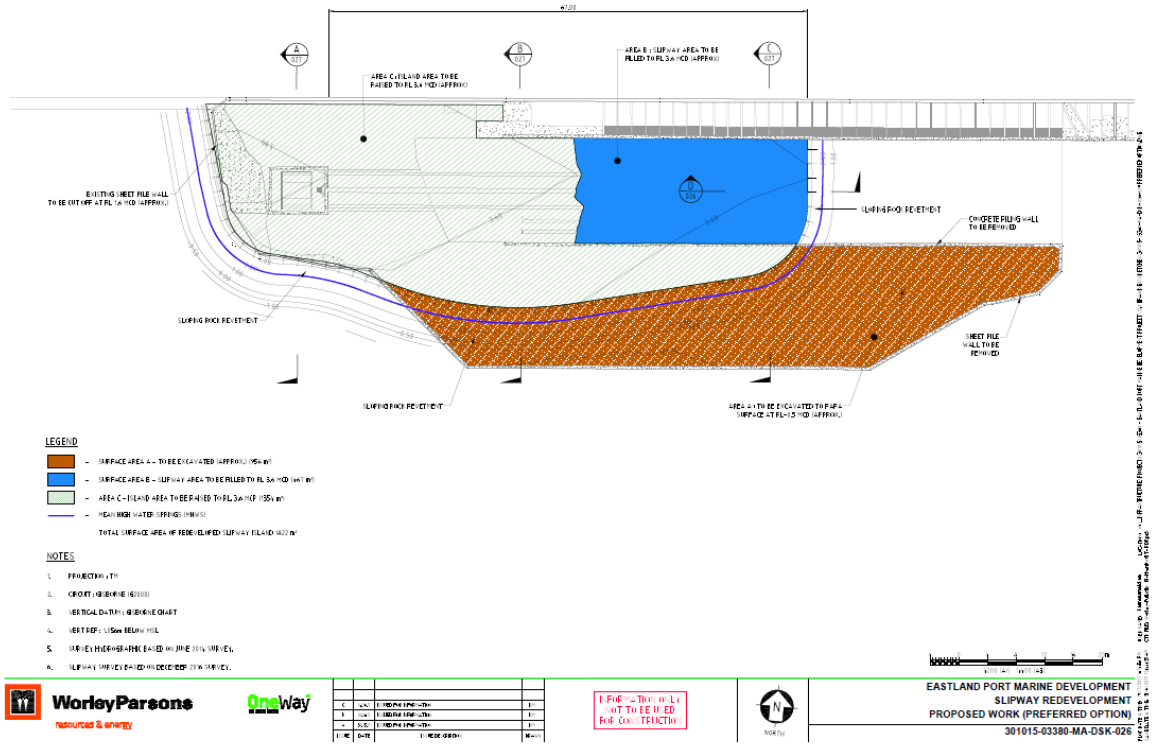


Figure 87: Approved Slipway Redevelopment Plan

11.3 Upgraded Breakwater, Wharf 8 and Outer Port Reclamation Area

A 10m wide strip around both sides of the redeveloped Outer Breakwater is proposed. As outlined earlier, as a result of the upgrading, the Outer Breakwater will have a slightly larger seabed footprint, but this will not in turn require a larger coastal occupation area around it. This is because Eastland Port advise that 10m is adequate to prevent boat landings and any unauthorised mooring of boats in the near vicinity of the upgraded structure.

The Port Occupation area around the Outer Breakwater is located entirely within the Port Coastal Management Area.

A similar 10m wide strip is also proposed around the edge of the Outer Port reclamation, which will result in the exclusion of public access from the General Coastal Management Area over a distance of approximately 120m. As above 10m is wide enough to control any potentially dangerous landing or mooring for boats near the proposed reclamation.

11.4 Wharves 6 & 7 Area

The port coastal occupation area adjacent to Wharves 6 and 7 will be reduced slightly once the approved redevelopment is carried out. Eastland Port advise that the outer quay wall line of Wharves 6 and 7 will tie in with that for Wharf 8 once it is redeveloped.

11.5 Wharves 1-5 Area

The proposed port coastal occupation area adjacent to Wharves 1-5 is similar to that at present. The altered occupation area reflects the new tug berthing area arising from the current Eastland Port coastal permit application (Ref. Section 2.7 of AEE). Eastland Port advise that this is the only change in facilities in this part of the port since the current occupation permit was issued in July 1994, in addition to the marina that is explained below.

11.6 Marina Area

The proposed port coastal occupation area includes the marina because it was not issued with its own occupation permit in 1999. **Appendix S** contains a copy of the marina coastal permit issued on 2 August 1999 by the Council. The appendix also contains an agreement between Port of Gisborne Ltd and Inner Harbour Marina Ltd, which refers to the 1994 port occupation permit in place.

11.7 Southern Logyard Area

No occupation area is proposed along the outer edge of the Southern logyard. This is primarily because, as outlined earlier, Eastland Port are providing public walkway access to the Kaiti reef area to the south of the Southern logyard as part of the Waikahua seawall upgrade project. Also, the logyard itself is security fenced which prevents any public access to this port area.

11.8 Butlers Wall and Turanganui River Training Wall Areas

A 10m wide occupation area is proposed along the northern edge of Butlers Wall and the Turanganui River Training Wall, like at present.

11.9 Railway Bridge Area

The two existing 10m wide areas each side of the railway bridge, which is in Eastland Port ownership, are included in the proposed occupation area. Eastland Port advise this area is being retained because it is consistent with that for the other port facilities.

12 REASONS FOR THE APPLICATION

12.1 Tairāwhiti Plan Zoning and Overlays

12.1.1 Port Related Zones

The plan maps show that Proposal site is located within the following 'zones/areas':

- Port Coastal Management Area- most of the CMA based part of the site.
- General Coastal Management Area – the CMA part of the site affected by part of the Outer Port reclamation and altered Southern logyard stormwater discharge and part of the new port occupation area.
- Port Management B zone- all of the land-based site (blue hatching).

Port Management B Zone

All of the land in the Outer Port (including the breakwater) affected by the Proposal is zoned Port Management B (PMBZ) as shown in (blue hatching) on the plan extract in **Figure 88**. The Inner Port is zoned Port Management A. None of the proposed works affect land in this zone.

Zoning in the Broader Port Environs

The adjacent Cook Landing and Titirangi Reserves are zoned as Heritage Reserve.

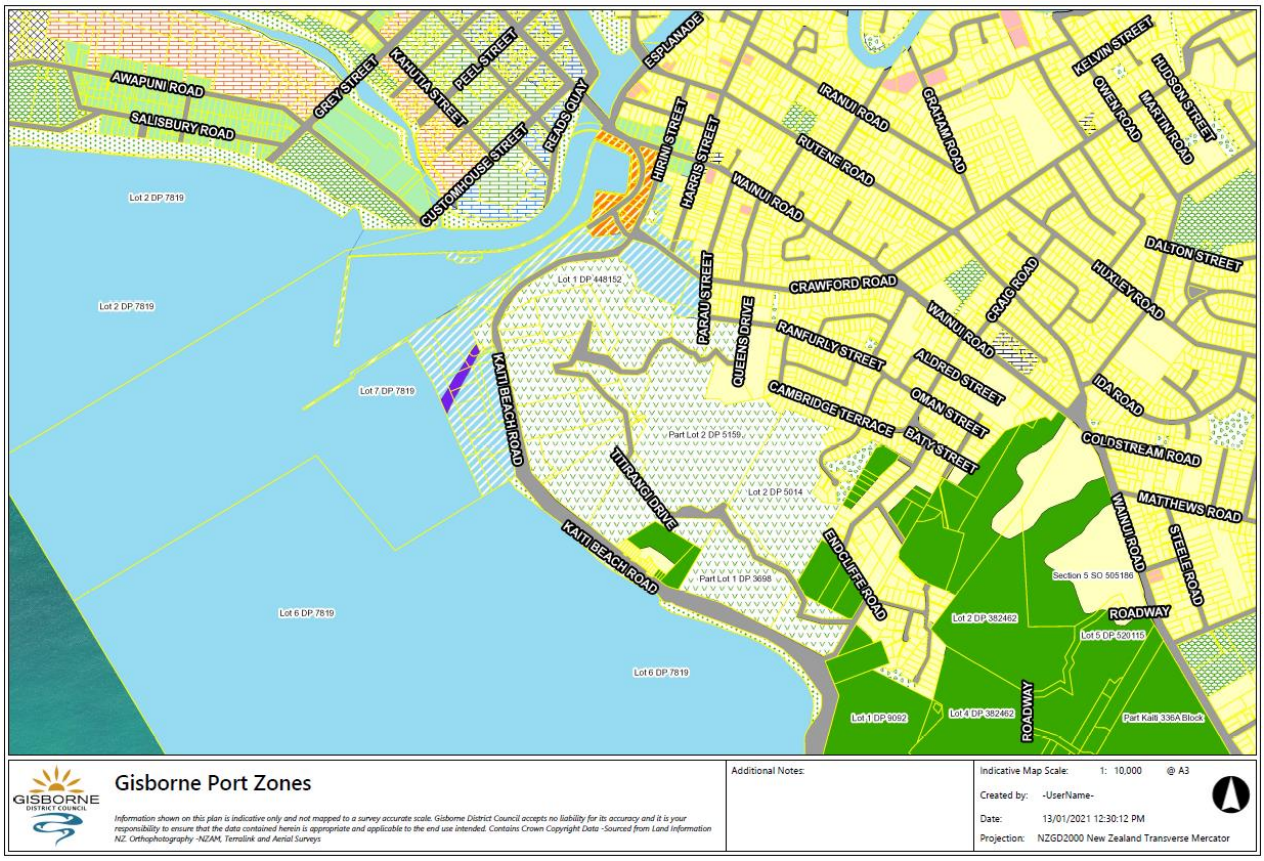


Figure 88: Gisborne Port Area Land Zoning Map

The land to the north of the port on the northern side of the Turanganui River is zoned Amenity Reserve, Recreation Reserve and Amenity Commercial.

A Cone of Vision (shown in purple) extends from the Cook Landing Reserve over part of the Southern logyard. No works associated with the current Proposal will occur within the Cone of Vision.

Port Coastal Management Area

The CMA area immediately adjacent to the port is within the Port Coastal Management Area (PCMA) as shown (in blue and the word 'Port') in **Figure 89**. The PCMA includes the PNC, the Outer Port (VTB and Wharves 6-8) along with the Inner Port (Wharves 1-5). The OSDG is also located in the PCMA as shown in the figure. The plan map shows another PCMA zoned disposal ground (in blue) in the inner part of the bay. This area has never been used for the disposal of dredgings and Eastland Port hold no resource consents that would enable this.

General Coastal Management Area

The CMA in the wider Tūranganui-a-Kiwa/Poverty Bay area is within the General Coastal Management Area (GCMA) as shown (in pink) in **Figure 89**. Part of the site of the proposed Outer Port reclamation is located in the GCMA. The altered stormwater discharge from the Southern logyard, along with part of the proposed Port Occupation Area adjacent to the Southern logyard are also located in the GCMA.

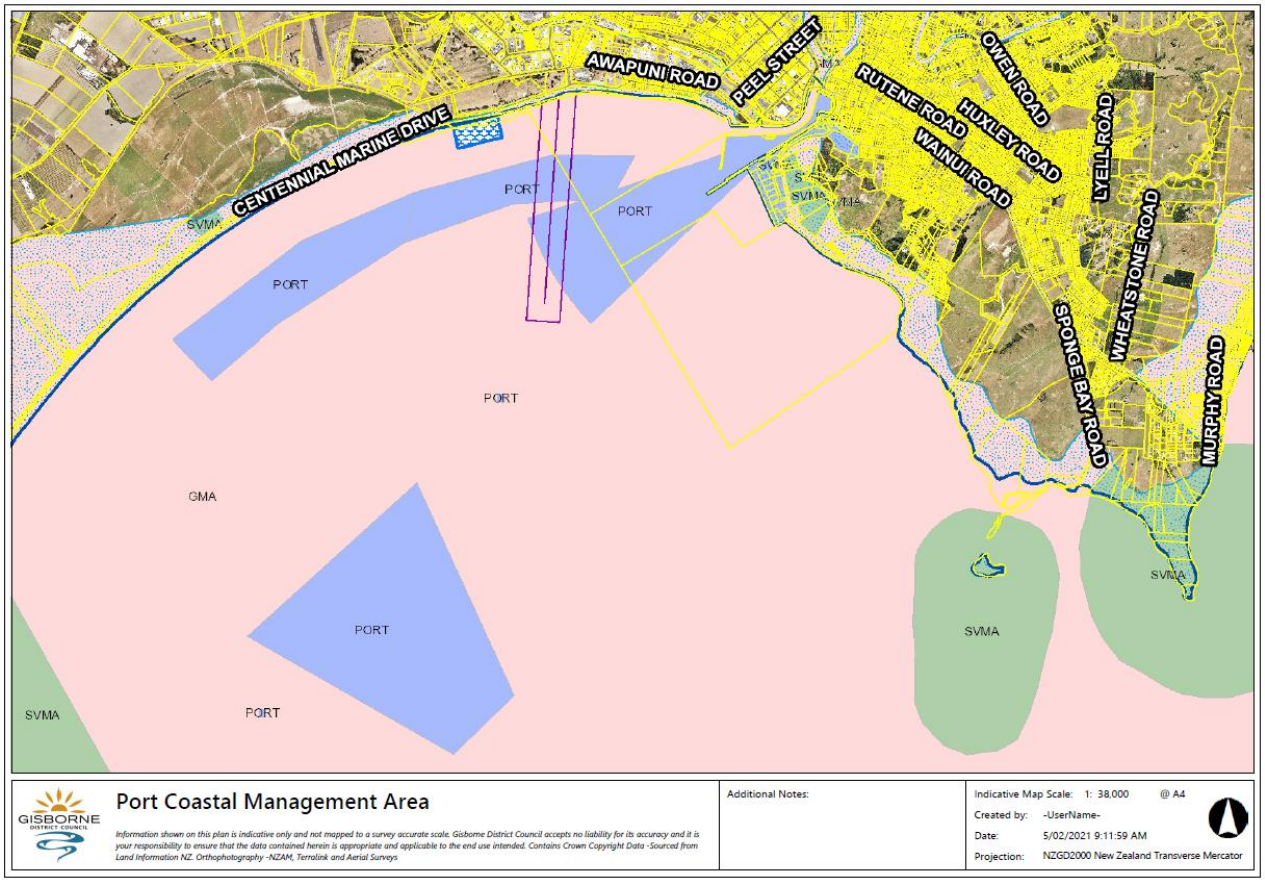


Figure 89: Gisborne Port and Offshore Disposal Ground Coastal Management Area Map

The map also shows the location of the nearby Council wastewater system marine outfall (recorded in purple). It passes through the outer part of the PCMA and into the GCMA.

12.1.2 Port Related Overlays

The plan maps record the following overlays affecting all or part of the Proposal site, and of relevance to the Proposal:

- Built Environment, Energy and Infrastructure: Airport Height Control Surfaces Overlay, Reticulated Services Boundary Overlay, Port Inner Control Boundary and Port Noise 55Ldn Boundary.
- Coastal Management: Coastal Environment Overlay.
- Historic and Cultural Heritage: Heritage Alert Overlay.

The Reticulated Services Boundary, Coastal Environment and Port Inner Control Boundary overlays affect all of the Twin Berth project site.

The following additional overlays apply to all or part of the site, but are not affected by the proposed works:

- Environmental Risks: Stability Alert Overlay.
- Airport Height Control Surfaces.
- Land Management: Land 1 Overlay.

Coastal Environment Overlay

The Coastal Environment overlay (shown by blue dots) covers all the land at the port, as shown in **Figure 90.** It also covers the adjacent Puhi Kai iti / Cook Landing Reserve and much of the adjacent Titirangi Reserve Boundary (inland boundary is a blue line).

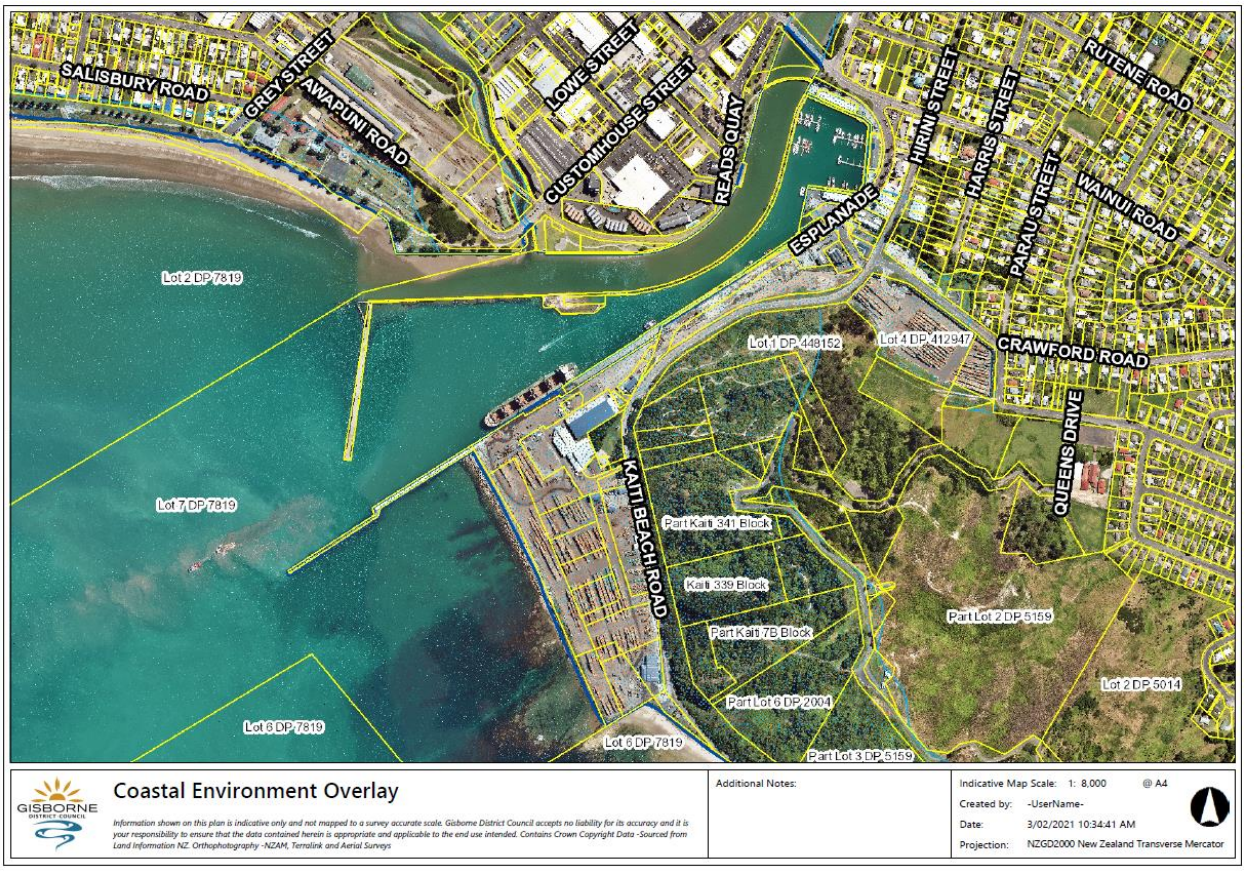


Figure 90: Coastal Environment Overlay Map

Heritage Alert Overlay

The Heritage Alert overlay (shown by blue stripes) affects part of the Wharf 8 site as shown in **Figure 91.**

The Heritage Alert provisions are explained in Section C4 - Cultural and Historic Heritage, of the plan. The planning maps are informed by archaeological sites on the NZ Archaeological Association (NZAA) and Heritage NZ databases. Based on these data bases the Heritage Alert Overlay is intended to identify much broader areas where early settlement was likely to have occurred and there to be the potential for unrecorded archaeological sites or sites of cultural or heritage significance to be discovered.

The Tairāwhiti Plan map also records 'Post European Contact Sites' (white areas) and 'Archaeological Sites' (pink areas) in some adjacent port and reserve areas. Details on the recorded sites are recorded in appendices to the plan.

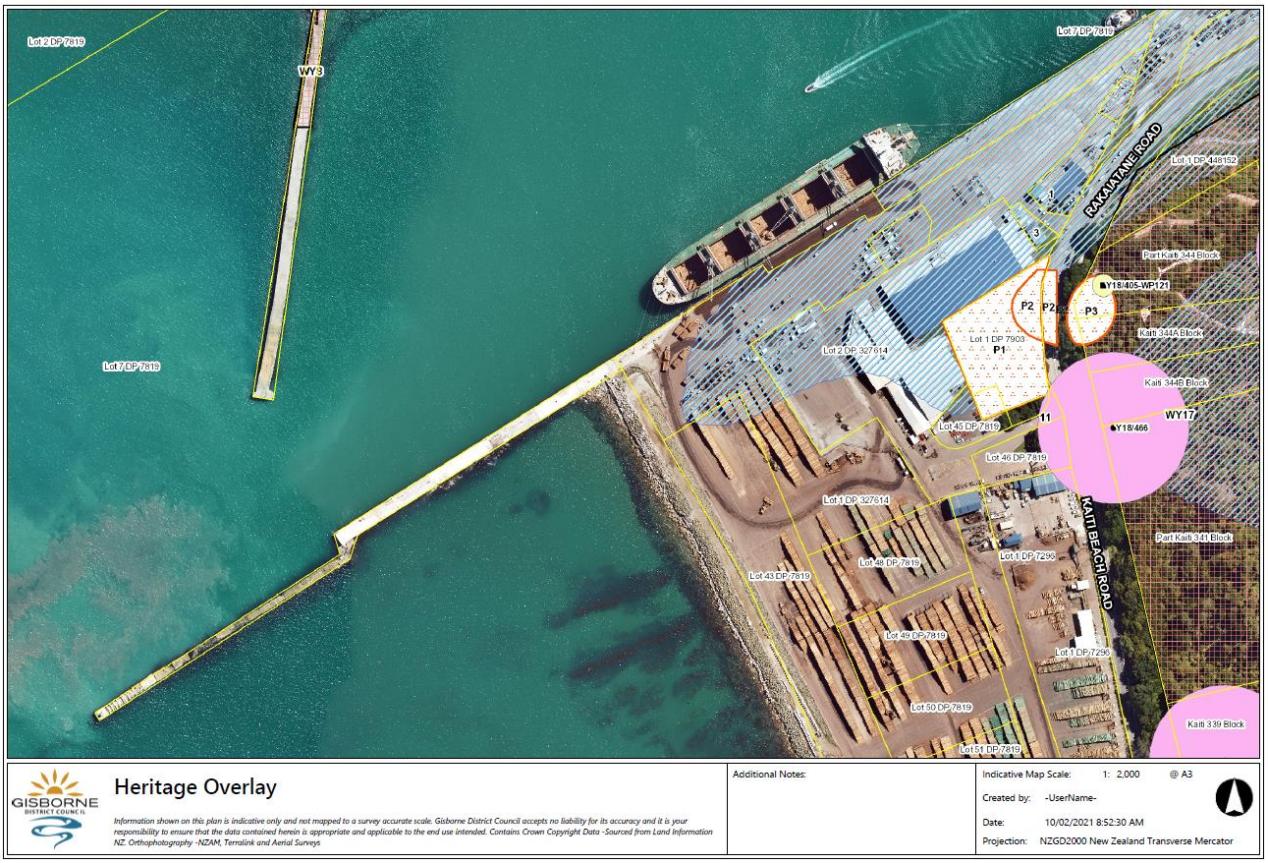


Figure 91: Gisborne Port Area Heritage Alert Overlay Map

Adjacent Area Overlays and Notations

The Turanganui River has an Urban Floodway (F9) overlay. The river also has a Waahi Tapu Area (WY 8) notation. No Twin Berth project works are proposed within the river, so the plan rules attached to the floodway overlay and waahi tapu notations are not applicable to the project.

12.1.3 Cone of Vision Amenity Yard

The Tairāwhiti Plan zoning map in **Figure 88** shows a Cone of Vision (in purple) from the adjacent Puhi Kai iti/ Cook Landing National Historic Reserve affecting part of the Port Entry and Southern logyard areas.

The extent of the Cone of Vision in relation to the developed Port entry and Southern logyard facilities is shown in the 4Sight aerial photograph plan in **Figure 92**.

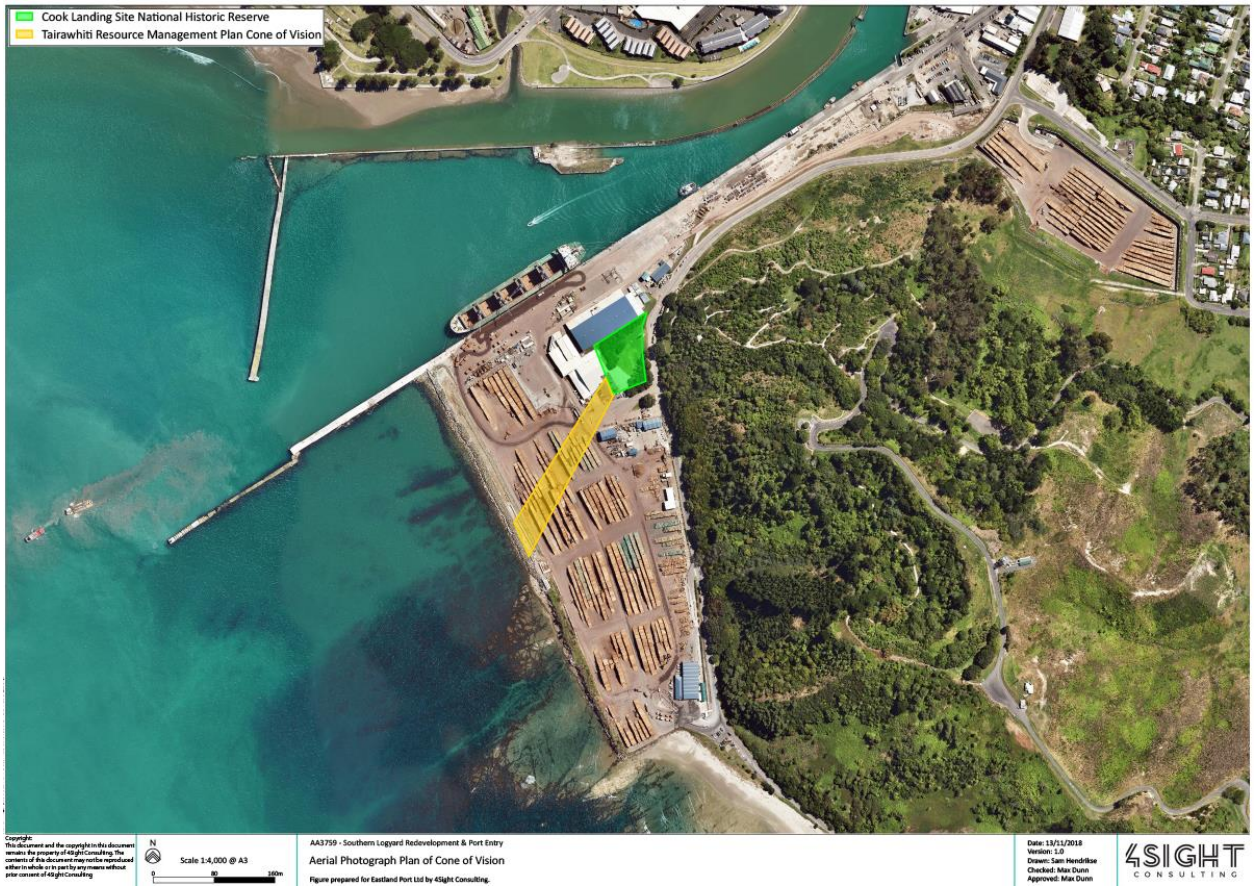


Figure 92: Port Aerial Photograph with Cone of Vision

None of the works associated with the Proposal are located within the Cone of Vision. The Outer Port reclamation is located well to the north. The new Southern Logyard catchment stormwater treatment plant facilities are located to the north and south with no works required in the Cone of Vision.

12.1.4 Port Area Water Classifications

The coastal water classification provisions in the Tairāwhiti Plan are linked to Schedule 3 of the RMA. There are four classes- SA, SB, SC and SD. The Tairāwhiti Plan extract in **Figure 93** shows the different classification areas relating to the port.

The port area waters (inside Butlers Wall), including those in the Wharf 8 area, have an SC classification. The waters around the PNC and part of the wider bay have a SB Classification. The waters to the south of the breakwater, including those affected by the Outer Port and Wharf 8 reclamations, along with those in and around the OSDG, have a SA Classification. The water classification standards relevant to each of these areas are shown in Table 9 below:

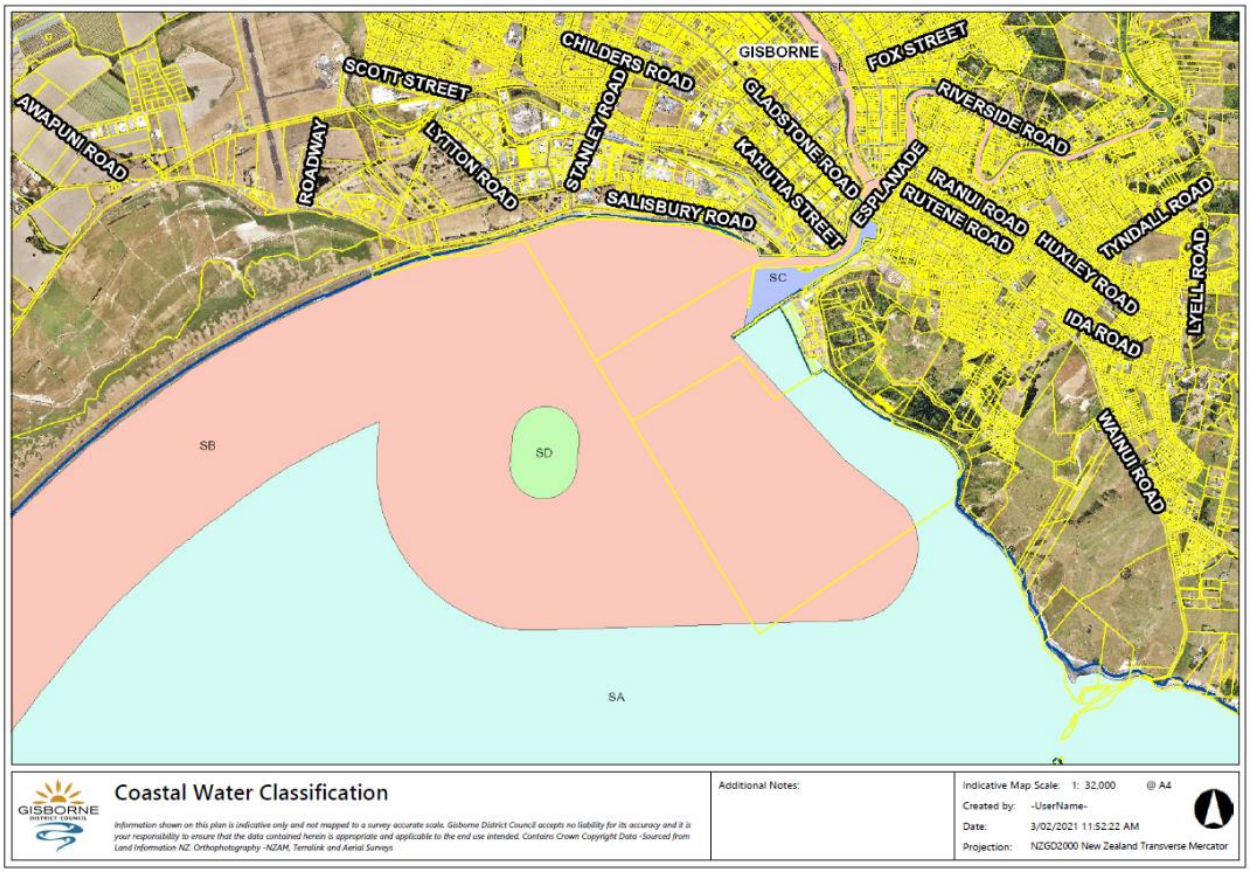


Figure 93: Gisborne Port Area Water Classification Map

Table 9: Tairawhiti Plan Water Classification Standards

Requirements	SA	SB	SC
The quality of the Class XX waters shall conform with the following requirements:			
a. The natural temperature shall not be changed by more than 3 degrees Celsius	X	X	X
b. The natural pH of the waters shall not be changed by more than 0.1 unit and at no time shall be less than 6.7 or greater than 8.5	X	X	X
c. There shall be no destruction of natural aquatic life by reason of a concentration of toxic substances nor shall waters emit objectionable odours	X	X	X
d. The natural colour and clarity of the water shall not be changed to a conspicuous extent	X	X	X
e. Aquatic organisms shall not be rendered unsuitable for human consumption by the presence of contaminants, and	X		
The water shall not be rendered unsuitable for bathing by the presence of contaminants	X	X	

12.1.5 Council GIS Maps

The Council GIS maps record known natural hazard risks for the region. They show that the port area is subject to a 'Liquefaction Risk' with reference to an unreferenced 2015 Tonkin & Taylor Ltd (T+T) report.

No T+ T report title is provided on the GIS or Council website. **Figure 94** contains a copy of the GIS map extract, with the affected areas coloured brown and red.

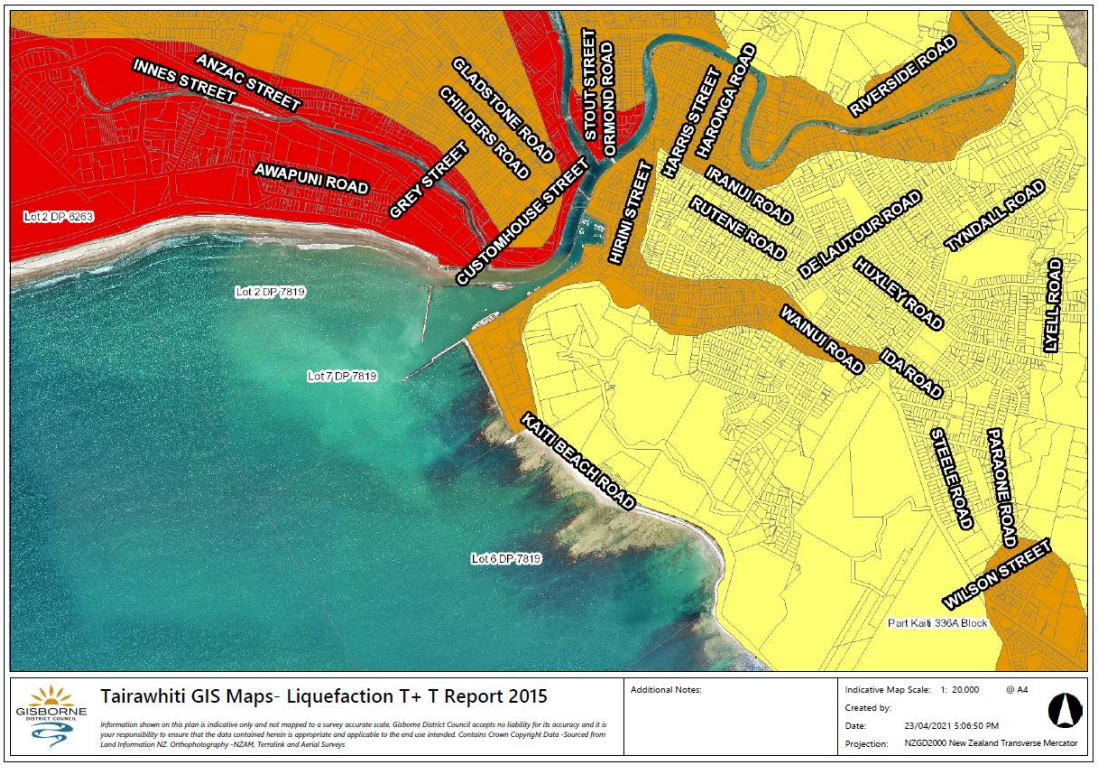


Figure 94: Council GIS Liquefaction Risk Map

The Council GIS maps also record 'Areas Susceptible to Coastal Erosion' with reference to the same T +T report. None of the port land is affected the mapping but both the nearby Waikanae Beach and Kaiti Beach areas are recorded as being at risk/susceptible.

12.1.6 Landscape and Ecology

Neither the Port nor the OSDG are affected by any landscape or ecology-based notations or overlays in the Tairāwhiti Plan.

12.2 Reasons for Resource Consent

The following Chapters of the Tairāwhiti Plan contain rules (along with objectives, policies and other provisions), that apply to the Proposal:

- DP2- Port Management Zone - rules on land-based activities in the Port Management B zoned part of the site.
- DP1- Port Coastal Management Area - rules on CMA-based activities in the PCMA part of the site.
- DC2- General Management Area -rules on CMA based activities in the GCMA part of the site.
- C2- Built Environment, Infrastructure and Energy -rules on stormwater drainage and other utility services.
- C3 -Coastal Management – rules for the Coastal Environment Overlay.
- C4- Cultural and Historic Heritage -rules for the Heritage Overlay.
- C5 – Environmental Risk -rules on potentially contaminated sites.
- C6 – Freshwater -rules on discharges from contaminated land.
- C7 – Land Management - rules on earthworks.
- C8- Natural Hazards -rules for the Stability Alert- Site Caution Overlay.
- C9 – Natural Heritage - rules on provision of esplanade areas on reclamations.
- C11 - General Controls – rules on noise and vibration.

- E- Definitions – effectively rules on key terms like maintenance dredging and reclamation.
- F- Procedural Matters – rules on information with resource consent applications.

In terms of the Part C rules, only those in C1- Air Quality and C10-Subdivision do not affect the project.

This section of the AEE focusses on the applicable Tairāwhiti Plan rules, which determine what Twin Berth project components require resource consents and their activity status. The applicable plan objectives and policies are assessed later in this report. This section of the AEE contains a brief summary of the purpose of each port area/zone/overlay as they provide important context for the rules. It also covers the associated standards in the NES-CS.

12.3 Port Management B Zone Rules

Zone Extent and Purpose

Part DP 2.1 outlines the extent of the PM zone and its purpose, although the distinction between the A zoned area and B zoned area is not really explained. The distinction between the two 'zones' only becomes apparent from a review of the rules in DP 2.6.

Part DP 2.1 notes that the Port of Gisborne is a 'regionally significant transport facility'. It records that a large percentage of the primary produce grown in the district is exported through the Port and it is an 'essential facility' for the continued economic growth and well-being of the district.'' In terms of the PM zone purpose this part of the plan states:

"*The Plan seeks to ensure that a balance is found whereby the continued operation of the Port is enabled while ensuring that adverse effects on the environment are avoided, remedied or mitigated. The primary purpose of the Port Management zones is to provide for activities that have a direct relationship with the use of the Port by vessels. This includes the transport of goods into and out of the Gisborne district, the processing and storage of products which pass through the Port, and the storage of materials and equipment related to the operation of any marine based activities*."

Rules Overview

The Part DP2.6.1 - Rules for Port Management Zone, are applicable to the project. This is in terms of the Port Management B zoning of the Breakwater, Wharf 8, and Southern logyard and Port Entry areas. The rules have four components, one of which applies to the project, being:

- DP2.6.1B - Port Management B Zone Activities (excluding Cook Cone of Vision):

The DP2.6.1A rules for the Port Management A zone are not applicable to the project.

The DP2.6.1C - Port Management B Zone Cook Cone of Vision Activities are not triggered as no works are proposed within the Cone of Vision.

Rules on Port Management B Zone Activities (excluding Cook Cone of Vision)

Under Rule DP2.6.1B(4) "*any activity not specifically provided for in the Port Managment B zone*", is a permitted activity.

Proposed activities occurring on land within the Port Management B Zone include upgrades to the stormwater network and continued port operations and are not amongst the list of activities controlled by restricted discretionary activity Rule DP2.6.1B (5) or discretionary activity Rules DP 2.6.1B(6-11). As such the land-based components of the Outer Breakwater upgrade and Wharf 8 extension appear to be provided for as under Rule DP2.6.1B (4), subject to compliance with the zone development standards and the applicable region wide rules on matters such as infrastructure works and services, and noise and vibration.

The region wide rules are evaluated later in this report with reference to the Marshall Day noise and vibration reports, the Cheal stormwater report and the East Cape traffic report. The Marshall Day noise and vibration reports identify some limited infringements of the region wide noise rules (section C11.2 of the Tairāwhiti Plan), while the Cheal stormwater report identifies the need for pumping of stormwater, which is not permitted under the region wide infrastructure, works and services provisions (section C2 of the Tairāwhiti Plan). On this basis, the Proposal cannot be considered as a permitted activity under DP2.6.1B(4).

Rule DP2.6.1B(5) Restricted Discretionary Activities, makes provision for permitted activities that do not comply with the following rules:

(a) Noise and vibration
b) Height and recession plane
c) Yards
d) Infrastructure, Works and Services
e) Duration, frequency and hours of operation of the activity

Due to the non-compliance with some of the region wide noise standards, the Proposal will require **restricted discretionary consent under Rule DP2.6.1B(5).**

The zone development standards (on height/recession plane and yards) are met as are the region wide rules on infrastructure works and services with reference to the Worley engineering report and East Cape Consulting traffic report.

The Clause (e) reference to activity 'duration, frequency and hours of operation' is not linked to either a Port B zone development standard or a region wide rule. As such there do not appear to be any specific restrictions created in the plan in respect of 'Duration, frequency and hours of operation'.

Port Management B Zone General Development Standards

Rule DP2.6.1.1. sets out General Standards that apply to permitted activities in the Port Management zone. Given the Proposal requires restricted discretionary activity consent under Rule DP2.6.1(5), compliance with the General Standards is not required. However, for completeness it is noted that Proposal does comply with the only standard relevant to the activity, being Clause (A) Height. Clause (A) provides for structures (excluding those associated with 'essential port activities') up to 30m high in the Port B zone. The Southern logyard additional stormwater treatment plant facilities will be low level or buried and well below this height limit. No other new buildings or structures of any significant height, such as lighting towers, are being proposed.

The Clause (B) yard distance standard is not applicable because no adjacent roads/residential land is involved.

The Clause (C) fencing standard only applies to the land within the Cone of Vision area. No changes to the existing fencing of the Southern logyard are involved, so the development standard is not relevant to the project.

The landscaping standard in Clause (D) is not applicable because no new or extended building of more than 100m^2 is involved.

12.4 Coastal Environment Overlay Rules

Background

Chapter C3.14- Coastal Environment Overlay, sets out the objectives and policies associated with the overlay and briefly explains its purpose. This is to 'focus on the natural heritage values of the coastal environment', albeit noting that it only covers the land area above the CMA. The objective highlights the RMA Part 2 requirement to preserve the natural character of the coastal environment.

Relationship to Proposal

The Coastal Environment Overlay applies to all of the port land affected by the Proposal.

Rule C3.14.3 - contains a table of permitted, controlled, restricted discretionary and discretionary activities within the overlay. Some of the activity listings are not clearly worded. However, it appears that the following are relevant to the Proposal:

Rule Assessment

Rule C3.14.3(1) provides for "*minor upgrading and maintenance of lawfully established structures for network utility purposes (excluding roads, tracks or earth dams*)." This clause covers the Southern logyard stormwater upgrading works, with reference to the following definition of minor upgrading in Chapter E7:

"*Means to expand the capacity of an existing structure, where the effects that result from the process are the same or similar in character, scale and intensity as those that existed at 20 November 1997 or prior to the commencement of the minor upgrading for activities established after 20 November 1997.*"

As detailed in the Cheal Stormwater Report, the upgrade works involve installation of a secondary treatment system to supplement the existing systems in order to ensure acceptable water quality discharges. No other changes are proposed to existing pipework or outfalls. The works, therefore, represent an expansion of the treatment capacity of the existing stormwater infrastructure, in terms of the TRMP definition of 'minor upgrading'. Effects will remain the same or similar in character, scale and intensity to those currently existing, or improve as a result of the additional stormwater treatment process.

Rule C3.14.3(10) does not apply to earthworks activities on 'Port Management zoned land'.

Rule C3.14.3 (11) reads as follows:

"Erection of new structures or alteration or additions to existing structures on land that is outside any residential zone; Provided that:

a) The structure is not a dwelling unit on a site to be erected on a building platform for which a subdivision resource consent has been granted between 1 October 1991 and 8 November 1997.

b) The structure exceeds 5m in height.

c) The structure exceeds more than 2.5m above any prominent ridgeline.

d) The structure is a pole or mast which exceeds 10m in height and 300mm in diameter, or 180mm x 350mm in the case of a rectangular pole or mast.

None of the proposed structures, notably the new Southern logyard stormwater treatment plant facilities, will exceed 5m in height. Section 12 of the Cheal stormwater report notes that the treatment plant and ancillary facilities will generally be less than 4m in height. On the above basis the Coastal Environment Overlay does not affect the Proposal.

12.5 Heritage Alert Overlay

Background

The basis of the Heritage Alert Overlay is explained in Chapter C4.1 of the plan. It notes that the Heritage Alert Layer is intended to assist in determining whether developments are in an area of archaeological significance. Criteria used in formulating the model include archaeological sites on the NZ Archaeological Association (NZAA) and former NZ Historic Places (NZHPT) databases. The Heritage Alert 1 Overlay is intended to identify much broader areas where early settlement was likely to have occurred and there is the potential for unrecorded archaeological sites or sites of cultural or heritage significance to be discovered.

Rules

There are no rules associated with the Heritage 1 Overlay. Rule Table C4.1.12 simply contains the following 'note':

"Note: Heritage matters may be considered in resource consents for discretionary or non-complying activities for any part of any activity or use that requires land disturbance and is located or undertaken in the heritage alert layer. Policy in C4.1.6 guides this circumstance. Heritage matters may also be considered in respect of controlled and restricted discretionary activities where this is specifically stated in the zone or overlay rule that this a matter to which Council will limit its control or restrict its discretion."

Relationship to the Proposal

The Heritage Alert Overlay affects a small part of the existing Wharf 8 area as shown in the earlier figure. It indicates that the overlay extends to within approximately 5m of the seaward boundary of Lot 1 DP 327614 containing Wharf 8 and the northern part of the Southern logyard.

The Worley Wharf 8 extension plan indicates that earthworks associated with this part of the project will extend inland (south) from the existing wharf for a distance of approximately 6m. On this basis they are unlikely to extend into the overlay area as mapped. However, as explained above the overlay boundaries are indicative only. The InSitu Archaeology and Heritage Assessment covers this matter and recommends an 'Archaeological Site Discovery Protocol'

be included as a condition of consent. This will ensure that if any redeposited archaeological material is encountered during ground disturbance the works are managed appropriately.

The Cheal Northern Catchment Site Plan (**Figure 73** in this AEE) shows the existing and altered stormwater lines being close to the logyard revetment wall and well to the west (seaward) of the Heritage 1 overlay area (in **Figure 91** of this AEE). As above, the proposed accidental discovery protocol is to be extended to cover the Southern logyard stormwater works and any possible disturbance of archaeological material.

12.6 Port Coastal Management Area Rules

Area Extent and Purpose

The extent of the PCMA as it relates to the Proposal is shown in the 4Sight plan in **Figure 95.**

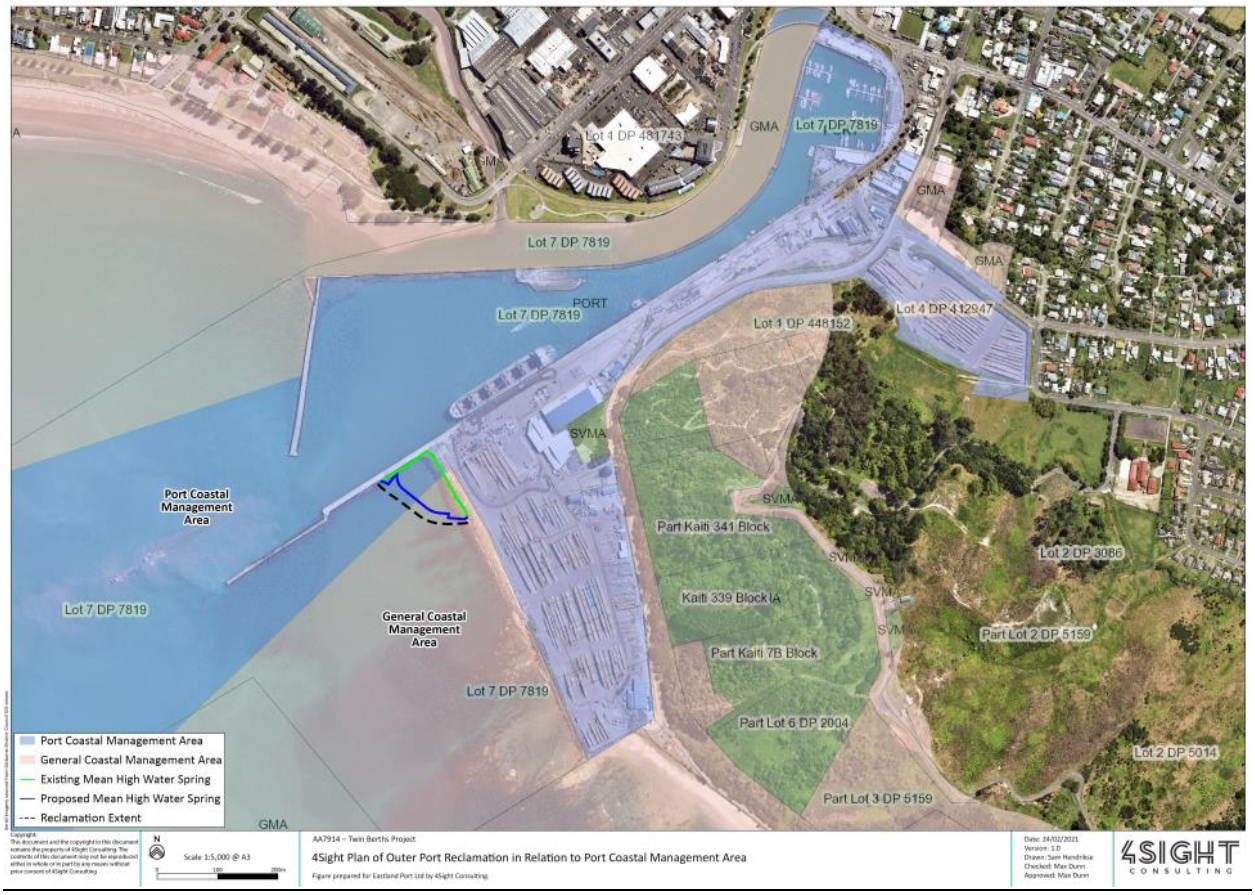


Figure 95: Plan of Proposal in Relation to Port Coastal Management Area

As shown in the figure, all of the seaward (CMA) components of Outer Breakwater upgrade and Wharf 8 extension are in the PCMA (dark blue shaded area), along with the northern 'half' of the Outer Port reclamation. The southern 'half' of the Outer Port reclamation is in the General Coastal Management Area (GCMA).

DP1.1 notes that the PCMA includes the Port Gisborne Basin and a section of the Turanganui River. The area description reads:

"*The Port Coastal Management Area is a highly modified environment where human structures dominate the environment physically and visually.*

The primary purpose of the Port Coastal Management Area is to provide for activities related to the use of vessels and the transport of goods into and out of the Gisborne district, for which a location in the coastal environment is an operational necessity. A high level of integration across the jurisdictional boundary of the line of Mean High Water Springs is essential for the safe and efficient operation of the Port.

Although parts of the Port have significant cultural, amenity and recreational values, the ecological and natural landscape values are greatly modified. However, the Port Coastal Management Area has some natural character, and it is a matter of national importance to preserve the natural character of the coastal environment."

Rules on Activities

DP1 – Port Coastal Management Area, contains a set of rule tables rules relating to activities in the PCMA. There are no development standards, like for the PMBZ. The following PCMA rules are relevant to the proposal:

- DP1.6.1 – Rules for Structures, in terms of altered/additional structures.
- DP1.6.2 – Rule on Discharges, in terms of both temporary discharges from construction activities, capital and maintenance dredging and disposal and the Southern logyard stormwater discharge.
- DP1.6.3- Rule on Occupation of Space in the CMA, in terms of the new Port Occupation Area, most of which is in the PCMA.
- DP1.6.4– Rule on Alteration of the Foreshore and Seabed, in terms of the proposed reclamations, capital dredging, maintenance dredging and disposal of dredge spoils.
- DP 1.6.5- Rule on the Taking, Use Damming and Diversion of Coastal Water, in terms of any taking or use of coastal waters associated with construction activities.

12.6.1 Rule on PCMA Structures

Rule Table DP1.6.1 contains a list of permitted, controlled, restricted discretionary and discretionary activities relating to structures in the PCMA. The following are applicable to the Proposal:

- Clause (4) provides for the removal or demolition of any structure in the CMA.
- Clause (6B) provides for 'any temporary structure in the CMA of the PCMA' as a controlled activity.
- Clause (8C) provides for 'the construction, erection and alteration of a structure in the CMA, (but excepting minor alterations and reclamation)' as a controlled activity.
- Clause (14) provides for the erection of any structure that will impound or effectively contain any of the CMA, as a discretionary activity.
- Clause (15) provides for structures parallel to MHWS which are solid or present a significant barrier to water or sediment horizontal movement between 300m and 1000m, as a discretionary activity.

Permitted Activity Rule on Removal or Demolition of Any Structure

Clause (4) provides for "the removal or demolition of any structure in the CMA" as a permitted activity. Four standards are attached to the rule, they are as follows:

(a) Contaminants are not disposed of into the coastal environment.

(b) There is no adverse effect on public safety and navigation safety.

(c) Any disturbance to the seabed is minor enough to be removed by two tide cycles.

(d) Prior to and immediately after removal of the structure the Maritime New Zealand and the Hydrographic Office are notified.

The rule goes on to note that "*if any of the Standards are not met then Rule DD1.6.1.8 applies.*" This appears to be a drafting error as Rule *DD*1.6.1.8 applies to activities in the Residential zone and has no relevance to the PCMA. It is assumed the reference is intended to be to Rule *DP*1.6.1.8, which specifies a Controlled activity status for the removal or demolition of any structure in the CMA, except as provided for in Rule DD1.6.1.4. Notwithstanding this, the Worley report indicates only that part of the revetment wall material above MHWS is to be removed and used in the proposed reclamation, so effectively no demolition works are proposed in the area to which the rule applies i.e. in the CMA below MHWS. Therefore no consent is required.

Controlled Activity Rule on Altered and New Structures

Clause (8C) provides for "*the construction, erection and alteration of a structure in the CMA, (but excepting minor alterations and reclamation)*" as a controlled activity, provided six conditions are met.

The term 'structure' is defined in Parts E2 of the plan as follows:

"*Any building, equipment, device, or other facility made by people and which is fixed to land and includes any raft. In the case of network utility activities this shall include conductors*."

The term 'reclamation' is defined in Parts E5 of the plan as follows:

"For the purposes of this Plan, reclamation includes both:

a) the permanent infilling of the foreshore or seabed with sand, rock, concrete or similar material to form land above the level of Mean High Water Springs (including any embankment, causeway, or rubble mound breakwater which has a vehicle access track); and

b) the permanent drying out of any part of the foreshore or seabed below the level of Mean High Water Springs by means of the construction of a causeway, bund, seawall, other similar solid structure, or any combination thereof, which act to exclude coastal water from part of the coastal marine area." *(E*mphasis added*)*

The Outer Port reclamation and Wharf 8 extension clearly involve reclamation as they involve the 'permanent infilling of the seabed with rock/concrete', and 'land will be created', as shown on the Worley plans. Areas of land will be created, which in turn can be accessed by vehicles. The Worley plan indicates that the outer breakwater will be extended to make a fully vehicle accessible facility. Likewise, the Worley plan indicates that the Outer Port reclamation will also be fully accessible by vehicles.

The Outer Breakwater upgrade is considered to be a reclamation, on the basis that it involves a 'breakwater with vehicle access' (albeit built from concrete units rather than rubble) and 'land will be created'. The top of the upgraded breakwater will be approximately 9m wide and able to be used by heavy vehicles, and if need be cranes, in the future for any required maintenance works.

Some of the initial preparatory and/or final finishing works involved in tying the Wharf 8 extension to Wharf 7 and the Wharf 8 extension to the Outer Breakwater possibly fall outside the definition of 'reclamation'. On this basis consent is also being sought to 'alterations to, and erection of new structures' under controlled activity Rule DP1.6.1(8) (C).

For completeness, it is noted that any element of the works considered to be an 'alteration of a structure' are anticipated to fall outside the permitted activity threshold for 'minor alterations' provided by Clause (6), as the area of the CMA covered by structures will increase by more than 5%.

Discretionary Activity Rule on CMA Impoundment by Structures

Clause (14) is applicable to the temporary working platform and revetment wall structure that will 'impound' a CMA area of approximately 3,400m^2 between it, the Wharf 8 extension/Inner breakwater and the Southern logyard revetment wall.

The clause reads as follows:

"DP 1.6.1(14). Any activity involving the erection of a structure or structures which will impound or effectively contain any area of the Coastal Marine Area of the Port Coastal Management Area."

The term 'impounding' is defined in Part E5- Coastal Environment Definitions, in the following manner:

"Impounding- For the purpose of Rule DC1.6.4.5, impounding means the alteration or disturbance of the seabed or foreshore that has the effect of collecting or confining coastal waters."

The northern 'half' of the working platform/revetment wall will be constructed in the PCMA. Along with the southern 'half' in the GCMA, the whole facility will for a period of up to approximately 12 months act to 'confine the coastal waters' and effectively impound them. It is unclear why definition of 'impounding' refers only to the rule on 'impounding' in the Significant Values CMA (Rule DC1.6.4.5). The PCMA and GCMA are not referred to in the same definition even though they also have rules on 'impounding'. However, it is considered that the definition of 'impounding' can be appropriately applied to such activities in the other management areas. As such, discretionary activity consent is required under Rule DP1.6.1(14). No standards are attached to the rule.

Part of the Outer Port reclamation is in the GCMA and the application of GCMA relevant rules is addressed below.

Discretionary Activity Rule on Solid or Similar Structures

Clause 15 applies to structures that are *"more or less **parallel** to MHWS*" and are "*solid or present a significant barrier to water or sediment movement*" while Clause 16 applies to structures that are *"**oblique or perpendicular** to MHWS*" and are "*solid or present a significant barrier to water or sediment movement"* (emphasis added).

As detailed above, works associated with the Outer Breakwater upgrades, Wharf 8 extension and Outer Port reclamation are generally considered to fall within the definition of 'reclamation' and are subject to the rules on this activity. To the extent that works fall within the definition of 'structure', either in addition to or as opposed to the definition of 'reclamation', structures associated with the Proposal are considered to be 'more or less parallel to', rather than 'perpendicular to' MHWS, as they will be constructed along the length of existing Port structures including Wharf 8, the outer breakwater and the Southern Logyard, all of which represent the line of MHWS as shown on the TRMP planning maps.

On this basis, the Proposal is assessed under Clause 15 rather than Clause 16.

Under Clause 15 structures of more than 300m in length, either individually or incrementally, but less than 1000m in length require Discretionary activity consent. If considered to be 'structures', the approx. 130m length Wharf 8 extension together with the Outer Breakwater upgrades over a length of approx. 195m would be considered as Discretionary activities under DP 1.6.1(15).

12.6.2 Rule on Alteration of the Foreshore and Seabed in the PCMA

Rule Table DP1.6.4 contains a list of permitted, controlled, restricted discretionary, discretionary and prohibited activities relating to alteration of the foreshore and seabed in the PCMA. The following are applicable to the Proposal:

- Clause (2) provides for the deposition of dredge spoils of up to 50,000m^3 from the PCMA within the identified OSDG as a permitted activity.
- Clause (3) provides for maintenance dredging for navigation purposes as a controlled activity.
- Clause (4) provides for the disturbance of the foreshore or seabed for the maintenance of existing port structures as a controlled activity.
- Clause (5) provides for reclamations for the operational needs of the port as a discretionary activity.
- Clause (6) provides for capital dredging as a discretionary activity.

Discretionary Activity Rule on Reclamation

Clause (5) provides for "*reclamation within the Port Coastal Management Area for the operational needs of the Port*" as a discretionary activity. No standards are attached to the rule.

The definition of the term 'reclamation' and its relationship to the Proposal was outlined earlier. The Outer Breakwater upgrade, Wharf 8 extension and Outer Port reclamation all fall within the definition and being required for the 'operational needs of the port' require consents as **discretionary activities** under this rule.

Part of the Outer Port reclamation is also in the GCMA and this is assessed in relation to the relevant GCMA rules below.

Discretionary Activity Rule on Capital Dredging

Clause (6) provides for *"capital dredging within the Port Coastal Management Area of the Coastal Marine Area"* as a **discretionary activity.** No standards are attached to the rule.

Controlled Activity Rule on Maintenance Dredging

Clause (3) provides for *"Maintenance dredging in the Port Coastal Management Area of the Coastal Marine Area for navigation purposes"* as **a controlled activity**. The rule provision is tied to a standard that requires *"any resource consents required for the disposal of dredge spoil have been obtained."* The Twin Berths coastal permit application covers both maintenance dredging and dredge spoil disposal, so the standard is met.

The term maintenance dredging is defined in the glossary as:

"Any dredging of the bed of the sea necessary to maintain water depths to previously approved levels for the safe and convenient navigation of vessels, in navigation channels and at berthing and mooring facilities, including marina developments."

The Twin Berths maintenance dredging fits within the definition. It will be confined to the port 'navigation channel, berthing and mooring facilities' and is 'necessary to maintain water depths at previously approved depths.'

Permitted Activity and Discretionary Activity Rules on Disposal of Dredgings

Clause (2) provides for "*The deposition of dredge spoils from the Port Coastal Management Area within the Port Coastal Management Area*" as a permitted activity, provided three standards are met. They are:

(a) Deposition occurs within Spoil Dump Outer Zone as depicted on the planning maps of this plan;

(b) Involves quantities of less than 50,000m^3 over any 12-month period; and

(c) Does not result after reasonable mixing in the production of conspicuous oil or grease scums or floating scums or foams.

The rule also states if one of the standards is not met then the 'deposition of dredge spoils' is a discretionary activity.

Standard (a) is further explained with reference to the NZMG geographic grid coordinates of the OSDG. All dredgings are to be deposited within the OSDG shown on the planning map so this condition is met.

Standard (b) is not met because the annual volume of maintenance dredgings from the redeveloped port following the Proposal will generally exceed the 50,000m^3 'threshold' set. As such it requires consent as a **discretionary activity**.

Standard (c) will be met. As outlined in the 4Sight Ecology and Water Quality Report the disposal activity is not expected to generate any 'floating scums or foams.'

No Rules on General Disturbance of the Foreshore or Seabed

The Worley Port Reclamation Wharf 8 Extension and Outer Breakwater Upgrade Report refers to the likely need for ground stabilisation works involving deep soil mixing, mass stabilisation, and/or jet grouting before the Outer breakwater upgrade, Wharf 8 extension and Outer Port reclamation are constructed. The PCMA rules make no express provision for such pre-construction activities, even though they often involve relatively minor disturbance of the foreshore and seabed.

Rule Table DP1.6.4- Rule for the Alteration of Foreshore and Seabed, only provides for the shifting and burial of marine mammals (Clause 1) and deposition of dredge spoils of up to 50,000m^3/year (Clause 2) as permitted activities. As noted earlier, Clause (4) provides for the disturbance of the foreshore or seabed for the maintenance of existing port structures, as a controlled activity. The ground stabilisation works, being associated with structure extension rather than maintenance, do not fall into this category. However, they are considered to represent a disturbance of the foreshore or seabed that is otherwise controlled under Section 12 of the RMA.

Under Section 87B RMA, any activity that requires consent under the RMA but is not clearly subject to any plan rule is deemed to be **a discretionary activity**, where a consent is required under Part 3 of the RMA. The RMA case law refers to such activities as falling within the 'innominate category'.

The Worley report notes that more detailed geotechnical engineering investigations are required to more accurately determine the nature of the likely ground stabilisation works in terms of locations, affected seabed areas and methods. However, all of the ground stabilisation works will be within the seabed 'footprints' of the extended/new structures and be less intrusive than the principal works, so consent is being sought to them now, rather than at the more detailed construction design and tendering stage. Consent conditions are expected to be imposed requiring that full details of the ground stabilisation works be provided to the Council as part of the Construction Management Plan (CMP) before any such works are carried out.

12.6.3 Rule on Discharges in the PCMA

Water Quality Standards

The first part of Rule DP1.6.2 requires the following:

Observance of Water Quality Standards

"All discharges to the coastal marine area after reasonable mixing and disregarding the effect of any natural perturbations', shall observe any relevant water quality standards set out in set out in Method C3.10.4(12) for the Classification Area defined in Schedule G14 of this Plan".

The water quality classifications standards relating to each of the water classes associated with the Port (SA, SB & SC) and OSDG are shown in Section 13.1.4 of this AEE and explained in detail in the 4Sight Ecology and Water Quality Report. The different classes have a number of common standards on water temperature, pH, water clarity and colour, along with a few key class-specific standards.

The most significant in terms of the Proposal is Standard (d) which requires "*the natural colour and clarity of water shall not be changed to a conspicuous extent.*" This standard applies to all water classifications relating to the Port (SA, SB & SC).

The highest SA classified waters (around the OSDG) and SB (around the PNC) also include standard (e) that requires "*aquatic organisms shall not be rendered unsuitable for human consumption by the presence of contaminants*". In relation to SA waters standard (e) also requires "*the water shall not to be rendered unsuitable for bathing by the presence of contaminants*".

Based on the findings of the 4Sight Ecology and Water Quality report the Proposal will comply with DP1.6.2-Observance of Water Quality Standards, except for the following:

- The progressive construction of the Outer Port reclamation working platform and revetment wall will not comply with standards (d) nor (e), nor will the progressive infilling of the enclosed CMA area, even though no bathing actually occurs in this area.
- The armouring of the Outer Breakwater is also unlikely to comply at all times with standard (d) or (e) because of significant seabed disturbance/discolouration over a relatively large area.
- The sheet piling and rock material filling for the Wharf 8 extension is unlikely to comply at all times with standard (d) also because of some very localised (albeit much less) seabed disturbance/discolouration.
- The capital and maintenance dredging activities in the SC (port) and SB (outer PNC) classified waters will not at all times comply with standard (d) where a TSHD is used. However, the standard infringement will be no different to that which has occurred in the past and is authorised under the current maintenance dredging consent. Where a BHD is used, the SC water quality standard (d) is expected to be met.
- SA water quality standard (c) will be breached for a short period over a localised area during disposal of material at the OSDG.

Taking into account the identified water quality standard infringements, resource consents are required under the following clauses of Rule DP1.6.2:

Activity Based Rule

Rule Table DP1.6.2 contains a list of permitted, controlled, restricted discretionary, discretionary and prohibited activities relating to discharges in the PCMA. The following are applicable to the Proposal:

- Clause 1.6.1(3)[2] provides for the discharge of stormwater runoff and uncontaminated seawater to the CMA as a permitted activity, or discretionary where the relevant standards are not met.
- Clause 1.6.2(4) provides for all other discharges to the CMA as a discretionary activity.

Rule on Stormwater Discharges

Clause (3) provides for "*the discharge of stormwater and uncontaminated seawater to the coastal marine area*" as a permitted activity provided three standards are met. The three standards are:

- Standard (a) - no permanent reduction in ability of the receiving environment to convey flood flows, nor any scouring of the foreshore or seabed.
- Standard (b) - no conspicuous foams, scums or suspended solids after reasonable mixing.
- Standard (c) - the applicable water classification standards are met.

[2] Note that there appears to be an error in this rule number. The rule is the first rule to appear in Table DP1.6.2, and so following the convention adopted for other rule tables would normally expect to be referenced as Rule DP1.6.2(1) rather than Rule DP1.6.1(3).

This rule is applicable to the proposed stormwater discharge from the SLY Northern catchment, which incorporates the additional stormwater discharges from Wharf 8 extension/Outer Port reclamation, to the port (SC Classified Waters) through the existing Northern outlet.

Standard (a) will be met in terms of the Southern Logyard Northern outfall. The Cheal stormwater report notes that the additional stormwater discharge from the Outer Port reclamation and Wharf 8 extension and other areas to the port through the Northern outfall will have no adverse effects of a flooding or scouring nature.

The method for the SLY stormwater treatment upgrade has been based on the completed upgrades for the Upper Logyard (ULY) and Wharfside Logyard (WLY) which sought to address the same types of difficulties in capturing fine particulates in the discharge as are currently experienced in discharges from the SLY.

Regular monitoring of the ULY and WLY discharges following this upgrade demonstrates greatly improved treatment quality and compliance with consent requirements. For this reason, it is expected that the upgraded SLY system will enable the resultant discharge quality to maintain the applicable water quality standards and, therefore, satisfy standards (b) and (c) of Rule DC2.6.2(1). However, given the difficulties previously experienced in capturing fine particulates in discharges from the SLY a precautionary approach is proposed, whereby consent is sought (under standards (b) and (c)) for discharges not meeting the SA water classification standards requiring 'no conspicuous change to natural colour and clarity', at least until such time as a robust monitoring programme is able to demonstrate compliance with the relevant standards. Any such exceedances are expected to be limited to during extreme rainfall events and for short duration storms.

The last part of this rule deems any discharge of stormwater runoff that does not meet one or more of the standards to be a discretionary activity. On this basis, the proposed stormwater discharges fall for assessment as a **discretionary activity** under Rule DP1.6.1(3).

Discretionary Activity Rule of Other Discharges & Resource Management (Marine Pollution) Regulations

Clause (4) deems "*all discharges to water of the CMA not more specifically addressed elsewhere by rules in this plan or the Resource Management (Marine Pollution) Regulations 1998, excepting stormwater and uncontaminated seawater discharges"* to be discretionary activities.

Section 4(2) of the Resource Management (Marine Pollution) Regulations deems the dumping of dredge material in the CMA from any ship to be discretionary activity in any regional coastal plan.

Neither the Tairāwhiti Plan rules nor the Resource Management (Marine Pollution) Regulations appear to specifically cover discharges associated with the dumping of dredge material. Nor are temporary discharges to the CMA from construction activities specifically addressed elsewhere. As such, **Discretionary Activity** consent is required under Clause (4) for the following activities:

- The discharge of decant water from the capital and maintenance dredging operations, based on the findings of the 4Sight Ecology and Water Quality Report.
- The temporary discharges of sediment to the CMA from the various construction activities, based on the findings of the 4Sight Ecology and Water Quality Report.

12.6.4 Rules on the Taking, Use, Damming and Diversion of Coastal Water in the PCMA

Rule DP1.6.5 Clause (3) specifies that Discretionary Activity consent is required for:

"DP1.6.5(3) *Any activity involving the taking, use, damming or diversion of water found in any river, stream, estuary, or aquifer in the Coastal Marine Area, other than open coastal water is a discretionary activity. For the purposes of this rule the Gisborne Harbour Basin bounded by Kaiti Beach Road to the southeast, the Esplanade to the east, Wainui Road to the north, the seawall structure separating the Harbour Basin from the river to the west and the open sea to the south is to be considered as open coastal water and not as a river, stream, estuary or aquifer.*" (Emphasis added)

The initial working platform and the progressive construction of the revetment wall associated with the Outer Port reclamation will result in the temporary 'damming' of seawater between them, the Wharf 8 extension/Inner breakwater and the Southern logyard revetment wall.

Due to the location of the works, however, in 'open coastal waters', which is described in the rule as including the 'Gisborne Harbour Basin' (or port area), they appear to be excluded from the rule. This same activity is not separately listed as a permitted, controlled, restricted discretionary, non-complying or prohibited activity.

Section 14(1) of the RMA prevents a person from damming open coastal water if it 'contravenes' a NES regulation or regional rule, unless it is authorised expressly by a consent. As no regional rule in Section DP1.6.5 Rules for the Take, Use, Damming and Diversion of Coastal Water appear to cover the temporary 'damming' of seawater during construction of the Outer Port reclamation, there is a potential need for consent to be obtained under s87B of the RMA as an innominate activity.

It is, however, considered that Rule DP1.6.1(14) under which discretionary activity consent is sought for the erection of a structure that will temporarily 'impound or contain' an area of the CMA during construction of the Outer Port reclamation effectively addresses the 'damming' of open coastal water under Section 14 of the RMA, such that a further innominate consent for this activity under s87B is not required.

This assessment is supported by the following definitions of 'damming' and 'dam' in the TRMP, which clearly reference and encompass the concept of 'impounding':

"Damming – The impounding of water by a dam. "

"Dam – A structure used or to be used for the damming of any water, or waterbody where the structure is the full width of the waterbody – and includes stormwater treatment ponds, sediment retention ponds and temporary impoundments used during site dewatering. It excludes bridges, intake bunding or structures for water takes provided the structures for water takes are not the full width of a waterbody, culverts except any culverts which have a mechanism that can be used to completely block the flow of water through the culvert, and any activities involved in the enhancement, creation or restoration of wetlands.

It is acknowledged that the definitions of 'damming' and 'dam' are identified as applying only to Part E6- Freshwater. However, it is considered they can be appropriately applied to the 'coastal' part of the plan, as they are consistent with an ordinary understanding of these terms as including the concept of impoundment. The absence of a definition of 'dam' or 'damming' in relation to the 'coastal' part of the plan is likely to be a result of the plan making process, where the freshwater and coastal provisions have simply been collated from two distinct legacy planning documents and is considered unlikely to reflect a specific intent to exclude the definitions of 'dam' and 'damming' from applying in the coastal context. Nor do any other parts of the TRMP offer an alternative interpretation of what constitutes a 'dam' in the coastal environment or how that might differ from a 'dam' in a freshwater context or indicate that impoundment is a distinct activity to which a different set of considerations apply.

On this basis, the s14 RMA restrictions on damming of coastal waters are considered to be appropriately addressed by the consent requirements of Rule DP1.6.1(14), such that an innominate consent requirement is not triggered.

12.6.5 Rules on Occupation of CMA Space in the PCMA

Table DP1.6.3 contains a list of rules relating to the occupation of CMA space in the PCMA. The provisions generally refer to 'land of the Crown located in the CMA' or 'Crown land within the CMA'. As outlined earlier, the MACA preserves the ability for regional plans to manage activities despite the special status of the common marine and coastal area, further it allows references to the foreshore and seabed to be read as references to the common marine and coastal area.

Clause (6) sets a discretionary activity status for the following activities, of relevance to the Proposal:

1.6.3(6) Any activity involving the occupation of Crown land in the Coastal Marine Area which:

- *a) Would exclude or effectively exclude public access from areas of the Coastal Marine Area over 10 hectares; or*
- *b) Would exclude or effectively exclude the public from more than 316m along the length of the foreshore; or*
- *c) Would involve the occupation or use of areas greater than 50 hectares of the Coastal Marine Area and such occupation or use would restrict public access to or through such area Is a discretionary activity.*

The proposed area of occupation is 19.25ha. While some of this is within the General CMA, the majority of this area is within the Port CMA and therefore covered by clause a of the rule. Further, the proposed are of occupation will extend along the length of the outer breakwater, wharves 7 & 8 as well as the inner wharves and will result in the

exclusion of the public from a length of more than 316m along the length of the foreshore, being an activity covered by clause d of the rule.

On this basis, **Discretionary activity** consent is sought for the proposed occupation of space within the PCMA.

12.7 General Coastal Management Area Rules

Area Extent and Purpose

DC2.1 notes that the GCMA is the largest Coastal Management Area in the region, it is 'largely unmodified' and has 'significant amenity, visual and intrinsic values.'

The area description reads:

"*The General Management Area includes that portion of the coastal environment that is not within the Port or Significant Values Coastal Management Areas and encompasses the greater proportion of the Gisborne district coastal environment.*

Generally, little or no information exists to assist Gisborne District Council in deciding resource consent issues for the coastal marine area component of this management area though it is largely unmodified and does contain significant amenity, visual and intrinsic values.

Underlying these values are natural processes – such as sand movement, tides and currents – that provide the integrity of coastal ecosystems as a whole.

This Management Area will ensure that use, development and protection of the coastal environment is appropriate by ensuring that adequate information regarding any proposed activity is supplied so that the effects of the activity on the coastal environment can be determined prior to any decision being made. The precautionary approach to activities, as stated in the NZCPS, will be given effect in this Management Area and further research and the monitoring of the effects of activities in this area will be a feature of this Plan."

As outlined earlier the southern half of the Outer Port reclamation is in the GCMA. The existing Kaiti Beach stormwater outfall serving the south catchment of the Southern logyard is also in the GCMA. While change are proposed to the stormwater treatment train to improve the quality of discharges to the GCMA, no change is proposed to the existing outfall structure.

Rules on Activities

The GCMA, like the PCMA only has a set of rules on activities. There are no development standards. The following GCMA rules are relevant to the Proposal:

- DC2.6.1 –Rule on Structures, in terms of alterations to the Southern logyard revetment wall.
- DC2.6.2 – Rule on Discharges, in terms of the temporary discharges from the Outer Port reclamation construction activities, and the Southern logyard stormwater discharge.
- DC2.6.3- Rule on Occupation of Space in the CMA in terms of a small part of the new Port Occupation Area being in the GCMA.
- DC2.6.4– Rule on Alteration of the Foreshore and Seabed., in terms of the Outer Port reclamation.
- DC2.6.5- Rule on the Taking, Use Damming and Diversion of Coastal Water, in terms of any taking or use of coastal waters associated with Outer Port reclamation construction activities.

The rules in DC2.6.6 – Rules for Exotic Plants and Rule DC2.6.7- Rules for Activities on the Surface of Coastal Marine Area, are not applicable to the project.

12.7.1 Rule on Structures in the GCMA

Rule Table DC.2.6.1 contains a list of permitted, controlled, restricted discretionary and discretionary activities relating to structures in the GCMA. The following are applicable to the Proposal:

- Clause (5) provides for the 'removal or demolition of any structure' in the CMA as a permitted activity.
- Clause (20) provides for any structure that will impound a CMA area as a discretionary activity.

Permitted Activity Rule on Removal or Demolition of Any Structure

Clause (5) provides for "*the removal or demolition of any structure in the CMA*" as a permitted activity where:

a) Contaminants are not disposed of into the coastal environment.

b) There is no adverse effect on public safety and navigation safety.

c) Any disturbance to the seabed is minor enough to be removed by two tide cycles.

d) Prior to and immediately after removal of the structure the Maritime New Zealand and the Hydrographic Office are notified.

A section of the existing Southern logyard revetment wall is to be removed to enable construction of the reclamation. Section 6 of the Worley Engineering report indicates that earthworks associated with partial demolition of the Southern logyard rock rubble revetment as part of the Outer Port reclamation project will not extend below MHWS. As such they are not affected by the GCMA rules on removal of structures in the CMA.

Discretionary Activity Rule on CMA Impoundment by Structures

Clause (20) is applicable to the southern half of the working platform and revetment wall structure that will collectively 'impound' (albeit temporarily) an area of coastal waters in the GCMA. As such **Discretionary activity** consent is required for the erection of a structure that will result in the temporary damming of the GCMA open coastal waters.

12.7.2 Rule on Alteration of the Foreshore and Seabed in the GCMA

Rule Table DC2.6.4 contains a list of permitted, controlled, restricted discretionary, discretionary and prohibited activities relating to alteration of the foreshore and seabed in the GCMA. The following are applicable to the Proposal:

- Clause (12) provides for foreshore and seabed disturbance as a discretionary activity,
- Clause (17) provides for reclamations as a discretionary activity.

Discretionary Activity Rule on Foreshore and Seabed Disturbance

Rule DC2.6.4 (12) reads:

"*Notwithstanding rules DC2.6.4(2), DC2.6.4(7), DC2.6.4(9), DC2.6.4(10), DC2.6.4(11) and DC2.6.4(20), any activity involving, in any 12-month period, disturbance of foreshore and seabed for specific purposes in the General Management Area, including any removal of sand or shingle:*

a) In volumes greater than 50,000 cubic metres; or
b) Extracted from areas greater than 4 hectares; or
c) Extending 1000m or more over foreshore or seabed.

Is a discretionary activity."

The seabed disturbances that will occur during construction of the southern part of the Outer Port reclamation will trigger the need for **Discretionary activity** consent under this rule, along with the initial site stabilisation measures (disturbances) likely to be required for this part of the project.

Discretionary Activity Rule on Reclamation

Rule DC2.6.4 (17) provides for "*any reclamation in the General Coastal Management Area of the Coastal Marine Area*" as a discretionary activity. No standards are attached to the rule.

The definition of the term 'reclamation' and its relationship to the Proposal was outlined earlier. The part of the Outer Port reclamation in the GCMA falls within the plan definition of this term. It requires consent as a **discretionary activity** under this rule.

12.7.3 Rules for Discharges in the GCMA

Water Quality Standards

The waters to the south of the breakwater, including those affected by the Outer Port and Wharf 8 (southern side) reclamations, have a SA Classification.

Standards for Class SA Waters are listed in Method C3.10.4(12) and include a requirement that '*the natural colour and clarity of the water shall not be changed to a conspicuous extent'* (standard (d)) and a requirement (under standard (e)) that "*aquatic organisms shall not be rendered unsuitable for human consumption by the presence of contaminants and the water shall not to be rendered unsuitable for bathing by the presence of contaminants*". Both matters, along with the other standards, are addressed in the 4Sight Ecology and Water Quality Report and were reported on in terms of the Port CMA earlier in this AEE.

Activity Based Rules

Rule Table DC2.6.2 contains a list of permitted, controlled, discretionary, non-complying and prohibited activities relating to discharges in the GCMA. The following are applicable to the Proposal:

- Clause (1) provides for the discharge of stormwater runoff to the CMA as a permitted activity.
- Clause (4) provides for all other discharges to the CMA as a discretionary activity.

Rule on Stormwater Discharges

Clause (1) provides for "*the discharge of stormwater to the coastal marine area*" as a permitted activity provided three standards are met. The three standards are the same as those for the PCMA and are as follows:

- Standard (a) - no permanent reduction in ability of the receiving environment to convey flood flows, nor any scouring of the foreshore or seabed.
- Standard (b) - no conspicuous foams, scums or suspended solids after reasonable mixing.
- Standard (c) - the applicable water classification standards are met.

This rule is applicable to the proposed stormwater discharge from the SLY South catchment to the Kaiti reef area (SA Classified Waters) through the existing Southern outlet.

Standard (a) will be met. The Cheal stormwater report notes that the altered stormwater discharge from the SLY South catchment area outfall will have no adverse effects of a flooding or scouring nature.

The method for the SLY stormwater treatment upgrade has been based on the completed upgrades for the Upper Logyard (ULY) and Wharfside Logyard (WLY) which sought to address the same types of difficulties in capturing fine particulates in the discharge as are currently experienced in discharges from the SLY.

Regular monitoring of the ULY and WLY discharges following this upgrade demonstrates greatly improved treatment quality and compliance with consent requirements. For this reason, it is expected that the upgraded SLY system will enable the resultant discharge quality to maintain the applicable water quality standards and, therefore, satisfy standards (b) and (c) of Rule DC2.6.2(1). However, given the difficulties previously experienced in capturing fine particulates in discharges from the SLY a precautionary approach is proposed, whereby consent is sought (under standards (b) and (c)) for discharges not meeting the SA water classification standards requiring 'no conspicuous change to natural colour and clarity', at least until such time as a robust monitoring programme is able to demonstrate compliance with the relevant standards. Any such exceedances are expected to be limited to during extreme rainfall events and for short duration storms.

On this basis, the proposed stormwater discharge falls for assessment as a discretionary activity under Rule DC2.6.2(1) by default.

Rule DC2.6.2(1) also applies to the temporary discharges of stormwater from the southern half of the Outer Port reclamation land- based construction sites that will periodically be discharged into the CMA. Based on the findings of the Worley engineering and 4Sight ecology reports these discharges may not meet Standard (c) at all times such that **discretionary activity consent** is required.

Discretionary Activity Rule of Other Discharges & Resource Management (Marine Pollution) Regulations

Clause (4) deems "*all discharges to water of the CMA not more specifically addressed elsewhere by rules in DC2.6 or the Resource Management (Marine Pollution) Regulations 1998, excepting stormwater discharges"* to be discretionary activities.

The progressive construction of the Outer Port reclamation working platform and revetment wall will result in temporary disturbance of sediment that does not comply with standards (d) nor (e) for Water Class SA, nor will the progressive infilling of the enclosed CMA area, even though no bathing occurs in this area. The sheet piling and rock

material filling for the Wharf 8 extension (southern side) is unlikely to comply at all times with standard (d) because of the very localised seabed disturbance/discolouration.

Further, the Worley *Port Reclamation Wharf 8 Extension and Outer Breakwater Upgrade Report* refers to the likely need for ground stabilisation works involving deep soil mixing, mass stabilisation, and/or jet grouting before the Outer Port reclamation is constructed. Associated discharges are not provided for elsewhere in the Tairāwhiti Plan and therefore require **Discretionary activity** consent under Rule DC2.6.2(4).

12.7.4 Rules on the Taking, Use, Damming and Diversion of Coastal Water in the GCMA

Rule DC2.6.5(3) restricts the damming of water in the General CMA and is relevant to construction of those parts of the working platform and revetment wall for the reclamation that are located in the General CMA and will result in the temporary damming of coastal water during the construction process.

Rule DC2.6.5(3) reads:

"2.6.5(3) *Any activity involving the taking, use, damming or diversion of water found in any river, stream, estuary, or aquifer in the Coastal Marine Area, other than open coastal water is a discretionary activity.*

The rule is roughly equivalent to Rule DP.1.6.5(3) relating to the damming of coastal water in the Port CMA, except that it does not specify whether or not the 'Gisborne Harbour Basin' (or port), should be treated as 'open coastal waters' for the purposes of the rule.

Open coastal water is defined in the Tairāwhiti Plan as:

'Coastal water that is remote from estuaries, inlets, harbours and embayment.'

The proposed works are located alongside the Gisborne Harbour Basin (or port) and may not ordinarily be considered to be *remote* from inlets and harbours. However, in the context that the Gisborne Harbour Basin itself is specifically treated as 'open coastal water' for the purposes of the equivalent Port CMA rule, it is considered appropriate to also treat this location as 'open coastal water', for the purpose of Plan consistency.

On this basis, the works would appear to be excluded from the rule and potentially subject to discretionary activity consent as an innominate activity involving an activity that contravenes Section 14(1) of the RMA i.e. the damming of open coastal water.

However, for the same reasons detailed in relation to Rule DP.1.6.5(3), it is considered the damming of open coastal waters is appropriately addressed by the consent requirements of Rule DC2.6.1(20) relating to the temporary impoundment of the CMA as a result of the erection of structures, being the reclamation revetment and temporary working platform structure, and that an innominate consent requirement is not triggered.

12.7.5 Rules on Occupation of CMA Space in the GCMA

Rule DC2.6.3(5) specifies that:

Except as provided for in other rules of DC2.6, any occupation of space involving Crown land within the Coastal Marine Area is a discretionary activity. Cross-Reference refer to C3, C3.7, C3.8, C3.15, F1.

The proposed occupation of space within the GCMA is limited to the southern portion of the outer reclamation and comprises a 10m wide strip extending over a length of approximately 120m. The area of proposed occupation is approximately 1,200m^2. On this basis, the proposed occupation does not exceed the thresholds of 10ha in area or 316m in length set by Rules DC2.6.3(6) and (7) and **discretionary activity** consent under DC2.6.3(5) is required.

12.8 Region Wide Provisions

12.8.1 Rules on Infrastructure and Utility Services

Chapter C2 – Built Environment, Infrastructure & Energy, contains the following sets of rules that applicable to the Proposal:

- C2.1.6 - Rules for Network Utility Services; and
- C2.1.7 - Rules for Provision of Infrastructure and Development.

Rules for Network Utility Services

Clause (1) in Rule Table C2.1.6 lists 'network utility activities' and 'alteration and minor upgrading of structures associated with network utility services', as permitted activities in all zones. As noted above, the upgrades to the stormwater drainage network in the Southern logyard are considered to fall within the TRMP definition of 'minor upgrading' with the works resulting in an expansion of the treatment capacity of the existing stormwater network, and associated improvements in discharge quality. Effects will, otherwise, remain the same or similar in character, scale and intensity to those currently existing.

Rules for the Provision of Infrastructure and Development

The following Rule C2.1.7.1 -General Standards, are applicable to the project:

- (D) – Stormwater Systems.
- (H) – Roads.
- (I) – Access.
- (J) – Parking.

General Standard (D) - Stormwater Systems, lists seven (7) standards (a-g) that apply to the design and operation of all new stormwater drainage facilities. Under the plan rules (DP 2.6.1B(5)) any infringement of the standards requires a restricted discretionary land use consent.

The proposed alterations and extensions to the Southern logyard stormwater drainage facilities will comply with all seven standards, except that in Clause (f) relating to gravity- based systems it reads as follows:

(f) Stormwater conveyance shall be by way of gravity outfall with ground levels and/or contours identified prior to consent approval.

Section 12 of the Cheal report notes that pumps are to be used in both catchment areas, so **restricted discretionary** land use consent is being sought.

General Standard (H) – Roads, contains two sets of standards on Infrastructural Requirements (H1) and Sight Lines (H2). The H1 standards apply to new roads in subdivisions and developments and are not applicable to the project. As outlined earlier with reference to the ECC report no changes are proposed to the existing port gates/vehicle crossings. Section 11 of the ECC report notes that the vehicle crossings (gates) to be used by Twin Berths related traffic meet the sightline and other standards in H2.

General Standard (I) – Access, contains a similar set of standards that apply to the port gate vehicle crossings and vehicle manoeuvring areas. They are also met with reference to Section 11 of the ECC report.

General Standard (J) – Parking, contains standards on the provision of accessible parking spaces and loading spaces, along with their design and construction. J3 specifies that the required number of spaces shall be recalculated in the event of a change in the scale or intensity of land use, which will be an outcome of the Proposal.

No particular loading standards are specified for 'port' activities. In lieu of that, the loading standard for 'warehouses, auction rooms, bulk storage facilities and depots', has been applied to the Zero Store chilled storage facility, which has a GFA of approximately 2,720m^2. This attracts the requirement for 2 loading bays to be provided. The provision of which is easily met due to the extensive loading areas already provided for onsite Section 11 of the ECC report states that the port is an integrated facility on a large mostly open-air site that does not use loading bays in the same way a conventional warehouse or depot does. Loading and unloading is provided for around the site and managed internally by EPL.

There is no reliance on the public road network for loading and this is expected to continue following the Proposal.

Section 8.4 of the ECC report states that ''*the proposal is expected to require 43 more staff to be on site at any one time. Using the rate of 0.8 spaces/employee (Section 4.6 of the ECC report) the proposal generates the demand for 34 additional carparking spaces to be provided onsite*''. There are 124 on-site parking spaces available which will easily absorb the additional 34 parks generated by the proposal.

J6 specifies that accessible parking spaces be provided in accordance with NZS 4121:2001, which requires provision of two for the first 50 spaces provided and not less than one for every 50 spaces thereafter. Based on the projected demand for 34 additional carparking spaces, one additional accessible space is required. This will be provided.

Overall, the Proposal will comply with the General Standards relating to Parking.

12.8.2 Rules on Contaminated Sites

Rule C5.1.6 relating to the subdivision, use and development of contaminated sites, simply requires compliance with the NES-CS. As detailed below, controlled activity consent is required under the NES-CS.

12.8.3 Rules for Discharges from Contaminated Sites

C6- Freshwater, contains rules on discharges, including discharges of stormwater, to land and water.

Rule C6.2.15(2) Discharges from Hazardous Substances and Contaminated Sites specifies that discretionary activity consent is required for:

"(2) – Discharges from contaminated land to land and water including those that arise from remediation activities."

The term 'contaminated land' is defined in Chapter E with reference to that broadly defined in Section 2 of the RMA, as follows:

'contaminated land means land that has a hazardous substance in or on it that—

(a) has significant adverse effects on the environment; or

(b) is reasonably likely to have significant adverse effects on the environment'

The site is a HAIL site due to its use for port operations and historic land reclamation and, therefore, has the potential to contain elevated levels of contaminants.

Discharges from the site will occur in the form of operational stormwater discharges from the Southern Logyard and reclamation; and discharges of stormwater during construction works. The receiving environment for any such discharges will be water in the CMA.

The 4Sight DSI characterises the level of residual soil contaminants based on a review of previous DSI's undertaken across the Port as well as project specific sampling of the southern logyard revetment, which is to be removed as part of the Proposal. While the DSI identifies some marginal exceedances of the relevant soil standards, it concludes that it is highly unlikely that CoPC in soils will pose a risk to the marine environment during the reclamation given toxicity concentrations of these contaminants only marginally exceed ANZWQG DGV's for lead, zinc and copper in five of the 32 samples analysed and were below GV high values.

On this basis, it is considered the site does not meet the definition of 'contaminated land' as it is not reasonably likely to have significant adverse effects on the environment.

Further, all soils will be contained beneath hardstand and behind an armoured seawall on completion of the works, while any construction stage stormwater discharges will be managed through implementation of specific erosion and sediment controls, and through implementation of a Contaminated Site Management Plan (CSMP) to further reduce the potential for *significant* adverse effects to arise.

On this basis, it is considered that Rule C6.2.15(2) does not apply.

12.8.4 Rules on Noise and Vibration

The following parts of Chapter C11.2.15- Rules for Noise, are applicable to the Proposal:

- C11.2.15.1 – General Rules and Standards for Permitted Activities.
- C11.2.15.2 – Rules and Standards for Noise from Construction Activities: All Zones.
- C11.2.15.3 - Rules for Vibration.
- C11.2.15.4 – Rules for Vibration for Construction Activities –All Zones.
- C11.2.15.8 – Method of Assessment of Noise.

- C11.2.16.1- Rules for Noise in Coastal Environment.

Part B in C11,2.16.1 has a set of rules for the PCMA, which apply to all of the Proposal components, except for the southern half of the Outer Port reclamation that will be constructed in the GCMA. The rules for the GCMA are in Part C. The Part A rules for the Protection Management Area are also indirectly relevant as they set noise limits on construction and port operational noise at the CMA boundaries of Significant Value Management Areas, like around Tuamotu Island, which is a considerable distance to the southwest of the port.

The C11 set of rules cover vibration, as well as noise, as indicated above. The nature of the rules, along with the parts of the project that comply with them and those that do not, are set out in the Marshall Day *Twin Berths Construction Noise Assessment* in **Appendix P**.

Port Management B Zone Construction Noise Rule

Section 3 - Airborne Noise Assessment, of the Marshall Day Construction Noise Report highlights the Port Management B zoning in place and the associated rules. It notes that C11.2.15.2 – Rules and Standards for Noise from Construction Activities: All Zones, refers to the 1984 version of NZ Standard, NZS 6803: 1999; Acoustics –Construction Noise, rather than the more recent 1999 version, which has some different provisions. In a related regard the report notes the current (1999) version of NZS 6803 uses L_{Aeq} rather than L_{A10} in accordance with recognised best practice.

The report notes that NZS 6803 sets different recommended noise limits for construction projects of less than 2 weeks, less than 20 weeks and more than 20 weeks. The Outer Breakwater Upgrade, Wharf 8, extension and Outer Port reclamation are all expected take much longer than 20 weeks (140 days) to complete, as outlined earlier in this AEE and the appended Worley report.

Section 3 of the report notes that Rule 11.2.15.2 is not consistent with NZS6803. Clause A- Long Term Construction, states that "*Emissions of construction noise shall not exceed 168 days in any 12-month period.*" NZS 6803 has no such time limit and as such the legality (vires) of the rule is questioned. Clause B -Short Term Construction Noise Standards, is also not consistent with NZS6803, as it refers to a 15 day rather than 2 week (14 day) period for short term construction noise. However, given the rule is in place, land use consent is being sought to infringe Clause A in terms of the period of Twin Berths land-based construction being longer than 168 days in any 12 month period.

Table 2 in Section 3.1.2 of the report notes that Rule 11.2.15.2, sets average (L_{A10} and L_{A95}) and maximum (L_{Amax}) noise levels for construction activities in the Port Management B Zone in relation to receivers in the nearby Residential, Commercial, Industrial/Port and Reserve zones. Some of the noise levels are different to those set for receivers in Residential and Commercial/industrial areas in NZS6803.

Sections 3.2 - 3.4 contains predicted noise level assessments for receivers in the different zones under the different Twin Berths construction projects and related rule compliance assessments. The report finds that the Port B zone based construction works for the Wharf 8 extension, Outer Port reclamation and Outer Breakwater upgrade will comply with the noise emission limits for the nearby Commercial, Reserve and Residential zones.

However, for each of these components the period of construction will, or is likely to, exceed the '168 calendar days in any 12 month period' rule in the plan. Although the rule is inconsistent with the NZ Port Noise Standard, land use consent is still required for the infringement and is being sought.

Under Rule DP2.6.1B (5) the noise emission rule infringement requires consideration as a restricted discretionary activity. Clause (a) provides for any 'noise and vibration' activities that do not comply with a permitted activity standard as restricted discretionary activities.

Port and General Coastal Management Area Construction Noise Provisions

The construction noise rule situation is quite different with the CMA based construction works in the Port and General CMA zoned areas. C11.2.16- Rules for Noise in the Coastal Environment, does not have a specific rule on construction noise (like for the Port B zone). However, Policy 6 in C11.2.13 reads "*Construction noise arising from any activity in the CMA shall meet the limits recommended in, and be measured and assessed in accordance with, New Zealand Standard NZS6803P:1984 "The "Measurement and Assessment of Noise from Construction, Maintenance and Demolition Work*"." Also, as noted in the Marshall Day report the C11.2.16 set of rules have some components that could be applied to construction activities and the report covers them.

Rule C11.2.16(B) -Port (Coastal) Management Area, sets three general permitted activity standards for noise. They relate to the following matters:

- Standard a - L_{10} and L_{max} noise levels measured at the boundary of the PCMA and other specified management areas within the Coastal Marine Area only.
- Standard b – noise not resulting in the 'long-term modification of the behaviour of aggregations of marine mammal or birds.'
- Standard c - noise from sirens and the like used for navigation and/or warning, being excluded from the above conditions.

Standards c is not applicable to the Twin Berths construction project.

Standards a and b are applicable. However, because Standard b does not contain a clearly measurable component it is difficult to assess compliance against and is effectively 'ultra vires'. It reads as follows:

"Noise shall not reach or be of such a nature that it results in the long-term modification of the behaviour of aggregations of marine mammals or birds. Long-term, for the purpose of this standard, means any change in behaviour that is not corrected within 30 minutes and repetitive modifications to behaviour that culminate in more than 60 minutes of response to noise. Modification of behaviour includes any visible flight or flee response to noise – especially movement from a nesting or rearing site but does not include accommodation responses such as re-orientation to the source of noise."

Although standard b outlines a technique for measuring 'long term' marine mammal and seabird behaviour modification, no clear 'threshold' is set. Also, the term 'aggregations' is not defined or explained, which means there is also no measurable 'bottom line' on the number of affected birds/mammals.

Section 4 of the Marshall Day report finds, with reference to the 4Sight Ecology report, that Clause b requiring 'noise not result in the 'long-term modification of the behaviour of aggregations of marine mammal or birds' in the different CMA management areas will generally be met.

The reasons for this are:

- The most noisy impact and vibro piling works are confined to the Wharf 8 extension (i.e. within the port itself) and based on the 4Sight ecology report findings it is most unlikely that they would 'result in the long-term modification of the behaviour of any aggregations of marine mammals or birds' in the wider port and bay area.
- The Outer Port reclamation and Outer Breakwater upgrade works only involve use of large (100 tonne) excavators and jet grouting/deep soil mixing and the associated noise is most unlikely to adversely affect 'long term' marine mammal and seabird behaviour in the adjacent parts of the bay.
- The Outer Port capital dredging will be very similar to that undertaken in the past and is also most unlikely to adversely affect 'long term' marine mammal and seabird behaviour in the port and in the adjacent PNC/wider bay area.

The 4Sight ecology report notes that on occasions the outer breakwater and other port areas host small aggregations of flocking/resting birds.

However, it does not host aggregations of marine mammals, although individual seals and perhaps pods of dolphin and orca may on occasions be in the vicinity of the port.

Rule C11.16(C) – General Coastal Management Area (which applies to part of the Outer Port reclamation site) contains the same three clauses (a-c) standards, but Clause (a) contains different L_{10} standards and L_{max} standards.

Section 3 of the Marshall Day report finds, with reference to NZS 6803: 1999, and the associated Tairāwhiti Plan (NZS6803P) policy directive, (taken as a rule) the following:

- The CMA based Wharf 8 extension, Outer Port reclamation and Outer Breakwater upgrade construction works are predicted to comply with the specified noise limits.
- Noise from driving of the steel piles for the Wharf 8 extension is predicted to comfortably comply with the 70 dBA L_{max} specified limit for the adjoining Amenity/Recreation Reserves. However, Marshall Day expect the noise will be noticeable above the current operational port noise and recommend that occupants at 100 Customhouse Street and the Portside Hotel (in the Amenity Commercial zone to the north-east of the port) be formally advised of the piling works before they are undertaken.
- Day-time capital dredging in all locations is predicted to comply with the noise limits.

- Night-time capital dredging is predicted to exceed the Commercial Amenity zone L_{A10} limit of 45 dBA by approximately 10dBA, and exceed the Heritage Reserve zone L_{A10} limit of 50dBA by approximately 5dBA.

As noted above neither the 1984 nor 1999 versions of NZS 6803 place a time limit on the length of construction so there is no equivalent CMA based infringement of a Tairāwhiti Plan rule on construction noise, like that outlined earlier for the Port B zone.

Rule C11.2.16. deems activities that infringe the PMA and GCMA noise and vibration rules to be discretionary activities. As such the night- time capital dredging infringement of the noise emission rule requires assessment as a discretionary activity.

Rules on Operational Noise from Port B Zoned Land Based Activities

Section 2 - Planning Standards, of the Marshall Day *Twin Berths Operational Noise Assessment* outlines the rules on noise on port operations and other activities that apply to the land-based Port B zoned part of the site. The land-based activities are subject to Rule C11.2.15.1 (A) - (G). They set average maximum noise (L_{A10}) and maximum noise (L_{Amax}) levels for the different nearby Commercial, Residential and Reserve zones, generally in relation to the nearby zone boundaries and associated port noise contours and control boundaries. **Figure 96** contains an aerial photograph plan of the port showing the existing port noise 55L_{dn} and 65L_{dn} contours and associated inner and outer port control boundaries.

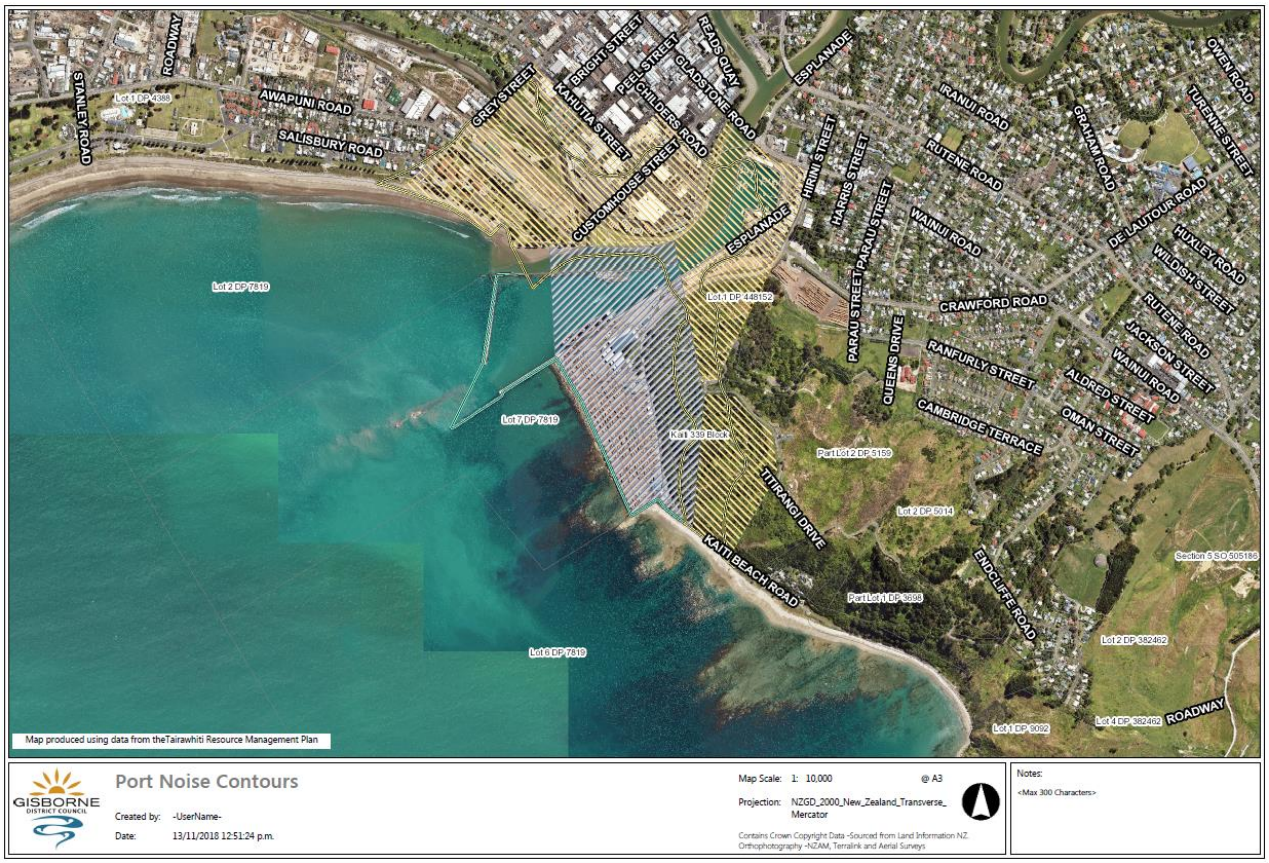


Figure 96: Port Aerial Photograph with Tairāwhiti Plan Port Noise Contours

The noise contours run through parts of the port and bear very little relationship to the current port working environment and the relative separation from nearby Commercial and Residential zoned land. Also, investigations show that the noise contours have not been prepared in accordance with the recognised New Zealand Standard, being NZS 6809: 1999 Acoustics Port Noise Management and Land Use Planning.

The Port B zone rules on noise from activities within the port in Part (G) are based around 'essential port activities' and 'non-essential port activities', and with reference to a set of port noise contours shown in the Tairāwhiti Plan.

The term 'essential port activities' is defined as:

"…loading or unloading of cargo onto or off ships and the operation of machinery essential to those activities provided that the best practicable option is adopted to ensure that noise is minimised. This plant is assumed to operate 24 hours a day. Chippers and debarkers are excluded as they could be treated as necessary to reduce noise emissions."

The term 'non–essential' port activities is not defined.

Section 3 - Modelling Methodology and Section 4 - Port Noise Maps, in the report sets out the three Twin Berths operating scenarios that were modelled to assess compliance with the Port B zone and other zone rules. The same modelled scenarios were used to assess compliance with the CMA based Port and GCMA management area rules. The scenarios are:

- Scenario A: one log ship with ship cranes loading and kiwifruit ship in berth (current operations).
- Scenario B: two log ships in berth with two mobile harbour cranes loading each ship.
- Scenario C: two log ships in berth with the ship cranes loading each ship.

The model findings are illustrated in the following Marshall Day report appendices.

- Appendix D - Port noise maps for full operations
- Appendix E -TRMP compliance assessment contours
- Appendix F- Consent Condition compliance assessment contours
- Appendix G - Change in noise level assessment

Table 4 in Section 5 – Compliance Assessment, contains the following findings in relation to the Port B zone rules:

- The Twin Berths land based operations (excluding in the Wharf 6, Wharf 7 and Wharfside logyard areas) will comply with the different zone based noise limits, except for one part of the Heritage Reserve zone.
- The Heritage Reserve zone rule infringement involves a 1dBA exceedance of the 55dB L_{dn} port noise contour on Titirangi/Kaiti Hill.

Figures 5A- 5C show the parts of the reserve affected by the infringement for the three port operating scenarios (A-C). Figure 5C for Scenario C (two log ships in berth with the ship cranes loading each ship) is reproduced as **Figure 97** in this AEE. The affected reserve area is to the east of the 55dBLdn line (dashed green).

On the above basis land use consent is being sought to infringe the part of the rule relating to noise emissions in the Titirangi/Kaiti Hill Heritage Reserve zone.

Even though the Marshall Day report consider that the effects of infringement are 'negligible' land use consent is still required for it. Under Rule DP2.6.1 (24) the noise emission rule infringement requires consideration as a restricted discretionary activity.

Rules on Noise from Port Operational Activities in the Port CMA

Rule C11.2.16(B) -Port (Coastal) Management Area, sets three general standards for noise in the Port CMA. They were outlined earlier and relate L_{10} and L_{max} noise levels measured at the boundary of the Port CMA and other specified management areas (Standard a), noise not resulting in the 'long-term modification of the behaviour of aggregations of marine mammal or birds' (Standard b) and noise from sirens and the like used for navigation and/or warning, being excluded from the above conditions (Standard c).

Table 4 in Section 5 – Compliance Assessment, of the Marshall Day report contains the following findings:

- The Twin Berths CMA based operations will comply with the different zone based noise limits, except for parts of the Heritage Reserve zone at night.
- The Heritage Reserve zone rule infringement involves a 15dBA exceedance of the 65dB L_{A10} port noise contour on Titirangi/Kaiti.

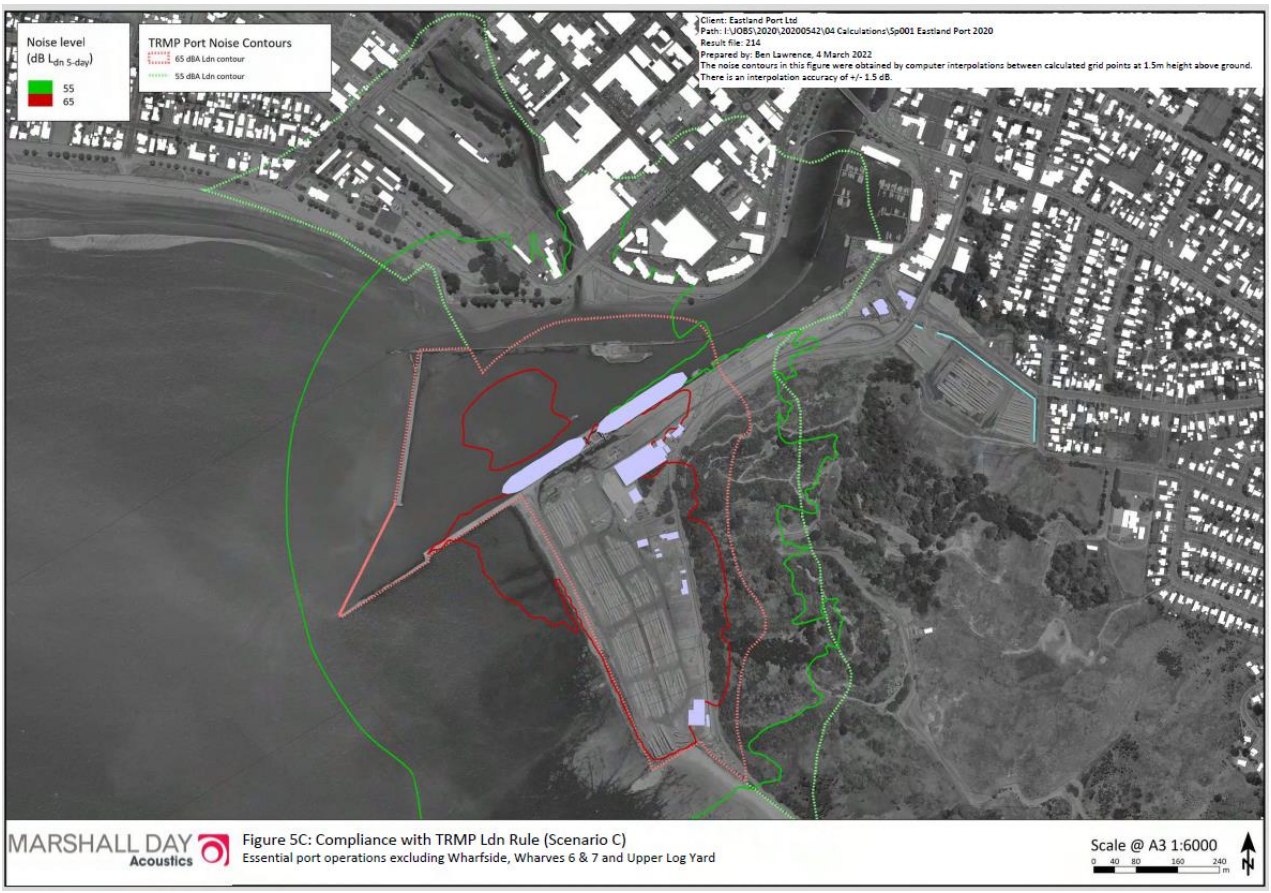


Figure 97: Twin Berth Port Operations Scenario C Noise Contours Plan

The PCMA rule compliance assessment is related to the three modelled Twin Berths operating scenarios (A-C) and illustrative plans (in Appendices D-G) referred to earlier in relation to the Port B zone.

On the above coastal permit consents are being sought for the rule infringements, which require assessment as discretionary activities under Rule Table C11.2.16.

Rules on Noise from Port Operational Activities in the General CMA

Rule C11.2.16(C) - General (Coastal) Management Area, sets four general standards for noise in the General CMA. Standards b and c are the same as for the Port CMA. Standard a involves L_{10} and L_{max} noise levels measured at the boundary of the GCMA and other specified management areas. They are different to those specified for the PCMA. Standard d refers to noise emission standards in Figure C11.16.

No Twin Berths port operational activities are being proposed for the General CMA, other than those associated with construction of part of the reclamation, which is covered by the construction noise rule. As such this rule is not applicable to the project.

Rule on Construction Vibration

Rule C11.2.15.4 – Rules for Vibration for Construction Activities, sets standards for Rural and Residential zones (A), Industrial, Port, Commercial and Reserve zones (B).

Some of the standards are based around British 'maximum weighted' standards that are not now in common use, rather than the more generally recognised German standards (DIN-4150-3 1999).

Section 4.2 in the Marshall Day Construction Noise Report finds that the Proposal construction works will comply with both sets of rules, i.e. Part A for Rural and Residential zones, and Part B for Industrial, Port, Commercial and Reserves zones. The report notes that a time limit is set for construction vibration in Residential and Rural zones (up to 15 days/year), but there is no such limit for the Port and other zones.

Rule on Vibration (Not Construction Related)

Rule C11.2.15.3- Rules for Vibration, applies to vibration from port operational activities in the Port B zone that are not construction related. Section 5 (Table 4) in the Marshall Day Port Operations Noise Report finds that the land based Twin Berths operations will comply with the specified standards for both Residential and Rural zones in Part A and Industrial, Port, Commercial and Reserve zones in Part B.

12.9 Rules on Financial Contributions

Infrastructure Provision Rules

C.2.1.7- Rules for Provision of Infrastructure for Development (Works and Services) and specifically rule C2.1.7.2- Assessment Criteria, lists matters the Council will 'have regard to' with resource consent applications. The Part A Assessment Criteria: Provision of Infrastructure refers to Clause (viii)which reads "*the use of financial contributions and/or negotiated agreements to provide the relevant services.*" This clause is only of relevance to applications which are reliant upon upgrades or extensions to existing public infrastructure. It is worthy to iterate that the Proposal is not 'reliant' on any upgrades or extensions of public infrastructure. The ECC report notes that the SH35-Hirini St intersection is at capacity now and requires upgrading. Although the completed Proposal will add additional traffic, this will not occur for at least 6 years. This provides sufficient time for Waka Kotahi to upgrade it, with 'negotiated agreement' input from the Council and Eastland Port, in relation to improved pedestrian and cycleway facilities. Also, as outlined earlier the RMA case law effectively precludes the Council from requiring a financial contribution from Eastland Port towards upgrading of the NZTA managed state highway intersection. Eastland Port and their advisers do not consider it 'reasonable' to require any financial contributions on the Proposal.

12.10 National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health

The NES -CS, came into force on 1 January 2012 and deals with territorial authority functions under section 31 of the Act. The NESCS applies to a "piece of land" that is described by one of the following: an activity or an industry described in the HAIL is being undertaking on it; an activity or industry described in the HAIL has been undertaken on it; it is more likely than not that an activity or industry described in the HAIL is being or has been undertaken on it.

The site is identified in the 4Sight DSI as a HAIL site due to its history as reclaimed land. Reclamation is classed as 'landfilling' under the HAIL and has potential to result in soil contamination, depending on the type of material disposed of. The site is therefore considered a "piece of land" for the purposes of the NESCS

The DSI identifies that the property is also considered a 'piece of land' for the purposes of the NESCS as it has been subject to a range of port activities, including historic filling.

On this basis, the entire port, having a land area of some 11ha is considered to be a 'piece of land' for the purposes of the NESCS.

The site is not specifically listed in the Gisborne District Contaminated Sites Schedule (Schedule G9 of the Tairāwhiti Plan).

Activities Subject to the NES-CS

The NES-CS regulates soil disturbance on land meeting the NES-CS definition of a 'piece of land'. The following components of the Proposal are, therefore, subject to assessment under the NES-CS:

- Earthworks associated with the Wharf 8 extension.
- Partial demolition of the Southern logyard seawall and associated earthworks as part of the Outer Port reclamation.
- Earthworks associated with upgrading the Southern logyard stormwater system.
- The Outer breakwater upgrade does not involve any land based earthworks.

Regulation 8 NES-CS

Regulation 8(3) of the NESCS provides for the disturbance of soil on a piece of land as a permitted activity provided the volume of soil disturbance does not exceed 25m^3 per 500m^2 and where 5m^3 per 500m^2 can be removed from the site.

On the basis the entire 11ha port area is considered a 'piece of land' for the purposes of the NESCS, soil disturbance of some 5,500m^3 (110,000 / 500 x 25) could be undertaken as a permitted activity, while up to approximately 1,100m^3 (110,000 / 500 x 5) of soil could be removed from the site as a permitted activity.

The DSI identifies (at Section 2.1) that the section of existing seawall to be removed has a volume of some 7,494m^3. The DSI identifies that the reclamation and seawall comprise a mix of material, including concrete, brick and rubble. On this basis, the volume of 'soil' as defined in the NES-CS will be less than this volume. It is, however, impractical to seek to distinguish the volume of 'soil' from that of other material on the site. Taking a precautionary approach, the full volume of material, including both soil and other materials, has been used for the purposes of assessing the consent requirements under the NES-CS.

The volume of existing seawall to be removed (some 7,494m^3), in combination with the additional earthworks identified above, exceeds the permitted activity threshold of 5,500m^3 for soil disturbance.

It is proposed to reuse as much of the existing seawall material as possible within the reclamation, with material that is determined to be unsuitable, e.g. for structural reasons, to be removed from the site. The suitability of material for reuse will be determined during excavation works by a suitably qualified and experienced structural engineer with management of contaminated soils to be overseen by a suitably qualified and experienced practitioner (SQEP) in contaminated soils. As such, it is uncertain what volume of potentially contaminated material may need to be removed from the site. As a precaution, consent is sought for the removal of more than the 1,100m^3 of soil permitted to be removed under Regulation 8(3) of the NESCS.

Regulation 9 NES-CS

Regulation 9 of the NES-CS provides for the disturbance of soil that is not permitted under Regulation 8 to be considered a controlled activity where the following requirements are met:

a) *a detailed site investigation of the piece of land must exist:*

b) *the report on the detailed site investigation must state that the soil contamination does not exceed the applicable standard in regulation 7:*

c) *the consent authority must have the report:*

d) *conditions arising from the application of subclause (2), if there are any, must be complied with.*

The 4Sight DSI states that although concentrations of CoPC are above typical background concentrations, they do not exceed the applicable NES-CS soil contaminant standard. Therefore, a Controlled Activity consent under Regulation 9 of the NES-CS is required for the proposed soil disturbance and reuse of disturbed soils on Site.

12.11 Reasons for Consent

Tables 10 and 11 summarise the assessment of the Proposal under the Tairāwhiti Plan rules, NES-CS and RMA, with the reasons for consent identified in Table 10 and permitted activities identified in Table 11.

Table 10: Proposal: Summary of Tairāwhiti Plan, NES-CS and RMA provisions under which resource consent is required

Tairāwhiti Plan Rules	Rule/Section	Activity Status
Area Based Rules		
Port Management B Zone – Permitted activities not complying with region wide noise standards or region wide stormwater infrastructure standards	Rule DP2.6.1B(5)	Restricted Discretionary
Port CMA – Construction and alteration of structures, excepting minor alterations and reclamations	Rule DP1.6.1(8)(C)	Controlled
Port CMA –Temporary working platform structure (reclamation) impounding or containing the CMA	Rule DP1.6.1(14)	Discretionary
Port CMA – Structures more or less parallel to MHWS with an incremental length of more than 300m but less than 1,000m.	Rule DP1.6.1(15)	Discretionary

Port CMA – Seabed disturbance associated with reclamation, outer breakwater upgrade and ground stabilisation works	Section 12 RMA with no relevant TRMP rule so innominate under Section 87B RMA	Discretionary
Port CMA – Reclamation for the operational needs of the port	Rule DP1.6.4(5)	Discretionary
Port CMA – Reclamation construction sediment discharge infringement of water classification standards	Rule DP1.6.2(4)	Discretionary
Port CMA – Capital dredging	Rule DP1.6.4(6)	Discretionary
Port CMA – Maintenance dredging	Rule DP1.6.4(3)	Controlled
Port CMA – Disposal of capital dredged material at the OSDG	Rule DP1.6.4(2)	Discretionary
Port CMA – Disposal of maintenance dredged material at the OSDG	Rule DP1.6.4(2)	Discretionary
RMR-MP – Dumping of dredge material in the CMA	Section 4(2) RMR-MP	Discretionary
Port CMA – Discharge of seawater from capital and maintenance dredging including disposal of dredge spoils	Rule DP1.6.2(4)	Discretionary
Port CMA – Temporary discharges of sediment to the CMA from various construction activities	Rule DP1.6.2(4)	Discretionary
Port CMA – Discharge of stormwater to the CMA from the Southern logyard, Outer Port reclamation, Wharf 8 extension and other areas (Northern catchment) not in accordance with permitted activity standards	Rule DP1.6.1(3)	Discretionary
Port CMA – Occupation of space	Rule DP1.6.3(5)	Discretionary
General CMA – Reclamation	Rule DC2.6.4(17)	Discretionary
General CMA – Reclamation revetment and temporary working platform structures, that will result in the temporary impoundment of the CMA	Rule DC2.6.1(20)	Discretionary
General CMA – Foreshore and seabed disturbance work associated with construction of the Outer Port reclamation and reclamation ground stabilisation works	Rule DC2.6.4(12)	Discretionary
General CMA – Reclamation construction sediment discharge infringement of water classification standards	Rule DC2.6.2(4)	Discretionary
General CMA – Discharge of stormwater to the CMA from the Southern logyard (Southern catchment) not in accordance with permitted activity standards and discharge of construction phase stormwater	Rule DC2.6.2(1)	Discretionary
Region Wide Rules		
Construction noise -Port Management B zone	Rule C11.2.15.2 & DP2.6.1B(5)	Restricted Discretionary
Construction noise -Port Coastal & General Coastal Management Areas	Rule C11.2.16(5)	Discretionary
Port operations noise - Port Management B zone	Rule C11.2.15.1(C) & DP2.6.1B(5)	Restricted Discretionary

Port operational noise - Port Coastal & General Coastal Management Areas	Rule C11.2.16 (B) & Table	Discretionary
NES Contaminated Soil		
NES-CS – Disturbance of soil on a 'piece of land'	Regulation 9	Controlled
Resource Management (Marine Pollution) Regulations		
The disposal of the capital dredging and maintenance dredging material at the OSDG.	Section 4(2) of the Resource Management (Marine Pollution) Regulations	Discretionary

Table 11: Proposal: Summary of Tairāwhiti Plan Rules under which the Proposal is permitted

Tairāwhiti Plan Rules	Rule/Section	Activity Status
Any activity not specifically provided for in Port Management B zone	Rule DP2.6.1B(4)	Permitted
Coastal Environment Overlay – Minor upgrading of stormwater network in Southern Logyard	Rule C3.14.3(1)	Permitted
Port Coastal Management Area – Partial demolition and removal of Wharf 8 and Outer Breakwater below MHWS	Rule DP1.6.1(4)	Permitted
Access	Rule C2.1.7(I)	Permitted
Parking	Rule C2.1.7(J)	Permitted
Short Term Construction Vibration – Port zones	Rule C11.2.15.4 (B) 2	Permitted
Short Term Construction Vibration - Residential zones	Rule C11.2.15.4 (A) 2 & 3	Permitted
Port operations vibration	Rule C11.2.15.3	Permitted
The deposition of dredge spoils from the Port CMA within the Port CMA up to a volume of 50,000 cubic metres	Rule DP1.6.4(2)	Permitted
Rules for noise in the Coastal Environment (general standards)	Rule C11.2.16 A(b)	Permitted
SVMA Port Management Area – noise effects will not result in the long-term modification of the behaviour of aggregations of marine mammals or birds.	Rule C11.2.16.1B(b)	Permitted

12.12 Overall Status of the Application

Elements of the Proposal trigger the need for controlled, restricted discretionary and discretionary activity consents.

The effects of the activities for which consent is sought are interrelated such that it would be inappropriate to seek to separate elements of the Proposal with different activity status from one another.

As such, a bundling approach has been applied.

On this basis, resource consent is required for a **discretionary activity.**

12.13 Discretionary Activities - s87A and s104B

As a discretionary activity, there is no limitation in the matters that can be considered providing they are resource management related. The consent authority may grant consent with or without conditions or decline consent.

13 ASSESSMENT OF EFFECTS

13.1 Overview

As a Discretionary Activity, the matters that require consideration in assessing this application are set out in section 104 and section 104B of the RMA and include:

i. the actual and potential effects on the environment of allowing the activity;

ii. any measures proposed to offset or compensate for any adverse effects that may result from allowing the activity;

iii. any relevant provisions of a national environmental standard, other regulations, national policy statement, NZCPS, regional policy statement or plan; and

iv. any other matter that the consent authority considers relevant and reasonably necessary to determine the application.

The provisions of section 104 are subject to the matters set out in Part 2 of the Act.

The effects of the Proposal relate to both construction of the new port facilities and their operation over their respective lifetimes. Taking into account the matters that must be addressed by an assessment of environmental effects as outlined in Clause 7 of Schedule 4 of the RMA, the following environmental effects warrant consideration as part of this application:

- Economic
- Natural Hazards
- Land Disturbance and Contamination
- Coastal Processes and Surf Breaks
- Ecology and Water Quality
- Archaeology and Heritage
- Cultural Values
- Landscape, Natural Character and Visual Amenities
- Traffic
- Noise and Vibration
- Navigation and Safety
- Public Access and Recreation

An assessment of these effects, corresponding with the scale and significance of the relevant effects on the environment, is provided below in the remaining parts of section 13.

An assessment of the proposal in relation to the relevant provisions of any policy statement or plan and any other relevant matters is set out in Section 16 below.

Expert Report Findings and Effects Terminology

Except where noted, the findings in this Section 13 are generally drawn from the expert reports in the appendices. The assessment findings on navigation and safety and public access and recreation are based on information from Eastland Port staff, along with 4Sight site investigations and published material, including Council reports.

The appended reports and AEE cover effects of both a positive and negative (or adverse) nature. The effects terminology used in the different expert reports to assess adverse effects varies, although most refer to 'negligible', 'very low', 'low', 'minor', and 'moderate' effects, recognising that a considerable number of management measures are recommended by the experts and proposed by Eastland to avoid, remedy or mitigate effects.

In this AEE the following four- fold categorisation of effects is used with reference to the NZ Quality Planning website and a 2006 Ministry for the Environment publication entitled *Guide to Preparing a Basic Assessment of Environmental Effects*.

- Nil Effects - No adverse effects at all.
- Negligible Effects -Adverse effects that are discernible, but too small to adversely affect a person, resource or value. Often referred to as 'de minimis' effects.
- Minor Effects -Adverse effects that are noticeable but will not cause any significant effects. Often referred to as 'low' or 'moderate' effects.
- Significant Effects- Adverse effects that are of a 'more than moderate' or significant nature and generally require avoidance, remediation or mitigation.

13.1.1 Existing Port Environment and Current Port Activities

The existing environment is relevant to both the assessment under sections 95A – 95G and section 104 of the Act. When assessing effects of the Proposal it is the effects of the activity against the "existing environment" that is relevant. The existing environment includes the future state of the environment upon which effects will occur, including:

- The environment as it might be modified by the non-fanciful utilisation of rights to carry out permitted activities; and
- The environment as it might be modified by implementing resource consents that have been granted at the time a particular application is considered, where it appears likely that those resource consents will be implemented.

In this case, the existing environment includes the effects of existing port structures and port activities. The historical development of the port, along with current nature of shipping movements, cargo loading/unloading at the wharves, log/other cargo storage and traffic movements were outlined in Sections 2, 3 and 4 of this report. The following summary is provided of the port setting and current activities:

- The port is located on the south-western edge of Gisborne City and been progressively developed over the last approximately 130 years.
- Last year (FY22) 118 vessels visited the port, around 93% of which were collecting logs.
- A logging vessel stays for an average of 43 hours.
- Last year there was a vessel berthed at either Wharf 7 or 8 on 234 days and on another 22 days both of the wharves had a vessel berthed at them.
- The vessel movements and berthing operations regularly disturb the seabed sediments and create turbidity or discolouration of the port waters.
- Maintenance dredging activities take place in the port on a regular basis (on average around 95 days a year), creating turbidity/discolouration and affecting biota living in the soft sediments.
- Periodic capital dredging has taken place over the years to improve access to wharves, which also has effects on turbidity and biota.
- Treated stormwater from the three logyards and other port areas is regularly discharged into the CMA in and adjacent to the port from approved outlets and monitored.
- Noise is generated from port activities and monitored from a recording site on the nearby Portside hotel site.
- Public access is readily available through the Outer Port to the marina, commercial and sports club facilities in the Inner Port.
- Public access to the Outer Port is strictly controlled because of the need for safe working conditions associated with both heavy vehicle and vessel movements and associated cargo handling operations.

The AEE and the appended expert reports, therefore, focus on the actual and potential effects of the Proposal over and above those already generated by the existing day-to-day operations at the port.

Port Related Unimplemented Approved Resource Consents

The RMA case law highlights the appropriateness for consent authorities to also consider as part of the 'existing environment', any granted resource consents that have not yet been given effect to but which are likely to be implemented. This consideration applies to the soon to be implemented Wharves 6 and 7 and Slipway redevelopment projects, along with the Southern logyard Waikahua seawall project, which is under construction. These projects form part of the existing environment for the purposes of the assessment of effects.

The implementation of these projects is planned over the next 1-2 years and will further reinforce the working port nature of the site and have some associated environmental effects, both in terms of construction and ongoing port operations.

Permitted Activities

As addressed in further detail below, activities that are permitted under the Tairāwhiti Plan are also regarded as part of the existing environment, provided their implementation is not fanciful.

13.1.2 Permitted Baseline Considerations

Section 104(2) provides that when considering an application for resource consent, "a consent authority may disregard an adverse effect of the activity on the environment if a national environmental standard or the plan permits an activity with that effect". This is known as the 'permitted baseline' test.

The purpose of the 'permitted baseline' test is to allow effects of activities on the environment that are permitted by the plan or an NES, to be disregarded. When applying the 'permitted baseline' such effects need not be taken into account when assessing the effects of a particular resource consent application. The RMA case law confirms that the 'permitted baseline' is confined to credible (non-fanciful) activities that are permitted as of right by the plan in question, in this situation the Tairāwhiti Plan.

In this case, the permitted baseline relevant to this application involves the effects of Port operations and certain construction activities that could reasonably be expected in the Port Coastal Management Area and Port Management Zones. The primary purpose of these zones is to enable the continued operation of the Port, while ensuring that adverse effects on the environment are avoided, remedied or mitigated.

Section 12 of the AEE identified the components of the Proposal that are permitted activities under the Tairāwhiti Plan rules, including

- Removal or demolition of existing port structures above the level of MHWS, such as the seaward (western) part of Wharf 8.
- Minor alterations to the inland (eastern) part of Wharf 8 and the adjacent part of the Inner Breakwater.
- All vessel loading and unloading operations that comply with the port operating noise emission standards.
- All log and other cargo deliveries to the redeveloped Wharf 8 and other port areas.
- Log storage operations on the Southern logyard and other parts of the port site.
- The disposal of up to 50,000m^3 of maintenance dredged material each year at the OSDG.

13.2 Economic Effects

The economic effects of the Proposal are detailed in the Brown Copeland & Co Ltd report entitled *Eastland Port Twin Berths Project-Assessment of Economic Effects* in **Appendix V**. The report describes the Tairāwhiti – Gisborne economy and assesses the significance of Eastland Port to it currently along with the effects of both the construction and operational stages of the Proposal. The key findings are summarised below. The positive economic effects of the Project to the regional economy are important effects to consider alongside the other effects.

Regional Economy

The following summary of the regional economy is drawn from the report:

- The agriculture and forestry industries and associated processing industries provide an estimated 5,974 jobs or 25.9% of total employment in the Tairāwhiti-Gisborne region and underpin much of the economic activity of the region. The forestry industry is highly dependent upon Eastland Port for exporting their products.
- The agriculture (including horticulture) and forestry industries and the processing of these industries' products generate a total of 8,961 jobs or 38.8% of total employment in the region. This excludes Eastland Port's role in enabling cruise ship visits to the region.
- A 2019 study estimated cruise ship visits led to an additional 54 jobs in the region (both direct and indirect or multiplier employment effects), raising the number of jobs currently and potentially sustained by the port to 9,015 jobs, or 39% of the region's total employment.

Importance of Eastland Port to the Regional Economy

The regional economic benefits of the current Eastland Port operations as set out in the report are as follows:

- Eastland Port during the year ended 30 March 2021, collected $42.9 million in revenue, provided 64 jobs and paid $5.4 million in salaries and wages. It spent $7.8 million on goods and services, with an estimated 65% of this going to local Tairāwhiti-Gisborne suppliers.
- In addition, there are a number of other port-based businesses, including security, cleaning, mooring and stevedoring. In 2017-18 these activities generated around $26 million in revenues, provided 146 jobs and paid $4.9 million in wages and salaries.
- In the year ending 30 June 2021 Eastland Port handled 3,345,815 tonnes of exports, up from 1,258,468 tonnes in 2010 – i.e. an increase of 266% in 11 years, or an average annual increase of 9.3% per annum.
- The log and other wood products trade for the 2021 calendar year was approximately $536m and accounted for 9.7% of the NZ wood products trade. Another $30m in fruit and $18m in vegetables were also exported in the same year.

Construction Benefits of Wharf 8 Extension, Reclamation & Capital Dredging

Construction of the Wharf 8 extension and reclamation, along with port wide capital dredging is projected to result in the following economic benefits:

- The $67.6m project if undertaken over a 3-year period is expected to generate on average 50 Full Time Equivalent (FTE) jobs with salaries/wages to average $4.5m/year.
- Direct expenditure on other goods and services is estimated to be 40% of the construction cost, i.e., $9.0m/year.
- Total employment (direct and indirect) is estimated to be 104 FTE, with $8.3m in additional salaries/wages per year.
- Total additional revene (direct and indirect) for local Tairāwhiti-Gisborne businesses is expected to be $18.2m per year for the region.

Construction Benefits of Outer Breakwater Upgrade

Construction of the Outer Breakwater upgrade, following completion of the wharf 8 extension, reclamation and capital dredging, is projected to result in the following the economic benefits:

- The $33.8m project if undertaken over a 5-year period ($6.8m /year) is expected to generate on average 8 FTE jobs with salaries/wages of $1.0m.
- Direct expenditure on other goods and services is estimated to be 45% of the construction cost, i.e., $3.14m per year.
- Total employment (direct and indirect) is estimated to be 17 FTE, with $1.9m in additional salaries/wages per year.
- Total additional revenue (direct and indirect) for local Tairāwhiti-Gisborne businesses is expected to be $6.3m per year for the region.

Economic Benefits of the Completed Twin Berths Project

The report notes the following in terms of the effects of the TBP once the approved Stage 1 works and proposed Stage 2 works are fully completed:

- The direct and indirect impacts will be $71 million/year annum additional revenue, $20 million/year in additional income and 245 additional jobs for the local economy.
- The additional expenditure, employment and incomes generated will give the Gisborne region greater critical mass and, as a consequence, local residents and businesses will benefit from economies of scale, greater competition, increased resource utilisation and possibly better provision of public services.
- If the TBP results in a coastal container service exporting a significant share of the region's agricultural and horticultural exports, the port would help sustain up to of 40% of the region's economic activity, and around 43% of the region's total employment.
- The completed TBP will have transport efficiency benefits facilitating an increase in the diversity of trades through the port and increase its resilience in terms of safeguarding the large log trade and possible loss of business to other ports, notably Napier and Tauranga.

Overall, construction and operation of the Proposal is expected to have positive direct and indirect economic effects on the regional economy, including through employment, purchase of goods and services.

13.3 Natural Hazards Related Effects

Natural hazards, including ground stability hazards, are addressed in the Worley Reclamation, Wharf 8 Extension and Outer Breakwater Engineering Report in **Appendix F**.

The port area is subject to natural hazard risks, notably storm events/surges, which have the potential to result in damage to Port infrastructure and restrict Port operations. Most of the port is also built on reclaimed land and expected to be affected by liquefaction following an earthquake. Like other parts of the district the port has been, and will continue to be, affected by sea level rise through climate change.

While the Port is identified as being subject to liquefaction on Councils' GIS maps it is not identified in the Tairāwhiti Plan as being in an area that is subject to specific coastal hazards, being coastal erosion or coastal flooding. Part of the southern logyard is affected by a Kaiti Hills slope related 'Stability Alert' overlay. However, no works are proposed in this location.

The Proposal does not require any specific resource consents relating to natural hazards. However, natural hazard risk, particularly as a result of sea level rise, has been taking into account in the design of the Proposal.

Sea Level Rise and Storm Surge

The NZ Ministry for the Environment (MfE) guidance for Local Government, "Coastal Hazards and Climate Change" (Government of New Zealand, 2017) was taken into account in the design of structures, including the Wharf 8 Extension, Reclamation and Outer Breakwater upgrade. For non-habitable assets with a functional need to be at the coast and which are readily adaptable (i.e. the reclamation seawall and Outer Breakwater extension), Table 12 of the 2017 Guideline specifies that a minimum sea level rise allowance of 0.65 m is to be applied.

Aspects of this guidance have subsequently been superseded by new interim guidance issued by MfE in August 2022 titled 'Interim Guidance on the Use of New Sea-Level Rise Projections' (the August 2022 Interim Guidance). This Guidance takes into account recently updated future projections from the Intergovernmental Panel on Climate Change (IPCC) in 2021-22 that confirm that sea-level rise is accelerating. It shows an increase in projected sea-level rise compared with the earlier 2017 Guidelines and also takes into account localised rates of vertical land movement (VLM) around the coast from the NZSeaRise Programme. The new sea-level rise projections (with and without VLM) are available from NZSeaRise through the Takiwā data analytics platform[3].

For non-habitable assets with a functional need to be at the coast, the recommendation in the August 2022 Interim Guidance is to raise the sea-level rise allowance by 0.05m to 0.7m from the value of 0.65m set in the 2017 minimum transitional guidance (refer Table 3 of the August 2022 Interim Guidance).

[3] https://www.searise.nz/maps-2

As illustrated in Figure 98 below, the SeaRise Programme data indicates no vertical land movement is expected at the Port or Turanganui River mouth. As such this information does not influence the projected rate of sea-level rise for the project location under different climate scenarios.

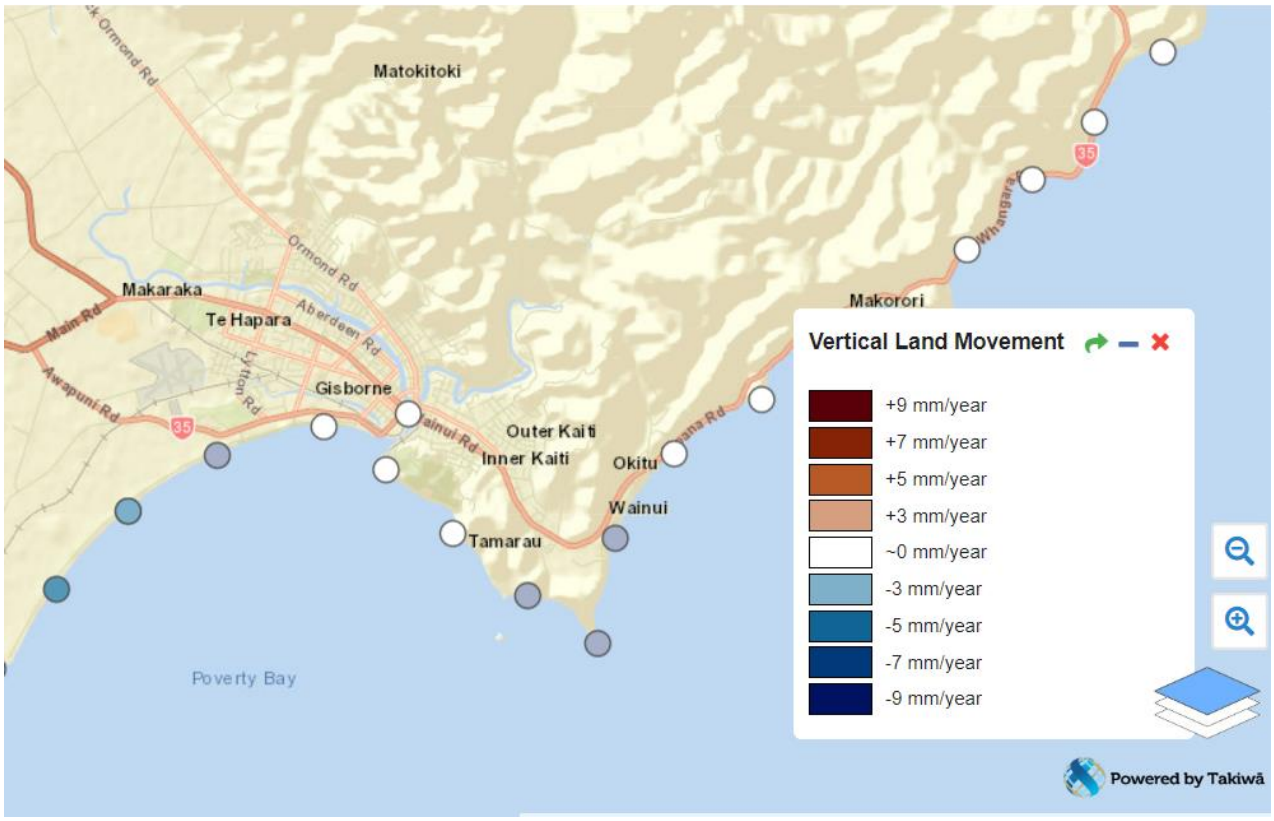


Figure 98: NZ SeaRise Maps – Predicted Vertical Land Movement at Gisborne

The design of the structures has been refined with physical scale wave modelling, undertaken by Manly Hydraulics Laboratory. This considered the full range of ocean water levels that include the required sea level rise component. The crest level of the new seawall revetment has been set to minimise wave overtopping, and armour layers were designed based on wave conditions that included the sea level rise allowance as stipulated in the 2017 Guideline. While the guidance on minimum sea level rise allowance has now changed as a result of the August 2022 Interim Guidance, the additional 0.05m of sea level rise now required to be provided for (0.7m in the August 2022 Interim Guidance as opposed to 0.65m in the 2017 Guidance) is not anticipated to make a material difference to the design parameters of the structures. The design also makes allowance for a 0.46m 'extreme' storm surge and a 0.25m for infragravity wave amplitude. Taking these factors into account a design water level of 3.1mCD has been adopted for the Outer Breakwater and Reclamation.

This is easily achieved, with the crest level of the revetment being set to 7.0m CD. At this level wave overtopping volumes are expected to be limited to <20l/s/m, which would be sufficient to prevent damage to the crest and leeward side of the revetment as a result of overtopping.

The orientation of the Reclamation Area has also been carefully considered and designed to be parallel to the incoming wave crests, thus minimising the potential for consequential erosion and accretion in areas outside the works footprint, including at Gisborne City Beach or Kaiti Beach.

In addition, the porosity of the armour layers to be used for the Revetment and Outer Breakwater, will absorb rather than reflect wave energy, therefore reducing the risk that wave reflections from the structures will adversely impact the surrounding coastal environment when compared with the existing situation.

The crest level of the Outer Breakwater will be lower than that of the revetment and will be set at 4.5m CD. This means overtopping of this structure may occur more frequently than overtopping of the revetment. Eastland Port has

confirmed the design level of the Outer Breakwater is operationally acceptable and will achieve the purpose of the structure, which is to provide protection to ships using the Port area and reduce swell incursion into the harbour. The proposed upgrades to the Outer Breakwater will improve the level of protection currently provided, noting that sections of the existing Outer Breakwater have failed, with parts of the existing structure now below MHWS. Reinstatement of the Outer Breakwater is expected to significantly reduce wave disruption of the shipping channel and improve the resilience of the Port, overall, to storm surges and sea level rise.

The proposed structures will be designed for the conditions in which they are to be located and will be managed to ensure that risks to people, other property, infrastructure and the environment are appropriately mitigated. For the reasons above, the Proposal design is considered appropriate to avoid or account for natural hazard risk associated with storm surges and sea level rise and to appropriately address the risk of adverse effects associated with coastal hazards.

Ground Stability Hazards

Ground stability is addressed in the Worley Reclamation, Wharf 8 Extension and Outer Breakwater Engineering Report in **Appendix F**, which identifies the background investigations undertaken for the Outer breakwater, Wharf 8 and Outer Port reclamation area. These involved borehole investigations, geophysical surveys and Multibeam Echo Sounder (MBES) work.

The investigation work indicates that the channel area adjacent to the inner breakwater (and proposed Wharf 8 extension) contains soils with good geo-mechanical properties overlying the higher load bearing paleochannel material. However, the remainder of the area (affected by the Outer breakwater upgrade and Outer Port reclamation) contains soft sediments. A preliminary assessment of the proposed Revetment design and Outer Breakwater refurbishment design was carried out against global stability and bearing capacity requirements, using the commercially available software SlopeW, to take account of earthquake and liquefaction risks. The preliminary assessment found that the presence of soft sediments is likely to pose geotechnical stability concerns, for which ground improvement may be required.

Further geotechnical investigation will be required to inform detailed design for ground improvements to ensure that the works are the most effective and efficient to ensure the integrity of structures over their design life and reduce the risk of damage associated with ground conditions or liquefaction to acceptable levels.

Capital and Maintenance Dredging and Disposal

The capital and maintenance dredging and disposal activities, along with the Southern logyard stormwater upgrade, do not raise any significant geotechnical engineering or natural hazard related effects issues. As such they are not specifically addressed in the Worley and Cheal reports, although the respective reports contain background information on the underlying geology and soils present.

The rate at which sediment is deposited in the Port area is influenced by storm events, the intensity of which varies over time and is influenced by El Nino and La Nina weather patterns. As such, while the long-term average volume of maintenance dredging required for the Port is expected to be around 70-80,000m^3, consent is being sought for removal of up to 140,000m^3 on an annual basis. This provides a contingency to ensure adequate maintenance dredging is able to occur to bring the Port basin back to its capital dredged level. This will ensure appropriate measures can be taken to maintain accessibility of the Port following extreme storm events and support the Port's resilience to such events.

Summary of Effects

Overall, the Proposal takes into account the coastal hazard and climate change risks (including sea level rise) inherent in locating in the coastal environment and CMA. Structures have been designed to ensure they do not exacerbate natural hazard risk to the Proposal or surrounding environment and that they ensure the long term resilience of the Port to natural hazards. Overall, the works are considered to result in negligible adverse effects with respect to natural hazard effects, while resulting in positive effects in terms of improved Port structures and operations and therefore improvements in the wider region's resilience to natural hazards.

13.4 Land Disturbance and Contamination Effects

Land disturbance and contaminated soils are addressed in the 4Sight Detailed Site Investigation in **Appendix Q.** The Proposal includes the removal of part of the existing southern logyard revetment wall, where it is within the footprint of the proposed reclamation. To minimise waste, handling and transport effects, any material suitable for reuse is proposed to be reused within the adjacent reclamation.

The existing revetment wall is known to contain a mix of material including concrete, brick, rubble, asbestos pipe and copper pipe, some of which may not be suitable for reuse in the reclamation area for reasons such as geotechnical stability. As such, material from the revetment will be sorted on site with any material that is unsuitable for reuse in the reclamation to be removed from the site and disposed of at an appropriately authorised facility.

Land disturbance will also be required to undertake the upgrades proposed to the existing stormwater treatment systems in the northern and southern parts of the SLY.

Given the history of reclamation and port activities at the site, a DSI has been undertaken to understand the level of any residual soil contaminants. Disturbance of potentially contaminated soil creates a potential risk to human health and the environment and is controlled under the NES-CS. No additional controls are applied to the disturbance of such soils under the Tairāwhiti Plan. However, discharges from contaminated land to land and water as a result of disturbance are regulated under the Tairāwhiti Plan. Based on the conclusions of the DSI, and as detailed in Section 12.8.3 of this Report, the land is not considered to be 'contaminated land' for the purposes of the rule. Specifically, it does not contain contaminants at levels that have or are reasonably likely to have *significant* adverse effects on the environment.

Risk to human health during the disturbance of potentially contaminated soils is generated by creating exposure pathways, such as direct contact with contaminated soil, dust inhalation or ingestion. Risk to the environment is generated through pathways such as leaching of contaminants to the receiving environment, being groundwater and/or the ocean in this case.

The 4Sight DSI (refer **Appendix Q**) identifies that asbestos pipe fragments are expected to be found in soils in all locations where soil disturbance is to occur, as well as slightly elevated levels of some heavy metals (lead, zinc and copper) when compared to background levels and the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZWQG) Default Guideline Values (DGVs) for sediment quality. Concentrations of polycyclic aromatic hydrocarbons (PAHs) congeners were also found to slightly exceed adopted background concentrations. These contaminants fall within a category described as CoPC.

The 4Sight DSI concludes that concentrations of identified CoPC in soil at the Site are highly unlikely to pose a risk to the marine environment. This is primarily because toxicity concentrations of these contaminants only marginally exceed the ANZWQG DGV's and in only four of the 32 samples analysed. In addition, the construction methodology, involving construction of a new revetement wall prior to construction of the reclamation area means the area of works will be contained, thus reducing the potential for sediments associated with reuse of the existing revetment material in the reclamation to be released into the marine environment beyond the reclamation. In the event that any leachate does discharge into the marine environment beyond the new revetment, it will enter a high energy open ocean with a high degree of tidal flushing and significant potential for dilution.

On completion of the reclamation, all soils, including any containing elevated levels of contaminants, will be contained beneath hardstand and behind an armoured seawall minimising the risk of any further release of contaminants to the Kaiti Reef marine environment beyond.

On this basis, it is considered highly unlikely the works will result in risk to, or adverse effects on, the marine environment.

As detailed in Table 4 of the 4Sight DSI, while disturbance of asbestos presents a risk to human health, it is not typically considered to present a risk to the receiving environment. All soil disturbance works where the presence of asbestos is confirmed will, therefore, be undertaken in accordance with WorkSafe's Approved Code of Practice, the New Zealand Guidelines for Assessing and Managing Asbestos in Soils (NZGAMS) guidelines for Class B asbestos removal and be overseen by a licenced asbestos removalist.

These requirements will be incorporated in a broader Site Management Plan (SMP) to be prepared by a Suitably Qualified and Experienced Person (SQEP) in accordance with the Ministry for the Environment (MfE) Contaminated

Land Management Guidelines No.5. Site Investigation and Analysis of Soils 2021. The SMP will detail the necessary procedures to mitigate risk to human health and the environment as a result of soil disturbance and procedures for managing unexpected discoveries of contamination.

Specific management measures will be determined by the SQEP and detailed in the SMP in accordance with the Contaminated Land Management Guidelines, and will address the following matters:

- Contaminated soil management procedures
  - Erosion and sediment controls
  - Dust control
  - Stockpile management
  - Soil handling controls
  - Soil disposal requirements
  - Asbestos contaminated soil management
  - Decontamination procedures
  - Unexpected discovery protocols
- Water Management
  - Stormwater management
  - Disposal of water
- Health and Safety Controls
  - Work area restrictions
  - Personal protective equipment
  - Personal hygiene
  - Hazardous identification
  - Emergency procedures.

The staging of works means it is unlikely any excess soil resulting from upgrades to the stormwater treatment infrastructure in the southern logyard will be able to be placed directly into the reclamation, notwithstanding the conclusions of the DSI that it could be appropriately reused on site. Any need for the stockpiling of this material or removal for off-site disposal will be addressed by the protocols in the SMP.

Any soil that is to be imported to the site for the purpose of reinstating the ground should be suitable to comply with the definition of 'cleanfill'.

Overall, given the extremely low levels of residual soil contaminants identified, the onsite reuse of suitable material from the existing revetment wall in the reclamation is considered to be a sustainable approach that will see the suitable material reused as fill on-site where it is needed, rather than relocated off-site to a landfill facility noting that such facilities are a limited resource. Adherence to the recommendations of the DSI will ensure such works can be undertaken in a manner that reduces risk to human health and the environment to an acceptable level. Adverse effects associated with the disturbance and onsite reuse of contaminated soil are considered to be no more than minor.

On completion of the Project, all soils will be contained beneath hard stand meaning there will be no available erosion or exposure pathways.

There are no identified human health or environmental risks associated with the presence of low-level residual soil contamination arising from operation of the completed Twin Berth facilities. The 4Sight DSI confirms that concentrations of heavy metals, PAH and TPH do not exceed the adopted NESCS SCS / MfE Petroleum Hydrocarbon Guidelines criteria for the proposed Site use (commercial / industrial land use), with all soils to be contained within the armoured seawall or beneath hard stand. In addition, the soils are within a secure area of Eastland Port, therefore limiting the number of users to the site. Overall, the risk of adverse environmental and/or human health effects resulting from soil contaminants during operation of the Proposal is considered to be less than minor.

13.5 Effects on Coastal Processes

13.5.1 Introduction

The proposal involves structures and activities within the CMA associated with a highly modified port environment that has been subject to both capital and maintenance dredging in the past. A detailed assessment of the actual and potential effects of the Proposal on coastal processes has been undertaken by MetOcean Solutions. The results of this assessment are reported in the MetOceans *Summary of Effects of Capital & Maintenance Dredging and the reclamation & breakwater upgrade* in **Appendix L,** which summarises the key conclusions of a number of underlying technical reports.

The report provides a detailed description of the existing seabed morphology, wave climate, shoreline movements, coastal hazards and sediment dynamics in and around the Port and OSDG. Changes expected to these coastal processes as a result of the Proposal have been assessed based on numerical modelling work relating to the effects of capital and maintenance dredging of the Port area and the disposal of dredged material in the OSDG. Wave modelling and sediment plume modelling has been undertaken to understand the potential effects of the proposed upgrades to Wharf 8 and the Outer Breakwater and the construction of the outer port reclamation.

The effects of sediment plumes generated during dredging and disposal activities and the construction of the reclamation and structures on water quality, and associated ecological effects, are addressed in the 4Sight Ecology and Water Quality Report (Appendix M) and section 13.6 of this AEE.

Figure 99 below shows the relationship of thePort to the bay and associated water depths**.**

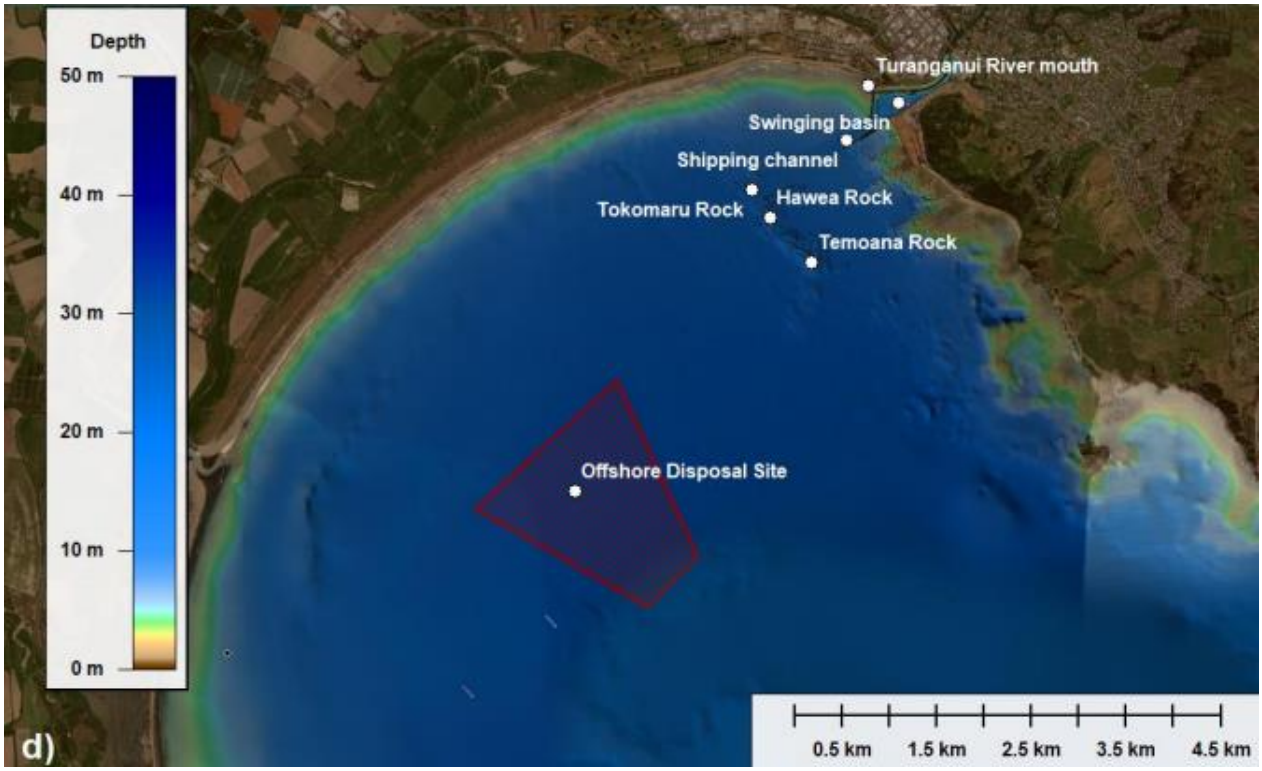


Figure 99: Plan of Gisborne Port and Offshore Disposal Ground Area Water Depths

Source: MetOceans Report

13.5.2 Existing Coastal Processes Overview

The MetOcean Report summarises the findings of the investigations (by the Council, Eastland Port and other organisations) into coastal processes, and in particular shoreline movements and associated coastal hazards.

The key MetOcean report findings are:

Waikanae Beach Area

The shoreline in the Waikanae Beach and Midway Beach areas has been relatively stable since 2000 as a result of the balance between physical processes and sediment supplies. Prior to this, significant changes occurred as a result of construction of the Turanganui River training wall in the 1930's and port redevelopment in the 1960's. Before this, dating back to around 1910, progradation of the shoreline is reported to have occurred. During storm events, sediment tends to migrate from the littoral area to the deeper offshore waters where the PNC acts as a sediment trap. The sediments tend to settle as a consolidated surficial layer in the lee of the channel.

Kaiti Beach Area

The MetOcean report refers to a 1998 report, which estimated that approximately 2,000m^3 of sediment annually is deposited onto Tūranganui-a-Kiwa/Poverty Bay beaches from both the cliffs east of Kaiti Beach and the cliffs of Young Nick's Head. These sediments, along with alongshore and offshore sediment transport associated with incident waves coming from the south/south-eastern quadrant control the relative stability of Kaiti Beach.

The western section of Kaiti Beach near the main breakwater has not shown any significant trend changes since 2000 while the eastern section of the beach has been eroded. It is likely that the construction of the main breakwater in the early 1900's and the capital dredging in the 1960's significantly reduced the nourishment of Kaiti Beach via eastward directed sediment transport and fluvial inputs. However, the breakwater also likely interrupts the westward alongshore sand transport making the deposition of material possible and leading to a relatively stable shoreline in this area.

Waipaoa River Mouth Area

The foreshore to the north of the Waipaoa River mouth is positively nourished by the large discharge of sediments from the river and the associated northward alongshore sediment transport. The dissipation of waves by friction throughout the bay contributes to limiting the erosion of sediments during storm events. As such, this part of the bay has been continuously subjected to progradation over the last century. By contrast, the beach areas located to the south of the Waipaoa River mouth, near Te Wherowhero Lagoon, have been generally eroding since 2000, likely due to the effect of incoming waves from the eastern quadrant. In the absence of southward alongshore drift, the nourishment of the southern beach areas by fluvial sediments is reported to be limited.

Recent OSDG Surveys and Associated MetOceans Investigations

The MetOcean *Summary Report* describes the OSDG and summarises the survey findings over the 2005-2017 period. It also contains the findings of a Delft3D numerical modelling investigation used to run high resolution process-based morphodynamic simulations over Tūranganui-a-Kiwa/Poverty Bay. The numerical modelling involved fully coupled wave, current and seabed interactions.

The modelling approach consisted of simulating the disposal ground dynamics over two complete, but climatically different (i.e. La Niña and "El Niño climatic conditions), one-year periods. The simulation involved applying an input reduction technique and morphological acceleration factors. In order to isolate the effect of the maintenance dredge disposal operations the initial model conditions assumed sediment is available only within the disposal ground, which is then progressively dispersed throughout the sequence of representative events. Additionally, the effect of the disposal mound on the wave climate was examined by comparing the model wave heights between the pre-and post-disposal environments.

The Report describes the morphology of the OSDG noting that it is controlled by the hydrodynamic processes at the site (waves, tidal and residual current velocities) and sediment inputs. The report notes that the disposal ground receives large sediment inputs from the nearby Waipaoa River and other rivers in the bay, along with the maintenance dredge spoils. It notes that the combination of processes and various sediment sources makes it impossible to isolate the effect of maintenance disposal activities on the OSDG morphology, compared to the changes resulting from natural processes.

13.5.3 Effects of Capital and Maintenance Dredging

The proposed capital dredging works will lower the seabed as described in section 9 of this AEE and shown in detail in the plans included in the Worley Capital and Maintenance Dredging Report. The area that will be subject to capital dredging is a total of approximately 18.4 ha, all but 0.16ha of which has been capital dredged in the past and is

presently subject to maintenance dredging. The end state of the process is that the Port will have an operational channel, vessel manoeuvring areas and wharves available at depths of between -8.1m below CD and -13.55m below CD.

Maintenance dredging of previously dredged areas of the Port will be required on an ongoing basis in order to maintain accessibility to the Port by vessels.

The MetOceans Summary Report documents the Tūranganui-a-Kiwa/Poverty Bay bathymetry, along with the wind, wave climate, hydrodynamics, sediment and morphological processes affecting it and the Port. It notes that surficial sediments are comprised of predominantly fine sand and mud (silt and clay) in the bay (including Gisborne Port), while medium to coarse sands are found near the Waipaoa river mouth and beaches. The relative distribution of cohesive versus sandy material is seen to be significantly different within the Port (80%-20%) to the outside of the Port (20%-80%). The PNC and VTB are reported to act as sediment traps, with the fine grained sand particles preferentially settling in the Port entrance, whilst the very fine sand mud is held in suspension and moved in to the VTB where they settle out of suspension.

The MetOceans *Summary Report* summarises the effects of the proposed capital and maintenance dredging on coastal processes. It notes the following:

- The capital dredging operations are expected to have a limited impact on the morphodynamics of the area. Subtle changes in the hydrodynamics and wave patterns to the north of the navigation channel may alter some of the sediment deposition patterns in the vicinity of the channel, without fundamentally changing the overall coastal dynamics. No areas of significant erosion/accretion processes are expected to result from the proposed capital dredging operations.
- In the absence of ongoing maintenance dredging, the annual infilling rate in the PNC and the inner basin will be in the range 75,000 – 120,000m^3 for the respective 'La Niña' and 'El Niño' weather periods. During storm conditions, the daily volumetric infilling rate may increase from approximately 200-300m^3 to 800m^3.
- The deposition of material at the Port entrance is expected for both weather periods. This is attributed to a re-orientation of the wave refraction patterns in the vicinity of the Port entrance, slight modifications to the location of the current eddy in the lee of Butlers Wall and sediment trapping processes over the outer dredged channel.
- The channel deepening is expected to increase the inter-annual variability of the deposition rate depending on the river discharges and incident wave climate. During large river discharges and more energetic wave events, the daily volumetric infilling rate may increase by up to 78% as a response of the proposed capital dredging.
- The western area of the VTB basin inside of Butlers Wall may be exposed to limited enhancement of the existing accretion processes in the order of a few centimetres per year. This is primarily due to a slight re-orientation of the current eddy in the lee of Butlers Wall.
- No changes in the sediment transport patterns are anticipated within the berth pockets along Wharfs 5 & 6. A similar infilling rate in the order of few centimetres per year is expected.
- The infilling rate may temporarily increase after maintenance dredging is carried out due to the diffusion of sediments from the batters at the edge of the dredged areas into the channel itself. However, this same process is likely to limit the influence of waves on the bed-load component of the sediment transport.
- The continued maintenance dredging project is expected to have a limited impact on the bay morphodynamics. Although there may be some subtle changes to the hydrodynamics and wave patterns to the north of the PNC navigation channel the maintenance dredging will not fundamentally change the overall coastal dynamics.

Overall, the MetOcean report finds that the proposed dredging activities are expected to have limited effect on bay morphodynamics, even though there will be subtle changes to sedimentation patterns and wave patterns to the north of the PNC. On this basis, the effects of the capital dredging proposed on coastal processes are considered to be no more than minor.

Proposed Monitoring of Dredging Effects on Coastal Processes

The effects of the capital and maintenance dredging operations on coastal processes in the Port and the wider Tūranganui-a-Kiwa/Poverty Bay are proposed to be monitored in a very similar manner to the way in which this is undertaken under the current Port maintenance dredging coastal permits. Monitoring of the dredging operations

within the Port is required in order to ensure proposed design depths are maintained and the morphological responses of the PNC channel and wider bay are consistent with what is expected.

The MetOceans report recommends the following monitoring:

- Annual to bi-annual hydrographic surveys of the PNC and VTB using appropriate, industry standard approaches and qualified hydrographic surveyors, with a preference to multibeam surveying (over single-beam). All surveys to be reduced to an appropriate defined datum and survey results compared to the immediate prior survey in order to assess morphological trends.
- Hydrographic, shore normal transects aligned with the Gisborne District Council beach profiles inshore of the Shipping Channel are to be completed at time of the annual to bi-annual hydrographic surveys. This monitoring is to be coordinated with the Council's shoreline / beach profiling work and continue for the duration of the coastal permit consent provided the Council continue to undertake beach profiling. All surveys are to be reduced to an appropriate defined datum with the survey results compared to the immediate prior survey in order to examine trends.
- Records of all capital and maintenance dredging operations are to be maintained, including start/stop locations of dredging and approximate unconsolidated volume of sediment dredged. This monitoring will provide valuable information on the morphological response of the PNC and VTB to dredging and the shoreline stability monitoring work being undertaken by the Council.

Given the dredging operations are not expected to adversely impact surfing conditions at the nearby Waikanae or Midway beaches, no specific monitoring of the either surf break is considered necessary.

13.5.4 Effects of Disposal of Dredge Material in the OSDG

Capital dredged material will be deposited in the existing OSDG approximately 4km off-shore in water depths 18-20m below Chart Datum (CD). The dredged material will raise the seabed slightly (by approximately 0.049m) over the OSDG area of approximately 3km^2.

The MetOceans Report assesses the effects of capital and continued maintenance dredging disposal operations on the coastal processes in Tūranganui-a-Kiwa/Poverty Bay.

The report explains the modelling undertaken to assess morphological effects, which involved using a Delft3D model to run high-resolution process-based morphodynamic simulations over Tūranganui-a-Kiwa/Poverty Bay. The model simulated the effects of a disposal mound on the waves and sediment dynamics over two climatically different periods, La Niña and El Niño. To isolate the effect of the disposed sediment mound, the model assumed sediment available only within the OSDG, which is then progressively dispersed throughout the sequence of representative events. The model also assessed the effect of the disposal mound on the wave climate by comparing the modelled wave heights between pre- and post-disposal simulations.

In terms of the morphological response to the offshore disposal of capital dredge material, the MetOceans report contains the following findings:

- The mound associated with the capital dredging (0.049 m) results in minimal effect on the inshore significant wave height. Areas of slightly increased wave height occur inshore of the disposal ground, due to wave refraction over the disposal mound, and areas of slightly reduced wave height occur along the shore normal edges of the disposal ground. The areas of wave height changes vary depending on the incident wave direction.
- The changes in significant wave height (Hs) are on average 0.005m, with a maximum increase of 0.01 m and maximum decrease of 0.006 m. This corresponds to an approximate 0.2% change in wave heights, which is consistent with the water depth modification (approximately 0.3%) related to the total disposal of the dredged material.
- The dredge disposal material mound will have a negligible effect on the wave direction approaching the coast. Only wave class 2 for El Niño conditions had detectable changes, at one location, which is unlikely to modify the overall sediment transport patterns and beach shoreline.
- The predicted changes in wave height and direction from the dredge disposal mound will have negligible effects on the inshore morphological processes and surfing conditions, according to the model results.

- Between 71% – 80% of the disposed material associated with dredging is expected to be eroded and transported. This corresponds to between 96,000m^3 and 109,000m^3 of sediment advected from the disposal ground over a 1-year period (for La Niña and El Niño respectively).
- Most of the silt in the disposed mound (which represents 66% of the total) is predicted to be winnowed and transported towards the shore or continental shelf by suspended-load transport under both La Niña and El Niño climatic conditions as shown in Figures 3.8 and 3.9 in the report. During La Niña, silt deposition occurs mostly between depth contours of 4-12m. A relatively small fraction of silt may deposit within depths of 4–8 m along the western margin of Tūranganui-a-Kiwa/Poverty Bay during El Niño conditions. Most of the resultant silt deposition occurs between depths of 16-20m. Significant river discharges and clockwise flows are expected to largely mitigate the deposition of silt in this part of the bay.
- A significant fraction of the very-fine sand material (estimated at 19% of the total) is predicted to be eroded by wave action. During La Niña, very-fine sand is expected to be transported offshore to the southwest and inshore to the northeast, although most of the material kept within the limits of the disposal area as shown in Figure 3.8. During El Niño, the very-fine sand is largely dispersed from the disposal ground to the south and southwest as shown in Figure 3.9. Deposition of very-fine sand occurs in 12–24 m depth and in areas of moderate wave energy.
- The fine sand fraction (which accounts for approximately 15% of the dredged material), is predicted to be weakly affected. The combination of high wave energy and strong near bottom current conditions can initiate the transport of a low volume of fine sand over the disposal area and along its margins. However, most of the initial mass of this sediment fraction stays within the disposal field and no suspended-load transport is expected for this sediment fraction as shown in Figures 3.8 and 3.9.
- No capital dredged material disposed of at the OSDG is expected to be deposited over the nearby beach areas.

On this basis, the effects of the disposal of capital dredge material to the OSDG, as proposed, on coastal processes are considered to be no more than minor.

The key findings of the MetOceans assessment of the offshore effects of the disposal of maintenance dredge material are:

- The effect of the disposal mound on the nearshore wave climate is negligible. The wave energy is expected to be redistributed along the beach areas adjacent to the Waipaoa River mouth. The resultant increase in significant wave height (Hs) during energetic storm event is expected to be 0.01 m or less. The predicted changes in Hs for six different wave classes (1-6) are shown in Figures 3.1-3.6 in the report. Some very localised changes in wave direction occur, but they are not expected to modify the overall longshore sediment transport patterns along the nearby beaches.
- Between 71% and 80% of the disposal mound associated with the simulated maintenance dredging volume is expected to be eroded, mostly related to the weakly-consolidated silt fraction. This corresponds to between 99,000m^3 and 112,000m^3 of sediment being advected from the disposal ground over a 1-year simulation period for La Niña and El Niño, respectively. The predicted changes during La Niña and El Niño climatic conditions are shown in Figures 3.7-3.9 in the report.
- The modelling results show the coastal processes affecting the OSDG resulting in a notable segregation of silt, very fine sand and fine sand. The silt fraction of the disposed material is transported mostly northwest and southwest of the disposal ground. Small deposition of silt may occur to the northeast of the bay. The very fine sand particles are expected to migrate south and south-westward, with sediment expected to move to depths of 12– 24 m within the 1-year simulated periods. A smaller fraction of fine sand is expected be transported over the disposal area and its margins.
- No sediment from the disposal mound is expected to be deposited over the nearby beach areas

On this basis, the effects of the disposal of maintenance dredge material to the OSDG, as proposed, on coastal processes are considered to be no more than minor.

Proposed Monitoring of Offshore Disposal Ground Use on Coastal Processes

The MetOceans *Summary Report* recommends similar effects-based monitoring of the OSDG to that currently undertaken as part of the consented Port dredging activities. The proposed monitoring involves:

- Annual to bi-annual hydrographic surveys of the OSDG using appropriate, industry standard approaches and qualified hydrographic surveyors, with a preference to multibeam surveying (over single-beam). All surveys are

to be reduced to an appropriate defined datum with the survey results compared to the previous ones so as to examine morphological trends.

- Hydrographic, shore normal transects aligned with the Council beach profiles inshore of the OSDG to be completed at the time of the annual to bi-annual hydrographic surveys. Coordination with the Council beach profile monitoring is expected, along with continuation of the surveys for the duration of the coastal permits, assuming the Council continue with the nearby beach profiling work.
- Records of dredging disposal operations are to be maintained, including disposal locations (beginning and end of discharge cycle).
- Annual to bi-annual surficial sediment sampling of the disposal ground and control sites, consistent with the sampling undertaken in 2017. The sampling sites are shown in Figure 2.2, which is reproduced as **Figure 100.** The report notes that because surficial sediments in the bay are a mixture of sand (> 62.5 µm) and mud (< 62. 5 µm) limitations are imposed on the available analysis techniques. It recommends, as with previous surveys, sample analysis is best using a Malvern laser particle size analyser, which should identify if any textural change to the surficial sediment occurs over time due to dredge disposal activities.
- Comparison analysis of the hydrographic survey data from the OSDG and control sites (also shown in **Figure 100**) to help distinguish morphological changes due to the disposal of dredged material from those naturally occurring within Tūranganui-a-Kiwa/Poverty Bay. This will help to determine if the dynamic equilibrium of the OSDG is being adversely affected by the capital (and maintenance) dredge material.

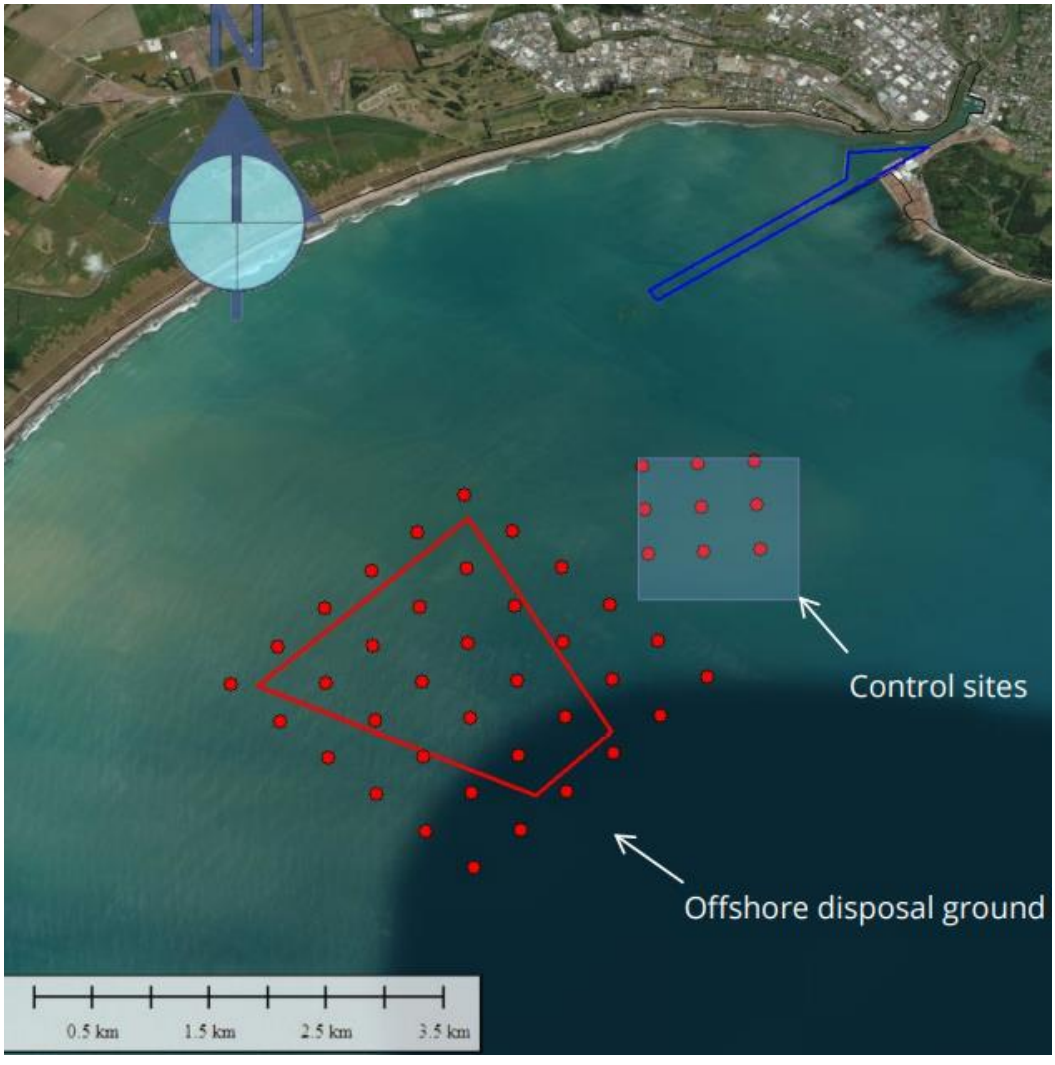


Figure 100: Offshore Disposal Ground Surficial Sediment Monitoring Sites

Source: MetOceans Report

13.5.5 Effects of Proposal on Surf Breaks

The effects of the Proposal construction as a whole, including capital dredging and disposal, on the nearby surf breaks at Waikanae and Midway beaches, the Island (Tuamotu) and Big (Waipaoa) River, have been assessed by MetOceans and are summarised in the MetOceans *Summary Report* in **Appendix L**. They are also assessed, along with surfing conditions generally in the bay, in the Tonkin + Taylor Ltd *Twin Berths Project Surf Break Assessment* in **Appendix U**.

MetOceans Report

The MetOceans report notes that within Tūranganui-a-Kiwa/Poverty Bay there are both nationally (Bowl – Tuamotu Island) and regionally significant surf breaks (Pipe, Roberts Road, Big River, Sponge Bay and The Cliffs), with the locations of the breaks, relative to the Port shown in a figure which is similar to the one in this AEE. The report notes of the significant surf breaks, only Roberts Rd, Pipe and Big River could potentially be affected by the proposed capital (and maintenance) dredging activities given their location in the lee of the proposed extended PNC. Both Roberts Rd and Pipe are classified as 'beach breaks' and rely on pre-conditioning of the incident wave field to generate the well-known peaked surf breaks. In contrast, Big River is considered a fickle spot that features both left and right river bar peak, with the banks controlled by the high water volume river which creates consistently moving sand and shingle banks and is not reliant on any pre-conditioning of the incoming wave field.

The report explains the wave hindcast, surfing wave analysis, and numerical near shore wave modelling methods used, and provides key results in relation to the general wave and surfing wave climate and nearshore wave modelling. The report focuses on how capital dredging and disposal may affect the resulting wave conditions at the Midway Beach area (which has several notable surf spots, including Pipe and Roberts Road) and at the Waipaoa River mouth (i.e. Big River).

The report findings are:

- At Big River, phase-averaging modelling was used to assess the potential effect of the offshore disposal mound on the inshore surfing conditions. It suggests that the inshore wave heights are expected to be modified by approximately 0.2% (i.e. 0.01 m change in height) with the location dependent on the incident wave direction. Some very localised changes in wave direction may occur but are not expected to modify the overall wave pattern at the shoreline. This is expected to have a negligible effect on recreational surfing conditions at Big River.
- At the Pipe and Roberts Rd surfbreaks, the nearshore phase resolving wave propagation modelling found significant wave focusing develops over the offshore submerged reef system which redirects wave energy specifically towards the Midway Beach region. This is combined with wave crest "snapping" which is expected to further increase the surfability of the wave field reaching the beach.
- The reproduction of the wave simulations over the Twin Berths post development and PNC dredging bathymetry configuration suggests very limited changes to the existing wave processes in the Midway Beach region (less than 0.5-1%, or 0.013 m) and similarly for Robert Rd (less than 2%, or 0.022 m), with slightly larger changes (alternating increase and decrease in wave height) along the area between these two beaches. The limited effects of the PNC deepening on existing wave processes can be attributed to the relatively small deepening of the outer channel and the approximate perpendicular angle of the channel relative to the incident wave direction.

Tonkin + Taylor Report

The T+T report has seven sections. Sections 1-3 describe the reporting process, coastal setting and assessment framework. Section 4 assesses the effects of the project on the Midway and Waikanae beach surf beaks, whilst Section 5 covers the Waipaoa River mouth surf break. Section 6 sets out recommended monitoring and consent conditions.

The report focuses primarily on the capital dredging related effects of the Proposal, and notes in Section 2.2 the following:

"The proposed works and activities are described in detail by others and are not repeated here. In relation to surf breaks, the proposed dredging and disposal have been identified as potentially influencing the surfing experience at nearby spots such as The Pipe, Roberts Road, and Big River (MetOcean, 2021). The proposed works include dredging the entrance channel and port basin and depositing dredge disposal offshore in the centre of Poverty Bay."

Section 2.3 describes the coastal processes at work, which are illustrated in Figure 2-5, reproduced as **Figure 101** in this AEE. Section 2.4 describes the six most recognised surf breaks at the beach- river mouth areas and includes several illustrative photographs.

Section 3.2 describes the physical elements of surf breaks. Section 3.3 outlines a NZ based risk classification assessment model and risk rating system developed by Atkins and others in 2018. They are illustrated in Figures 3.1-3.5 of the report. Section 3.4 notes that the assessment framework in the T +T report, including an assessment of physical elements and risk, is presented in full for select breaks at Waikanae Beach (Roberts Rd), Midway Beach (Pipe) and the Waipaoa River mouth (Big River). This is because these surf spots are either beach breaks or delta breaks and are therefore considered sensitive to activity that could interrupt existing sediment dynamics.

The report notes that the PNC dredging area is within the nearshore swell corridor for Pipe and Roberts Rd, and the proposed dredge disposal ground is within the nearshore swell corridor for Big River. The assessments for Pipe and Roberts Rd are combined because the proximity of the breaks means that any effect on one spot will affect the other. The assessment for the Waipaoa River mouth is presented separately.

Section 3.4 notes that no assessment is presented for Sponge Bay, The Island or The Cliff because these spots are all reef or rock breaks that are less sensitive to sediment dynamics. Further, these spots are all located seaward of the proposed Twin Berth works, meaning that their 'swell corridor' and incoming wave energy cannot be affected by the works proposed by Eastland Port. The risks to Sponge Bay, The Island and The Cliff are assessed as 'low'.

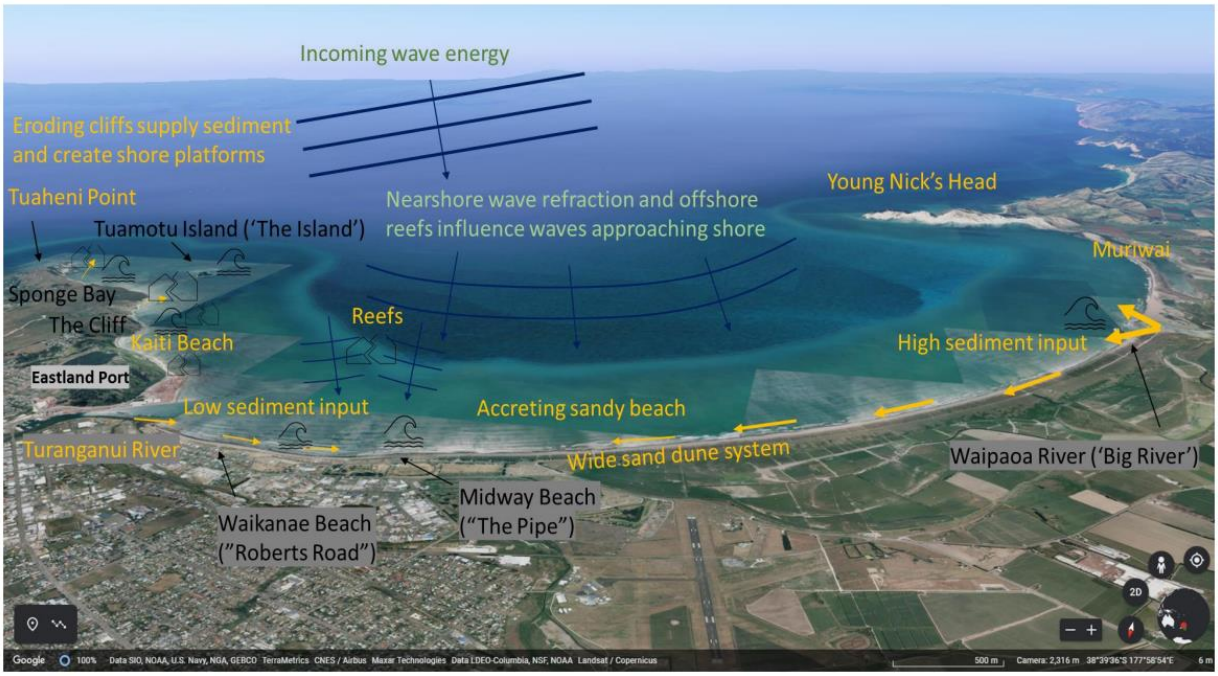


Figure 101: Illustrative Plan of Port Related Coastal Processes and Surf Breaks

Source T+T report

Section 4 uses the MetOceans modelling reports to assess the effects of the capital dredging on incoming swell and wave form, breaking location/style, smoothness of wave face, ride line/length, current, access and water quality, at Waikanae and Midway. Table 4.1 in the report summarises the risk rating results of the assessment. It finds that the change in levels following capital dredging is expected to result in an approximate 2% change in wave height and an approximate 2 degree change in wave direction at these surf breaks.

Section 5 adopts the same assessment approach for the Waipaoa River mouth surf break, with the risk rating results presented in Table 5.1. It notes that based on MetOceans' modelling assessments of the deposition of material at the dredge disposal ground, an approximate 0.2% change in wave height is predicted and a negligible change in wave direction.

The T+T report finds that at all three surf breaks (Midway, Waikanae and Waipaoa River mouth), the maximum consequence for individual surfing elements was minor, the maximum likelihood was unlikely and the overall risk of the proposed Port activity on surfing is considered low. Section 6 notes that no surf break specific monitoring is being proposed by MetOceans and this is justified because the assessed surf break effects and risks are assessed as 'low'.

On the basis of the findings of the MetOceans and T&T Reports, effects of the proposed capital dredging and disposal on surf breaks are considered to be no more than minor.

13.5.6 Effects of the Reclamation and Outer Breakwater Upgrade

The MetOceans report (**Appendix L**) provides a detailed description of the coastal environment at the site. This includes the coastal setting, bathymetry, wind, wave climate, hydrodynamics, sediment and morphology.

Of relevance to considering the effects of the outer port reclamation and outer breakwater upgrade on coastal processes is the existing wave climate affecting the Port.

This is described as uni-modal with a narrow directional range between 130-170 degrees true north. The narrow wave exposure window is due to the shape of the North Island, notably the Mahia Peninsula, which blocks most southerly wave energy, as well as the beach position in the northern end of Tūranganui-a-Kiwa/Poverty Bay. The Port area is effectively sheltered from any east-northeast–incident wave energy by the Tamaru headland. The most significant wave events affecting the Port are offshore southwest swells which move up New Zealand and are refracted by the bathymetry beyond the bay to eventually approach it from a south-easterly direction.

MetOceans identifies potential effects of the outer port reclamation and outer breakwater upgrade on coastal processes as relating to effects on wave height and wave induced currents near the Port.

The Wharf 8 extension is not specifically addressed in the MetOceans reports, but is effectively considered as part of the proposed Outer Port reclamation.

The MetOceans Report summarises the results of SWASH modelling undertaken in relation to the Outer Port reclamation and the Outer Breakwater upgrade. The report notes that the SWASH model was used to simulate the waves as they propagate through Tūranganui-a-Kiwa/Poverty Bay and interact with the Port structures at each Twin Berths development stage. SWASH is an open-source non-hydrostatic wave-flow model, which solves the non-linear shallow water equations including non-hydrostatic pressure. It simulates individual waves (i.e., phase resolving model) as they propagate towards the shore, accounting for all relevant wave/bottom interaction processes, such as shoaling, refraction, diffraction, reflection and non-linearity.

The existing Port configuration was compared firstly to the Port layout with just the proposed reclamation finished, and secondly with the proposed upgraded Outer Breakwater also finished. The different structures of each Port layout were represented in the model by changes in the bathymetry (model depth) and the porosity (the amount of wave energy that the structure reflects and absorbs) of each new structure. The model parameters assessed were the sea surface elevation, significant wave height, and wave induced currents. The report notes that the modelling was undertaken on the basis that the proposed capital dredging had also been completed, i.e. with a deeper outer Port.

Modelling of the existing wave climate shows that prevailing south-easterly waves refract into Tūranganui-a-Kiwa/Poverty Bay where they reach the Port's outer breakwater. After interaction a fraction of the wave energy is reflected eastwards, towards the Southern logyard revetment wall. Some subsequent reflection back to the south possibly occurs, though with significantly reduced energy due to dissipation over the revetment wall. The current wave climate model situation is shown in **Figure 102**.

Figure 102: Existing Gisborne Port Modelled Wave Climate

Source: MetOceans Report P0331-26 - High resolution wave modelling of existing and proposed port configurations

Effects of the Reclamation

The MetOceans Summary Report (refer **Appendix L**) on the effects of the reclamation & breakwater upgrade finds that modelling of the proposed reclamation results in wave heights becoming larger (approximately 0.5m) in the close vicinity of the new structure (due to reflection) and relatively larger wave energy radiating back to the south (approximately 0.04 m). In contrast, wave heights are relatively reduced within a band along the southern training wall (approximately 0.05m). For the extreme wave conditions simulated, the significant wave heights showed an increase of 8-10% with the proposed reclamation in place, reaching up to 10-20% larger for the different wave conditions simulated. For the same offshore conditions, at higher water levels, the relative increase in wave height with the reclamation in place is estimated to be approximately 15% on average, and locally up to 25%.

Effects of the Outer Breakwater Upgrade

In terms of the effects of the Outer Breakwater upgrade on the local wave climate and hydrodynamics, the MetOceans report records that the X-bloc or similar armour units to be used for the breakwater upgrade are expected to be approximately 30% less reflective than the present concrete wall and large block-based structure. As a result, the report expects the upgraded breakwater structure to absorb/dissipate more wave energy.

The results show a local redistribution of the wave height gradients and the current's vortices in the vicinity of the Port. This will result in a small decrease (approximately 0.1m) in the wave height adjacent to the outer breakwater and smaller than 0.03m in the wider area.

There will also be an associated increase in the wave induced current westwards of the Port resulting in an approximately 0.1m speed increase near the breakwater. This results in a similar decrease in the nearshore current flowing westwards of Midway Beach.

Overall changes in the spatial patterns of significant wave height and wave induced currents were confined to the Port vicinity and minimal changes were observed within Tūranganui-a-Kiwa/Poverty Bay, away from the Port and near the beaches.

Summary

Having regard to the analysis undertaken by MetOceans, the adverse effects of the reclamation and outer breakwater upgrade on coastal processes in the vicinity of the Port are considered to be minor or less than minor. Given the limited

and localised level of effects that will be generated, no specific mitigation measures (beyond the design of outer breakwater structure, which will absorb wave energy) have been identified as necessary within the analysis of MetOceans to avoid, remedy or mitigate the effects of these structures on coastal processes.

13.5.7 Effects of Reclamation Related Sediment Discharges

Fine sediments present on rock and crushed rocks to be used for the reclamation revetment will potentially result in the generation of localised sediment discharges in the CMA during construction of the reclamation. MetOceans has undertaken modelling to estimate the dispersion and fate of sediment discharges potentially generated during the reclamation works, with the results summarised in the MetOceans *Summary Report* in **Appendix L.** Delft 3D modelling was undertaken of a scenario involving the release of fine sediments from the surface of rock with the protection bund partially built.

In order to get a better picture of the quantity of fine material that could be released into the water, Worley arranged tests of the two representative fractions of fine material. The 'Quarry Run' sample contained 7.01% of fines (less than 75 µm) whilst the 'Plus 65' sample contained 1.2% of fines. The 'Plus 65' material has been identified as much more representative of the proposed work plan and it will mitigate the potential release of fines.

The MetOceans predictions are presented in terms of percentile maps and time series of fine sediment suspended concentration above the existing background, and seabed sedimentation. Background sediment concentration ranging from 0.13 to 0.23 kg/m^3 have been recorded within the Port.

Based on the model results, sediment plume concentrations near the Port are predicted to be less than 0.02 kg/m^3 and occur mostly west of the reclamation site, along the southern side of the breakwater, and at the entrance of the Port and navigation channel. This is some 5 to 10 times less than typical background sediment concentrations within the Port and some 5 times less than the background concentration range. Further into Tūranganui-a-Kiwa/Poverty Bay, background sediment concentrations are predicted to be typically 0.02 kg/m^3. The model results show plumes of less than 0.002 kg/m^3, above background**. Figure 103** below, illustrates the modelled sediment plume from use of the 'Plus 65 floc' material to be used by Eastland Port. The water quality effects of these identified sediment plumes are addressed in the 4 Sight Ecology and Water Quality Report and in Section 15.6 of the AEE below. In this regard, the overall conclusion is that any discharge from the reclamation during construction can be managed and will not impact the ecological health of the local reef system or cause significant visual impacts beyond the Port working area.

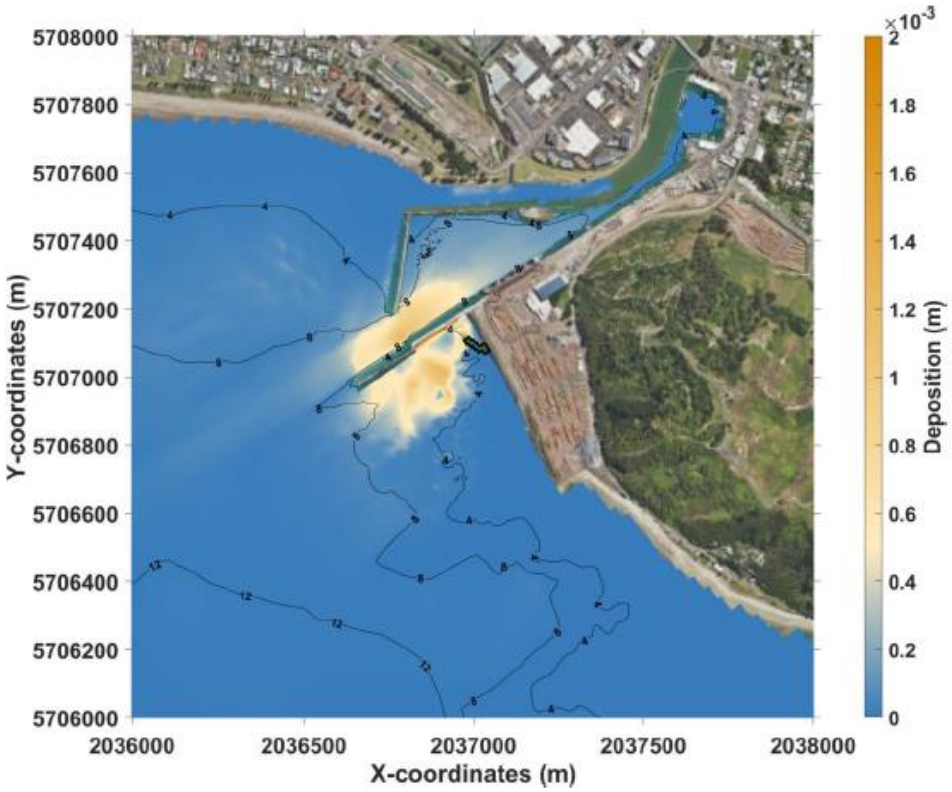


Figure 103: Modelled 15 Day Sediment Release from Plus 65 Material During Construction of Reclamation

Source: MetOceans Report

Proposed Sediment Control Measures

The Worley report outlines the nature of mitigation measures to be adopted during construction of the Outer Port reclamation to limit dispersion of fine sediments. The area of exposed material during construction of the revetment will be minimised by progressively armouring the core material as construction of the revetment progresses toward the north-west. The core would be armoured by a secondary rock armour layer that would be designed to act as a rock filter and prevent fines from migrating through the outer armour layers. The secondary rock armour layer would be designed so that the armour rocks are large enough to not be washed through the voids between the concrete armour unit layer.

The choice of 'Plus 65' quarry run for the core material is also an important mitigation measure. As outlined in the Worley report two sources of core material were tested. Hydrometer analysis was undertaken to estimate the production of fines from the quarry-derived material when placed into water, which captures fines generated from dust bonded to the grains of the material.

The tests found that approximately 1.2% of the mass of the material designated as 'Plus 65' quarry run from the Kuri Quarry would comprise silt-sized particles that could contribute to a plume during construction. This was much lower than the more than 6% for 'All in' quarry run material without screening of fines.

Similar mitigation measures will limit the discharge of fine sediments to the CMA from the Wharf 8 extension during construction. The 'knuckle' transition between the Inner and Outer Breakwater, is to be filled with clean graded rock and the generation of fines is expected to be much less than the 'Plus 65' quarry run material. The rock fill here will also be protected with concrete armour units as construction progresses to minimise its exposure to wave action and hence minimise generation of fine sediment. Concrete units will be precast and stored on site and not expected to generate any significant fine material discharges to the CMA.

The Worley report also notes the following additional sediment control measures are proposed to be adopted for the land based construction sites:

- Minimising plant movement during dry conditions to minimise dust generation and having a water cart on site during extended dry conditions to control dust
- Installation of hay bale barriers and silt fences prior to stormwater discharge locations from the site
- Stormwater pit/discharge location inlet protection, and runoff diversion channels and bunds
- Regular sweeping and washing of site entrance and exit points.

Summary of Effects

The MetOceans report predicts that any plumes of low concentrations will be mostly to the west but will be generally less than recorded background levels and have a minor effect on suspended solids concentrations in and around the Port and near Waikanae beach. The MetOceans report, along with the Worley engineering report highlight the importance of using the selected 'Plus 65' quarry material in minimising sediment discharges, along with progressive armouring of the constructed facility. The MetOocean breakwater upgrade report does not identify any adverse effects arising from construction works.

Proposed Monitoring of Effects of Reclamation Sediment Discharges

The 4Sight Ecology and Water Quality report notes that monitoring of the predicted sediment discharges is best developed as part of the construction methodology and planning, taking into account the difficulties with in-situ monitoring in a very exposed marine environment. Visual based monitoring from land vantage points is envisaged and directed at ensuring that there is not consistent movement of high concentration sediment plumes towards the more sensitive ecology of the Kaiti reef. It is proposed that development of an appropriate monitoring strategy will be included as proposed conditions of consent.

13.6 Ecological and Water Quality Effects

Effects on marine ecology have been considered in the 4Sight *Ecology and Water Quality Report* (**Appendix M**) and the 4Sight Kororā AEE (**Appendix Y**) including effects on habitat, the intertidal environment, subtidal environment, seabirds, fisheries and marine mammals.

The 4Sight *Ecology and Water Quality Report* also provides a detailed assessment of the effects of the Proposal on water quality and water quality associated ecological effects. This draws on the modelling of sediment plumes undertaken by MetOceans (**Appendix L**) and the approach to management of stormwater discharges from the southern logyard detailed in the Cheal *Southern Logyard Stormwater Management Report* (**Appendix H**).

The Ecology and Water Quality Report has also been prepared by reference to a draft Cultural Impact Assessment (CIA) provided by Rongowhakaata in relation to the December 2020 resource consent application for Port maintenance dredging.

The report explains that a 'first principles' approach to assessment has been adopted, under which the data and information is assessed on its merits with a minimal overlay of assumptions or interpretations. This is considered appropriate given most elements of the Proposal are activities that will (or currently) occur within or very close to the existing Port operational area and its zone of influence. This applies in relation to the wharf 8 extension, outer breakwater upgrade and capital and maintenance dredging.

The reclamation is considered to warrant additional consideration and is assessed using an approach derived from the Ecological Impact Assessment Guidelines for New Zealand (EIANZ, 2018). The report explains that while EIANZ was not developed for marine environments, they have been adapted for that purpose in several situations and provide a useful, structured regime to assist with assessing values and effects.

EIANZ provides a criteria-based regime to assess the 'Ecological Value' of species and habitats. It provides a five level hierarchy to assign a 'Magnitude of Effect' to the specific Twin Berth project elements, and then integrates these two descriptors to provide what this report refers to as an overall 'Derived Level of Effect' which also has five categories (Very Low, Low, Moderate, High and Very High). EIANZ anticipates management response to effects is appropriate for Derived Level of Effects which score Moderate or greater.

The EIANZ assessment has been used to corroborate or otherwise, the findings of the first principles approach. Both approaches lead to similar conclusions as to the minor scale and significance of ecological effects.

13.6.1 Effects of Outer Breakwater Upgrade

The Outer Breakwater upgrade will effectively restore the existing structure to a more functional state and, on completion, will occupy a slightly larger area of seabed. This will result in a loss of seabed of about 2,700m^2. However, the intertidal area associated with the refurbished structure will increase by 1,400m^2. Subtidal habitat will also increase following the reconstruction, as a result of the use of prefabricated concrete units, which will create a relatively porous structure which is estimated to be 60% voids.

Section 4.2 of the 4Sight Ecology and Water Quality Assessment finds the following:

- The existing breakwater serves as a 'man-made rocky reef type habitat', which includes use by post juvenile crayfish. It also contains elevated areas currently used on an itinerant basis by marine mammals and seabirds.
- On the southern side, the seabed is sand overlying the bedrock and is highly exposed to wave energy. It is likely to be quite mobile and unlikely to host notable invertebrate fauna.
- The affected area on the northern side appears to be of a muddy nature that slopes to the PNC. Benthic areas lost on the channel side of the structure are finer grained and marginal to the dredged navigation channel and the ecological values are similarly limited.
- Habitat associated with the existing Outer Breakwater is of medium ecological value.
- This habitat will be lost in the short term. However, recolonisation of the new surfaces and voids in the structure will begin as soon as the new concrete armouring is completed and therefore recolonisation values will restore progressively over the construction period which may extend for up to 24 months
- The extended intertidal habitat will in time be colonised by a variety of marine life similar to that on the nearby Kaiti reef.
- The subtidal parts of the new breakwater should redevelop a similar reef type community to that which presently occurs. Effects on subtidal habitat values are therefore temporary and subtidal ecological values should be restored and increased due to the larger area of the new structure. In particular, the new revetment will have a large proportion of voids (estimated by Worley at 60%) available sub-tidally which is anticipated to restore and potentially improve the habitat potential for small crayfish and other biota seeking refuge habitat.
- The more elevated breakwater and concrete cap is anticipated to offer more, rather than less, habitat for resting/roosting seabirds which have been observed on the outer end. It may also provide improved haul out resting areas for NZ fur seal which have been observed on the existing structure.

Overall, there will be some short to medium term (up to 2 years) adverse ecological effects and potential for localised water quality effects associated with construction activity. However, the net ecological effect of upgrade is likely to be at least neutral and probably positive beyond the construction period. The derived effect level under EIANZ is considered to be low.

13.6.2 Effects of Wharf 8 Extension

On the northern side, the Wharf 8 extension involves replacement of the existing concrete structure with vertical concrete piles. Existing habitat and biota values in this location are assessed as negligible and replacement of the existing structure on a largely like for like basis is not expected to cause adverse habitat effects.

On the southern side, works involve piling and new fill and will result in the loss of a small subtidal section of revetment, which has some of the rocky reef character of the Outer Breakwater. However, this section of the Inner Breakwater is in shallower water than the Outer Breakwater and is in a very high impact zone for wave energy. As a result, it has more limited ecology and lower ecological value.

The loss of this lower value habitat is assessed as a minor ecological effect. However, this is identified as a short-term construction effect, with the creation of a larger area of replacement habitat in the new reclamation seawall considered to provide adequate mitigation for this short-term loss. Sub-tidal ecology will re-establish in the new reclamation seawall over time leading to the conclusion that the overall impacts of the Wharf 8 extension on local ecological values are negligble (less than minor).

Water quality effects from the construction will similarly be localised and should be limited to minor sediment disturbance and sediment losses from the fill operation. These effects are inconsequential in terms of effects on local water quality and assessed as having a negligible (less than minor) effect.

13.6.3 Outer Port Reclamation

The outer Port reclamation, including the outer revetment wall, will occupy a seabed area of approximately 0.89ha of which 0.26ha is existing revetment footprint. Therefore, the area of seabed lost to new reclamation is some 0.63ha. These works will require construction of a new revetment wall, of approximately 140m in length, to contain the reclamation. An approximately 130m long section of the existing Southern logyard revetment wall will no longer be required and will be removed. Removal of the existing revetment wall will result in the loss of approximately 2,000m^2 of intertidal area (between existing MHWS and MLWS). The new revetment wall associated with the reclamation will create a new intertidal area of approximately 1,250m^2, resulting in a net loss of approximately 750m^2 of intertidal habitat.

The aerial image in **Figure 104** below shows the location of the small, isolated patch of subtidal rock that would fall within the reclamation footprint.

Figure 104: Outer Port Reclamation footprint: aerial photograph site plan

The 4Sight Ecology and Water Quality report records the following in relation to the ecological effects of the reclamation:

- The aerial photographs and field work show a small patch of subtidal reef within the reclamation footprint, with the remainder being of a mainly sandy muddy nature. The affected patch reef is shown in the earlier aerial photograph. The proposed reclamation avoids the northernmost area of patch reef that forms part of the heritage boat harbour site.
- The Worley plan/report notes that approximately 2,000m^2 of intertidal habitat (on the logyard revetment wall) will be lost through the proposed reclamation (shown in green) and approximately 1,250m^2 (shown in blue) will be created (on the new revetment wall). The effective 750m^2 'loss' relates almost entirely to artificial habitat (seawall) and does not include any significant area of natural reef substrate.

- The subtidal area lost through reclamation mainly consists of a lens of medium to coarse sand and fine shell over the underlying bedrock. Being shallow, and exposed to high wave energy, the substrate is likely to be mobile, unstable and not host significant benthic biota.
- The affected 'island' of patch reef is likely to host algae and invertebrates which are common to the much larger adjacent Kaiti Reef system. The severe wave climate is likely to limit the range and longevity of fauna and flora at this isolated location. Its loss will not be ecologically significant.
- The patch reef loss will be effectively compensated by the subtidal part of the new revetment wall which will sit in deeper water than the current revetment wall and over time is anticipated to develop a similar diverse ecology to that at present on the southern side of the Outer Breakwater. This community has been shown to be relatively diverse as outlined earlier in the ecology report.
- The MetOcean modelling report on sediment discharges from the Outer Port reclamation construction activities indicates the sediment plumes will mostly move north being initially 'blocked' by the breakwater and then transported towards to the PNC and the VTB where minor rates of deposition are predicted. The modelling indicates that there should not be significant movement of sediment to the south in the direction of the Kaiti reef system. Although, the nearby Kaiti reef area is recorded as having a moderately diverse invertebrate and algal community, it is not likely to be exposed to adverse effects from the sediment discharge from the reclamation works on the intertidal or subtidal ecology in that direction. The 4Sight report proposes visual plume monitoring to verify this.
- The new reclamation revetment will have a large proportion of voids (estimated by Worley at 60%) that will offer valuable habitat to crayfish and other biota not presently available in the existing largely intertidal structure.

Overall, adverse ecological effects from the completed reclamation are minor and in terms of hard substrate ecology, is offset by that which should develop on the subtidal parts of the new seawall.

Kororā

The 4Sight Kororā Report (**Appendix Y**) contains a detailed assessment of the actual and potential effects of the proposed reclamation on kororā. The report notes that the assessment of effects is premised on the preparation and implementation of a Twin Berths Kororā Monitoring and Management Plan (TBKMMP) to avoid adverse effects on kororā and to manage adverse effects on potential kororā habitat. The TBKMMP will:

- outline proposed monitoring of kororā within the construction footprint,
- identify measures to avoid adverse effects on kororā, including:
    - the timing of deconstruction works to take into account periods of the year when nesting and moulting is/is not occurring,
    - during construction, interventions to discourage use of the works area by kororā to avoid adverse effects,
    - the necessary requirements to avoid adverse effects if active burrows are identified in the works footprint at the time deconstruction is planned to occur, despite the interventions,
- outline protocols to manage non-breeding or moulting kororā within the works area during the construction period, and
- detail offset/compensation enhancements for the loss of any active burrows within the construction area, should that be unavoidable.

It is anticipated the TBKMMP will be prepared for certification by Council prior to the commencment of construction / deconstruction works on the outer seawall.

The key conclusions of the report are set out below:

- Kororā inhabit the coastal area of the Kaiti Beach shore and Eastland Port. Their New Zealand threat classification is at risk-declining, and they have a high ecological value.
- A consequence of the recent Southern Logyard Seawall maintenance and Waikahua Seawall Upgrade projects has been the documented presence of a population of kororā that live along the seawall and Kaiti beach. The response by Eastland Port in recognition of this population has been the preparation of a 10-year Kororā Conservation Management Plan (Waikahua KCMP), which aims to enhance the southern section of the seawall to protect the species from predators and Port operations via predator control and a Port exclusion fence. The Waikahua KCMP provides important background information and objectives going forward that will likely be integrated into the

current Proposal to avoid impacts, enhance the habitat and contribute to positive effects on the kororā population living in the Port's southern seawall.

- Works associated with both construction of the new revetment and deconstruction of the existing revetment have potential to result in adverse effects on kororā such as loss of habitat, mortalities and disturbance, reduced foraging ability, prey abundance and water quality effects and disturbance from lighting and noise. A TBKMMP will be developed for the construction and operational phases of the TBP and will compliment and draw on proven management protocols from the Waikahua KCMP and other projects.
- Kororā are known to rest within crevices in seawalls, within rock stockpiles and under artificial structures and may colonise new habitat areas as they are created, even temporary habitat such as stockpiled construction materials. If this occurs within an active construction area with large machinery and other construction activities such as rock movement, it could result in mortalities. Exclusion of kororā from active construction areas is, therefore, recommended and this will be addressed in the TBKMMP. Management controls may include but are not limited to; exclusion fencing including the use of geotextile or other 'wrapping' to exclude access to crevices in the new seawall or stockpile material; and rock storage either below mean highwater spring level or off site beyond kororā access. If kororā are successfully excluded from the new seawall construction area prior to works and are managed in accordance with the protocols to be established in the TBKMMP, the likelihood of kororā mortalities is very low and, therefore, the magnitude of effect would be Negligible
- Construction noise effects are assessed in the Marshall Day Noise Assessment Report (refer **Appendix P**) and is expected to be generally comparable to existing Port noise levels and character. Given the existing noise environment, adverse noise related effects from the Proposal's construction on kororā behaviour are not anticipated and the magnitude of effect is assessed as Negligible.
- High sediment loads in the water column have the potential to affect foraging ability of kororā. However, water quality effects during construction will be short term and relatively localised to the area adjacent to the seawall construction works, which is unlikely to provide a primary food source for kororā. Further, sediment generation is expected to be limited by way of the Sediment and Erosion Control Plan. On this basis, the magnitude of sediment related water quality effects on kororā is assessed as Negligible.
- Any additional lighting from construction activities is unlikely to make any material difference to the existing light regime experienced by kororā already living in a location with artificial lights. Accordingly, the effects of construction lighting on kororā are assessed as Negligible.
- Kororā are most sensitive to disturbance during breeding and moulting and activity when they become resident in burrows for extended periods. These seasonal activities typically cover the months of April to the end of June but can be variable year on year and site specific.
- Deconstruction of the existing revetment wall will not commence until after the new reclamation revetment wall is complete, prior to which works on the Wharf 8 Upgrade must have progressed, at least, to the stage of placing engineered fill between the new piled walls. As such, works to deconstruct the existing revetment will not occur prior to 2024 at the earliest. This lead in time provides an opportunity to undertake additional survey work to better understand any use of the works area by kororā and take action to reduce or ideally prevent recolonisation of the area prior to works starting. Specific management approaches will be detailed in the TBKMMP, including options for offsetting any loss of previously active burrows that are removed from the works area.
- The TBKMMP will outline the necessary requirements to avoid adverse effects if active burrows are identified in the works footprint at the time deconstruction is planned to occur, despite the interventions.
- The risk to kororā near the Port following completion of the works is unlikely to change, with operational effects expected to be similar to the existing effects experienced by kororā in the vicinity of the Port. Specific monitoring and mitigation measures will be identified in the TBKMMP and will be based on monitoring undertaken during construction works, but may include enhancement of habitat in the 'buffer' seawall area, exclusion fencing, public signage to improve awareness of the presence of kororā and the importance of controlling dogs, or the establishment of additional nest boxes in accordance with DOC guidelines.

Overall, considering the protocols outlined in the TBKMMP, ecological effects on kororā are expected to be Very Low, with all effects being assessed as 'negligible', with the exception of disturbance during construction, which is 'low but temporary'.

If there are no active burrows within the TBP outer seawall immediately prior to the deconstruction works occurring, the overall level of effect on kororā habitat is assessed as Low.

If active burrows are identified in the TBP Outer Seawall, appropriate management of the kororā will be necessary, in which case the overall level of effects on habitat will be Moderate and will require appropriate management and offsetting/compensation of the loss of habitat. There are sufficient enhancement opportunities in the Buffer Seawall section, adjacent to the TBP Outer Seawall. Such enhancement will be addressed and described in the TBKMMP. If required, after enhancement measures have been implemented, it is anticipated that the overall level of effects on habitat would be Low.

With the effective implementation of the TBKMMP, long term adverse impacts on kororā following the completion of the Proposal are not expected. Overall, the operational effects of the Proposal on kororā are assessed as being negligible.

13.6.4 Effects of Capital and Maintenance Dredging

The effects of capital and maintenance dredging on the existing Port habitat and biota are assessed in detail in the 4Sight Ecology Report and summarised below:

- Most of the material to be removed is expected to be soft semi-consolidated clays silts and sands, with the biologically active component typically limited to the top approximately 20cm. Although this habitat will be 'lost' it is regularly disturbed by Port vessel and maintenance dredging operations and is not of ecological importance. The direct ecological effects of dredging on seabed habitat and macrobenthos are considered to be minor and not of ecological significance.
- Creation of the new Wharf 8 berth pocket will involve capital and maintenance dredging of an area of approximately 1,300m^2 that has not been previously dredged. This is one of the most frequently disturbed areas of the Port as ships berth and depart and only minimal biota is expected to be present. The ecological effects of dredging in this location are assessed as minor.
- The affected rock outcrops in the PNC and other areas are relatively small and the subtidal habitat here is expected to be similar to that in the much larger Kaiti reef area and the nearby area to the south known as the 'foul grounds.' The capital dredging methods will remove any established habitat here, but with time it will also re-establish.

Almost all (about 99%) of the areas have been capital dredged in the past and are subject to the direct and indirect influences of ongoing maintenance dredging. The additional areas to be capital dredged for the first time are within the Port proper and are marginal to the existing disturbed footprint. They do not represent a significant area or significant habitat.

Dredging also results in potential water quality effects arising largely from associated increases in suspended sediment. Such increases can, either in suspension or in due course following the deposition of such material on natural substrates, cause a range of potentially adverse effects including smothering of biota and habitats, clogging gill surfaces affecting respiration and feeding of marine biota, reduction in light penetration affecting photosynthetic activity. Effects can also be aesthetic such as reduced visual clarity and impacts on colour.

The potential for such impacts on water quality is strongly related to the dredging method which in turn is governed by the type of material to be moved. Methods most likely are trailer suction hopper dredge (TSHD), and barge mounted backhoe dredge (BHD) which is expected to be used in the less accessible areas, especially close to existing Port structures and where harder rocky material is to be removed.

The effects of capital and maintenance dredging on Port water quality are assessed in detail in the 4Sight Ecology Report and summarised below:

- The turbidity from a Trailer Suction Hopper Dredge (TSHD) working within the Port (VTB and wharf areas) will have a noticeable water colour/clarity effect, although it will depend on background water quality at the time, which is strongly affected by rainfall events and shipping movements.
- The SC water quality standard (d) that applies to the Port area (VTB and wharves) requiring that 'the natural colour and clarity of the water shall not be changed to a conspicuous extent' may not be met at times during dredging operations. However, the adverse effects are expected to be intermittent and short term related to each capital or maintenance dredging operation.
- The turbidity effects associated with BHD operations in the few harder sediment/rocky areas within the Port, or in confined areas next to the existing infrastructure, will be typically much more localised. Allowing for mixing

and dispersion of plumes within an operational working area, significant visual plumes of turbid water further afield are unlikely to be generated and the SC water quality standard (d) should be met.

- Juvenile crayfish settlement in the Port occurs mostly in a 'transition' area between Wharves 6 and 7 shown in Figure 32 of the report. The settlement area is in a busy Port working environment regularly affected by sediment plumes from ship movements and also at times high rates of sediment deposition from storm/rainfall events.
- Capital dredging of the Wharf 7 berth pocket (approx. 33,600m^3 over an area of approx. 0.96ha) is proposed in close proximity to the crayfish settlement area. This work is expected to be completed over several months principally by backhoe dredger.
- Existing consents have dealt with concerns about the effects of dredging related turbidity on the settlement of juvenile crayfish by limiting dredging to between April and September inclusive without the prior written approval of the Council (for example the Wharf 4, 5 and 6 area (CP 2013 105825)). However, the 4Sight Ecology Report concludes that such risks are largely perceptual and that while there are peaks in settlement (including over winter) the long planktonic life cycle and the vagaries of environmental influences such as currents acting over the continental shelf, means that crayfish can settle over much of the year. Further, that when viewed against the frequent influence of other sources of sediment in the Port, the beneficial effect (if any) of restricting the timing of dredging to between April and September is unknown.
- The current maintenance dredging consents for the remainder of the Port, i.e. Wharves 7 and 8, VTB and PNC (CP 2015 106583 & others) do not have a winter 'no dredging' restriction. The current whole of Port maintenance dredging applications with the Council (2019 109518 & others) also does not propose such a restriction in this or other areas. However, this most recent application package is still being processed and a Council decision on this particular matter has not been made.
- Overall, the 4Sight Ecology Report concludes that any water quality risks to crayfish settlement habitat or to post juvenile success, are short term, likely to be minor and not of ecological importance in terms of providing crayfish for the wider fishery. This is based on the use of a backhoe dredge for works in the vicinity of crayfish habitat, which will limit the impact of sediment plumes and with no restriction to dredging method or timing considered to be required in relation to crayfish settlement habitat.
- Elutriate testing suggests that there will be no adverse water quality affect relating to mobilisation of heavy metals associated with the dredging.
- Dredging in the PNC is expected to be primarily undertaken using a TSHD, with possibly a BHD being used in some places to excavate the rock outcrops in the PNC. Although only small dredging plumes are expected, the SB quality standard (d) requiring that 'the natural colour and clarity of the water shall not be changed to a conspicuous extent' is also not expected to be met here during intermittent dredging activity. The report recommends that as with past/current consents a time period allowance be made for dissipation of temporary and intermittent plumes and a return to background conditions at which they cease to be 'conspicuous.'
- The benign quality of the dredged material in the PNC means that it is most likely that water quality standard (e) requiring that 'the water not being rendered unsuitable for bathing by the presence of contaminants' will be met. Although the recreational bathing suitability standard applies here, no such activity occurs because as outlined earlier in this AEE diving and swimming are prohibited in the PNC under the Council's navigation bylaws. Furthermore, just beyond the PNC to the west is the Gisborne City treated wastewater outfall, which is much more likely to govern the suitability of waters for bathing in this part of the bay.
- The dredging operations are not expected to infringe any of the standards for the higher rated SA Classified Waters to the south of the PNC that cover the Kaiti reef area. The SA classification includes an additional clause within standard 'e' that 'Aquatic organisms shall not be rendered unsuitable for human consumption by the presence of contaminants.' This standard is expected to be met.

Proposed Monitoring of VTB and PNC Sediment Quality

Ongoing monitoring of sediments in the VTB and PNC is proposed to ensure the suitability of dredged material for disposal to the OSDG, relative to ANZG 2018 guideline values where applicable. The 4Sight Ecology report recommends that the present programme of annual monitoring of heavy metals and TPH at representative sites within the VTB and PNC, as well as a background reference site at the Turanganui River bridge, be continued. It also recommends that the programme be expanded to monitor a broader range of parameters which better reflect influences from log yard stormwater discharge. This includes polycyclic aromatic hydrocarbons and total resin acids at sites, which will include background reference or control sites.

The proposed monitoring is intended to reaffirm the quality of the sediments to be maintenance dredged, relative to ANZG (2018) guideline values where applicable, and its suitability for offshore disposal. It also seeks to monitor a broader range of parameters which better reflect influences from Port log yard stormwater discharges, in particular resin acids.

The report also recommends that the current triennial elutriate analysis of sediments to be dredged (capital and maintenance) be continued. This monitoring is expected to verify that the concentrations of mobilised metals, and particularly dissolved copper, remains within acceptable limits, and specifically within the ANZECC 90% protection level for marine waters.

The proposed monitoring programme also incorporates trigger conditions for monitoring background contaminant levels in Poverty Bay and at the OSDG, in line with that required for the Wharves 6 and 7 redevelopment project approved by the Environment Court.

13.6.5 Effects of Disposal of Capital and Maintenance Dredged Material in OSDG

The key findings in Section 4.5 of the 4Sight Ecology report on the effects of the capital and maintenance dredging disposal operations are:

- The capital dredge spoil disposal operations will be very similar to the current authorised maintenance dredging operations and expected to be subject to similar consent conditions.
- The OSDG is a soft sediment habitat which sits within a much broader basin of similar habitat type. There appears to be nothing special about the location or dimensions of the OSDG and the boundaries do not appear to have been set to protect any nearby potentially sensitive habitats.
- The OSDG ecology is affected by large fine mud sediment discharges from the nearby Waipaoa River and others draining into the bay. It is also affected relatively frequently by wave energy from severe storms and resuspended material.
- The most recent biological surveys of the OSDG show that changes in benthic community composition since 1996 are minimal and effects of maintenance dredged material disposal are not significant. The effects of the disposal of both capital and maintenance dredged material on the benthic communities within and near the OSDG, are considered small and unlikely to be ecologically important within the context of background influences.
- The SA water quality classification standard 'e' which requires *'Aquatic organisms shall not be rendered unsuitable for human consumption by the presence of contaminants and the water shall not be rendered unsuitable for bathing by the presence of contaminants ….'* is expected to be met. The material to be dredged is unpolluted and does not contain contaminants which might have a toxicological or bio-accumulative effect. Some heavy metals are present at low or trace levels, but they are below concentrations of water quality concern. The OSDG is also well distant from reefs or intertidal areas used for seafood gathering and recreational bathing.
- The SA water quality classification standard (d) that requires "*the natural colour and clarity of the water shall not be changed to a conspicuous extent*", is expected to be infringed for a short period over a localised area during disposal of material at the OSDG. However, the infringement will be no different to that recognised in the current maintenance dredging disposal consents.
- The OSDG is well removed from locations of public view, and such localised turbidity is unlikely to be 'conspicuous.' Also, there is an intermittency of discharge due to the load/transport/dump cycle and the current coastal permits provide a 6-hour 'window' after each dumping episode for the waters to 'clear' (or 'not be conspicuous'). Although the 6-hour period is arbitrary it constitutes a reasonable monitoring directive and is proposed to be retained.

The report concludes that overall, water quality effects from the Twin Berths will occur at a low level of visual effect and will not cause toxicological or other risks to the receiving environment such as impacts on kai moana. Water quality classification standards that apply to the Port (SC), the PNC and nearby inshore zones to the north (SB) and the general marine area including the Kaiti Reef and the OSDG (SA), will be maintained. There may be visually conspicuous changes in water clarity due to localized plumes that will inevitably arise over short duration from time to time associated with specific events (e.g. dredging). There will not be adverse effects that are significant in terms of the prevailing water quality in Poverty Bay.

Proposed Monitoring of OSDG

The OSDG has been monitored at approximately five yearly intervals, since 1996, for biological community metrics, with the next survey expected in mid to late 2025. Ongoing monitoring of benthic communities, sediment texture and contaminants at the OSDG is proposed.

13.6.6 Biosecurity Management Considerations

The 4Sight ecology reports notes the presence of Mediterranean fan worm in part of the Port and the wider Council and Eastland Port biosecurity management plans and protocols in place. The 4Sight ecology report outlines the biosecurity risks associated with the Proposal and the monitoring and management measures to be put in place for dealing with them. This part of the report draws on the findings of the Council decision on the Wharves 6 and 7 and Slipway redevelopment decision, which as noted earlier included a capital and maintenance dredging component. The Council decision includes a condition requiring submission of a Marine Pest Management Plan (MPMP) to the Council for certification before any capital dredging work is undertaken.

The 4Sight ecology report identifies that recent NIWA/4Sight benthic surveys of the OSDG found no biosecurity risk species, although acknowledge that fanworm can colonise substrate types that also occur in the Port and at the OSDG. The report also highlights the findings of a 2016 investigation of biosecurity risks associated with capital dredging operations at the Port of Lyttleton by the Cawthron Institute (CI). Having regard to the CI report findings and the proposed MPMP no specific investigations of the material to be capital (or maintenance) dredged is recommended, but the current 5 yearly benthic surveys of the OSDG are to be continued.

Wharves 6 and 7 Redevelopment Template Marine Pest Management Plan Consent Condition

The background to the MPMP consent condition is explained in the following Council decision extracts:

"43. *One significant concern that did come to light during the hearing was that the Mediterranean fan worm had been discovered in the Port in 2015. This invasive exotic species, which can travel on the hulls of ships, was first discovered in Lyttleton Harbour in 2008. It has since spread via coastal shipping from the Far North to Gisborne in the North Island, and north along the east coast of the South Island. It can form dense, habitat modifying mats.*

44. It is inevitable that the disposal of spoil to the OSDG will have already spread the Mediterranean fan worm to these offshore waters. We have no information on how far they have spread off-shore from the OSDG to other coastal habitats, or the extent to which they have successfully colonised the soft sediment in the OSDG.

45. Given this we see no need to decline or otherwise limit the applicant's proposal to dispose of sediment offshore. We have however required that the Marine Pest Management Plan required by Condition 9 of each consent granted includes a requirement to manage sediment discharges to the offshore disposal ground to avoid or mitigate the effects of spreading any pest organism present in sediment dredged from the Port basin."

Eastland Port are proposing a similar MPMP based condition as part of the Proposal. It is expected to be attached to all of the applicable coastal permits.

13.6.7 Water Quality Effects of the Stormwater Discharges

The objective of the proposed stormwater management upgrades is to provide treatment for the new reclaimed area and improve the quality of runoff discharges from the SLY to the same quality achieved elsewhere on Port.

As detailed in both the Cheal report (**Appendix H**) and the 4Sight Ecology and Water Quality report (**Appendix M**), stormwater monitoring results for the southern logyard show that suspended sediment concentrations are above the targets set by the existing stormwater discharge consent of a median and 75 percentile of not more than 300 and 450g/m^3 TSS respectively. As a result receiving water quality standards requiring 'no conspicuous change in colour or clarity beyond a reasonable zone of mixing' are not currently met. This is due to very fine fraction particulates which are not able to be captured in the present system.

Similar difficulties were previously experienced with the Upper Logyard (ULY) and Wharfside Logyard (WLY) discharges. However, monitoring results following recent upgrades to the ULY and WLY stormwater systems show greatly improved stormwater quality and general compliance with consent requirements relating to TSS. Both the ULY

and WLY systems were upgraded with a chemical flocculation/lamella clarifier system, which is now proposed to be installed as a secondary treatment process for each of the Southern Logyard catchment areas.

Sections 6-10 of the Cheal report set out the stormwater runoff assessment, hydrograph modelling, treatment capacity, storage capacity and system analysis investigation work undertaken to support the extended/upgraded stormwater system for the Southern logyard and Outer Port/Wharf 8 reclamation areas. The key findings are summarised below.

The report concludes that the implementation of the proposed secondary treatment process comprising chemical flocculation/lamella clarifier system can achieve a required discharge quality that maintains receiving environment water quality standards for all but relatively extreme rainfall events. However, due to the size of the Southern Logyard catchment, which is much larger than the ULY and WLY catchments, and the input from external catchments (Kaiti Hill and Kaiti Beach Road) the system performance is sensitive to the effects of shorter duration 21mm storms.

Section 8 - Treatment Capacity, notes that the additional lamella clarifiers are limited to specific maximum flows. As the outflow from the treatment units is directed to the outfalls the flow handing capacity of the units is the key constraint on the disposing of treated runoff water from the existing and new stormwater areas.

It notes that the proposed clarifier units have an individual unit capacity of 110m³/hr which are the largest stock item available in the range. The ULY relies on one of these units, whereas the WLY has three smaller (25m³/hr) units. The report notes that with the experience gained operating these units, Eastland Port sees benefit in continuing with these size products. Consequently, the SLY North and SLY South catchment areas are proposed to be serviced by two 110m^3/hr capacity units each.

Section 9 - discusses storage capacity in some detail. It notes the storage in the existing pipe network and in-ground structures, the new detention storage pipes upstream of the treatment plants and some incidental surface storage will be available.

Section 10 - System Analysis identifies that for short duration (2 hours or less) storm peaks, two clarifiers in each catchment do not provide sufficient capacity to fully treat all stormwater. It goes on to identify that the effect of insufficient treatment capacity in the secondary treatment system would be a build-up of excess surface water, including ponding around inlets. Within the logyard catchments there are some areas where water can pond before spilling out of the catchment. However, this could result in adverse operational effects, particularly in the SLY south catchment where water to a depth of 850mm could potentially accumulate. Further, it could result in the discharge of untreated stormwater to the CMA by way of overland flowpaths, which would potentially compromise water quality in the receiving environment.

In order to avoid the potential for ponding and ensure there is no untreated discharge from the site, it is proposed to install additional treatment devices, in the form of hydrodynamic vortex separators (HVS), in the bypass flow paths of each of the SLY North and SLY South systems.

The Cheal report records that these are the same devices currently used in the SLY North and SLY South and will significantly increase treatment capacity in the system, meaning even during short duration high intensity rain events, all stormwater would run through a treatment device before discharging to the CMA.

Consistent with the performance of the existing stormwater treatment system, the HVS devices are expected to achieve a lesser standard of treatment than the new secondary treatment process (detention/chemical flocculation/lamella clarifier). However, as detailed in the Cheal report, contaminant loads in stormwater runoff, and in particular TSS loads, are highest in the initial stages of a rainfall event, when the yard pavement is effectively flushed of the very fine particles (~10-micron average particle size) that rest in the pavement and are unable to be recovered by machinery. After this initial concentration of fine material is effectively flushed, the TSS load in the discharges decreases to become much less.

Based on the various scenarios modelled, the Cheal report predicts that this 'first flush' of stormwater runoff containing the highest contaminant loads (and smaller particle sizes) should have been transported into the new secondary treatment process, before the bypass system is triggered. This means the most contaminated stormwater will run through the new secondary treatment process, which, in the ULY and WLY, has proven effective in treating stormwater discharges containing the very fine particles that have caused difficulties across the Port, to a high standard. Stormwater will not enter the HVS bypass system until a later stage of the rainfall event, when flows exceed the treatment capacity of secondary treatment process. By that stage, a significant falloff in contaminant levels is

expected to have occurred. The Cheal and 4Sight Ecology and Water Quality reports conclude that the new lamella clarifier and coagulant/flocculant treatment system together with the treatment of bypass flows occurring during short duration storm peaks is expected to significantly improve the quality of stormwater discharged from the two existing outfalls by reducing suspended sediment concentrations. The resultant discharge quality will reduce the volume of sediment lost to the coastal marine area from the logyard activities to the extent that after mixing there is no appreciable change in background concentrations. This is expected to maintain the applicable water quality standards and in particular resolve the current intermittent visual impacts on the receiving waters that have caused water quality standard (d) not to be met at times.

However, the limitations of modelling are acknowledged, and it is accepted that the actual effectiveness of the system can only be adequately assessed by monitoring of discharge quality and associated rainfall conditions. On this basis, the Cheal report recommends implementing the concept design, and carrying out intensive monitoring of rainfall, flows and water quality for an initial period. This would inform assessment of whether further improvements are warranted, and if so, to define an optimal solution.

This is expected to include trials of chemical dosing over time at different flow rates and dosing concentrations, to optimise the effectiveness of the system. This approach was adopted successfully for the ULY and WLY systems.

Monitoring of stormwater quality, including any overflow discharges, is to continue and is expected to be generally consistent with the existing Stormwater Quality Monitoring Programme outlined in the 4Sight ecology report. This will effectively monitor the situation and keep the Council and other parties well informed.

Given that there is no change to the discharge locations, the 4Sight report considers that only minor adjustments to the existing monitoring regime are required in order to ensure that pre and post chemical treatment/flocculation sites in the treatment train are sampled. Parameters and specified thresholds are proposed to remain the same as for the existing approved monitoring regime at least pending a period of monitoring and subsequent review.

13.7 Effects on Archaeology and Heritage

A detailed assessment of effects on archaeology and heritage values is set out in the 2022 Insitu Heritage Report at **Appendix J**

The Insitu Report confirms there are no recorded archaeological sites in the area directly affected by the Project. However, given the Heritage Overlay 1 that applies to the area, there is the potential for unidentified archaeological sites to be discovered. The Report provides an overview of the broader heritage context and identifies the Boat Harbour and Harbour Infrastructure as meeting the RMA definition of historic heritage. The Report identifies and assesses a number of activities involving ground disturbance that have the potential to affect archaeology and heritage values. The findings are summarised as follows:

- Outer Breakwater Upgrade: The project will result in changes to the bulk of the breakwater, but the alignment will remain the same and the overall form will be generally maintained. No modification of any remaining pre-1900 archaeological material is expected so no archaeological investigation is required.
- Wharf 8 Extension: The Wharf 8 extension is intricately linked to the Outer Port reclamation and most of the works will be on the southern (logyard) side, where land has been progressively reclaimed during the twentieth century. The Wharf 8 area is unlikely to include any pre-1900 archaeological material or require further investigation.
- Outer Port Reclamation and Southern Logyard Stormwater Upgrade: The proposed reclamation and revetment has been designed to provide a minimum 5m buffer zone from the adjacent 'Boat Harbour', which will provide adequate setback to ensure that it is not affected. Some of the fill material used in the adjacent Southern logyard reclamation may originate from other areas that contained archaeological sites. If significant ground disturbance occurs in the logyard it is possible that redeposited archaeological material, which could include artefacts, midden, or faunal evidence, may be encountered. On this basis it is recommended that the conditions of consent include an Archaeological Discovery Protocol to ensure that if any redeposited archaeological material is encountered it is managed appropriately. InSitu recommends the protocol utilised during the monitoring phase of the Wharfside logyard redevelopment as providing an appropriate existing model.

The proposed stormwater treatment upgrade works will have no effect on the natural structure of the Boat Harbour buried within the existing extent of the Southern Logyard.

- Port-wide capital dredging and disposal: The capital dredging will not affect the boat harbour or harbour infrastructure or any other recorded heritage items. Areas of proposed dredging have been subject to previous dredging therefore there is no expectation of encountering archaeological deposits in recently accumulated material.

The InSitu report concludes, overall, that the Proposal will not significantly alter the form of the Harbour Infrastructure and so will not affect the heritage values of that infrastructure. The proposed 5 meter buffer between the new Reclamation Area and the heritage Boat Harbour is assessed as providing an adequate set back to ensure the Boat Harbour is not affected.

Subject to adoption of an Archaeological Site Discovery Protocol and the maintenance of a 5 metre buffer between the reclamation area and the Boat Harbour, within which no construction activity, sediment dredging or deposition of debris will be allowed to occur, it is considered that adverse effects of the Proposal on heritage values will be less than minor.

13.8 Effects on Cultural Values

Te Tai Uru Based Cultural Values and Relationship Framework

The consent conditions for the Wharves 6 & 7 and former Slipway redevelopment that established Te Tai Uru refer to this group developing Port wide Cultural Values and Relationship Framework(s) (CVRF) and this in turn leading to the preparation of one or more Cultural Impact Assessments (CIA) for the Proposal (Ref Condition 4(h)). The purposes and general contents of the CVRF are set out in Condition 4(m)- (q), whilst the purposes and general contents of each CIA are set out in Conditions 4(r)-(t).

Eastland Port advise that through Te Tai Uru the following work on a CVRF has been completed:

- Rongowhakaata Iwi Trust has prepared a CVRF methodology.
- Ngai Tāmanuhiri have prepared a CVRF methodology.
- Whanau-a-Iwi (Te Aitanga-a-Mahaki) are yet to provide a CVRF

Appendix K contains copies of the CVRF documents.

Ngati Oneone

As outlined elsewhere in this AEE, Eastland Port has met separately with Ngāti Oneone in relation to the Proposal as they are not a member of Te Tai Uru, although there is a standing invitation for them to join this hui.

Cultural Impact Assessment

In respect to condition 4(r) of the Wharves 6 & 7 and Slipway redevelopment consent ''*Prior to submitting any of the anticipated twin berths applications, EPL is required to offer to engage Te Tai Uru to prepare Cultural Impact Assessments*''. This has been discussed in preceding sections of this report at sections 2.6 and 3.6.2. As documented within the EPL Engagement Report (**Appendix I**), significant effort has been made by EPL with the establishment of Te Tai Uru (and other forums) to establish relationships with mana whenua where information sharing can be undertaken to build mutual understanding between the parties associated with cultural values and the Proposals in the immediate locality of the Port. Condition 4 (t) of the Wharves 6, 7 and former Slipway redevelopment consent sets out the purpose of the CIA which is *to ''assess and define the effect(s) of proposed activities on the relationships and values described in the CVRF and where appropriate recommend measures which may remedy, mitigate and /or avoid any adverse effects on those values and relationships.''*

Eastland Port and Iwi continue to work together toward the attainment of CIA(s) in respect to the Proposal and the Consent Authority will be advised as these are progressed.

Mitigation measures relevant to cultural values and effects are threaded throughout this AEE in respect to the various elements of the Proposal as presented by various experts. Of particular relevance (but not exclusively so) are the Ecology and Water Quality Monitoring Report (4Sight), Stormwater Improvements (Cheal), Archaeology and Heritage (Insitu), Alternatives Assessment Report (Eastland), Kororā AEE and Monitoring and Management Plan (4Sight).

It is recognised that these are not presented with an expert Tangata Whenua lens and such issues will be the subject of further discussions between Eastland Port and the parties who make up Te Tai Uru and representatives of Ngāti Oneone.

Capital and Maintenance Dredging and Disposal

Rongowhakaata Iwi Trust CIA draft v4 on the Outer Port maintenance dredging and disposal renewal applications 2020, is included in **Appendix K** to this AEE, even though it is not specifically directed at the Proposal.

The maintenance dredging and disposal operations being proposed for the Outer Port as part of the Proposal, are proposed to supersede the 2020 maintenance dredging application (Error! Reference source not found.**).** There are two primary differences between the 2020 and Twin Berth applications; the Twin Berth project application does not include the areas adjacent to Wharves 4 and 5, and the Inner Harbour, and the depths of areas are reflective of the Twin Berth project capital dredging application. The Rongowhakaata CIA is not area specific but rather provides "an assessment of the potential effects of the Eastland Port Dredging Operations on Rongowhakaata values and interests". It is therefore relevant to this Proposal as maintenance dredging is an ongoing operational activity undertaken by the Port.

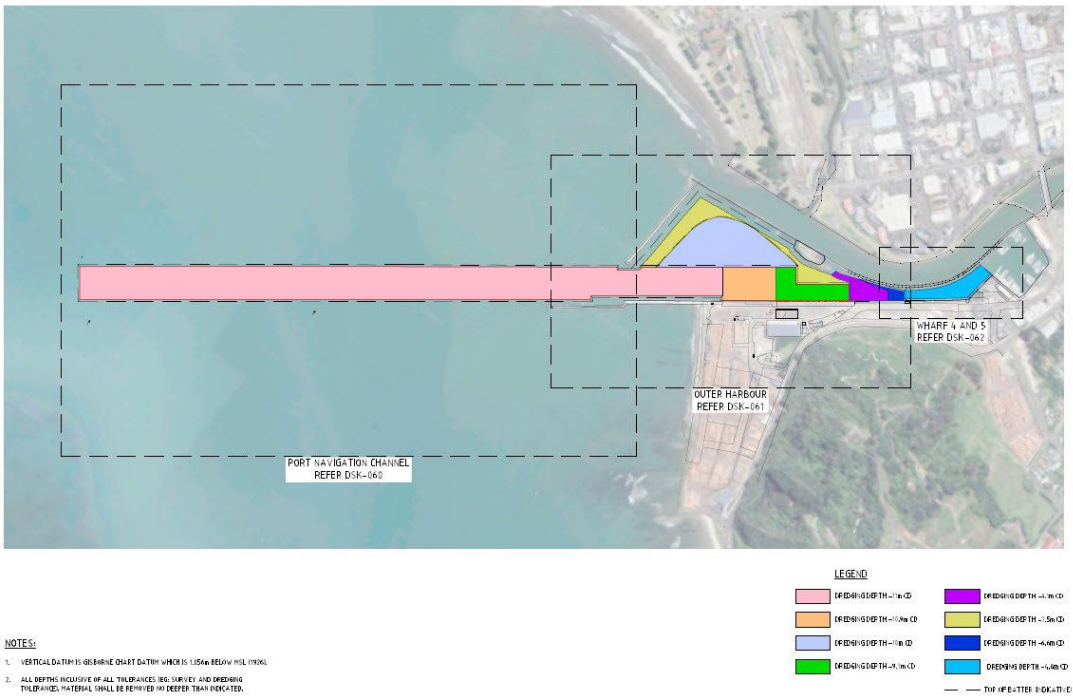


Figure 105: Plan from the 2020 Maintenance Dredging Application

The Rongowhakaata draft CIA has six sections, along with an executive summary.

Rongowhakaata Values, Interests and Use (Section 5) explains the cultural landscape of Turanganui-a-Kiwa, outlines a tangata whenua perspective of Port dredging and disposal and covers moana rohe and mahinga kai matters. It is suggested that all of these matters are equally applicable to the Outer Port maintenance dredging and disposal activities proposed as part of the Proposal.

Section 5.1 - Turanganui–a-Kiwa as a Cultural Landscape, includes the following key points:

- *The cultural, spiritual, historical and traditional importance of the Turanganui-a-Kiwa and the Turanganui River is confirmed in the Statutory Acknowledgement provisions of the Rongowhakaata Claims Settlement Act 2012 (Schedule 1).* (p19)
- *The place known as Te Oneroa comprises the sandy shores that stretch from Muriwai to Turanganui and named by Hinehakirirangi. The Oneroa beach has sustained many generations of Rongowhakaata.* (p20)
- *The Kaiti area was famous for its crayfish, caught from the reefs below the maunga Ttirangi, or further north all along the coast. Nearby reefs and tidal flats harboured quantities of shellfish, and paua were plentiful off Onepoto*

(now Kaiti Beach). Rongowhakaata often walked along the beach side to gather kaimoana. Such behaviour exhibited the understanding of, and respect for, the territorial and customary rights between hapū. (p21)

- *Rongowhakaata consider that one of their essential roles is to protect the Mauri of the Moana. Whakapapa defines the genealogical relationship of Rongowhakaata to the Moana, and tapu describes the sacred nature of the relationship between Rongowhakaata and the Moana. All these values remain important to the people of Rongowhakaata today* (p22).

Section 5.2 outlines the history of Port dredging and disposal from a cultural perspective. It raises several concerns with the permits issued by consent authorities in 1988 and by the Environment Court in 2000) despite opposition from Rongowhakaata and other iwi.

Section 5.3 notes these cultural concerns still remain and are:

- *Turanganui-a-Kiwa is a taonga of particular importance to Rongowhakaata. It's ongoing degradation harms the mana of Rongowhakaata and has destroyed many aspects of our connection to the takutai and moana.*
- *The ongoing dredging activity prevents the degraded area in the Port itself from recovering from the harm done. Any recovery by sealife is destroyed with the next round of dredging.*
- *The dredge spoil dumping areas have been located in areas that were once rich sources of kai moana for Rongowhakaata –*
- *Dredging and subsequent dumping impacts upon the Bay's numerous wāhi tapu sites (For example, anchor rocks from the seminal canoes).*
- *Dumping spoil at sea is an affront to the cultural and spiritual traditions of iwi, as material derived from land, if disturbed, should be returned to the land*
- *The investigation into land-based disposal, as required by the 1993 resource consent for maintenance dredging, has still not been given sufficient attention. In particular, the Eastland Port consent applications continue to fail to take into account the cultural, historic, and spiritual values of tangata whenua.* (p26-27).

Section 5.4 – Moana Rohe, notes that Rongowhakaata have a claim under the Takutai Moana Act (MACA) for customary title over an area of foreshore and seabed from Te Kowhai to Pouawa, which includes the Port and OSDG. The customary title claim area is shown in a figure in the report, which is reproduced as Error! Reference source not found.**6** in this AEE. The claim is noted as reflecting the past and ongoing use of the area by Rongowhakaata for a range of customary uses.

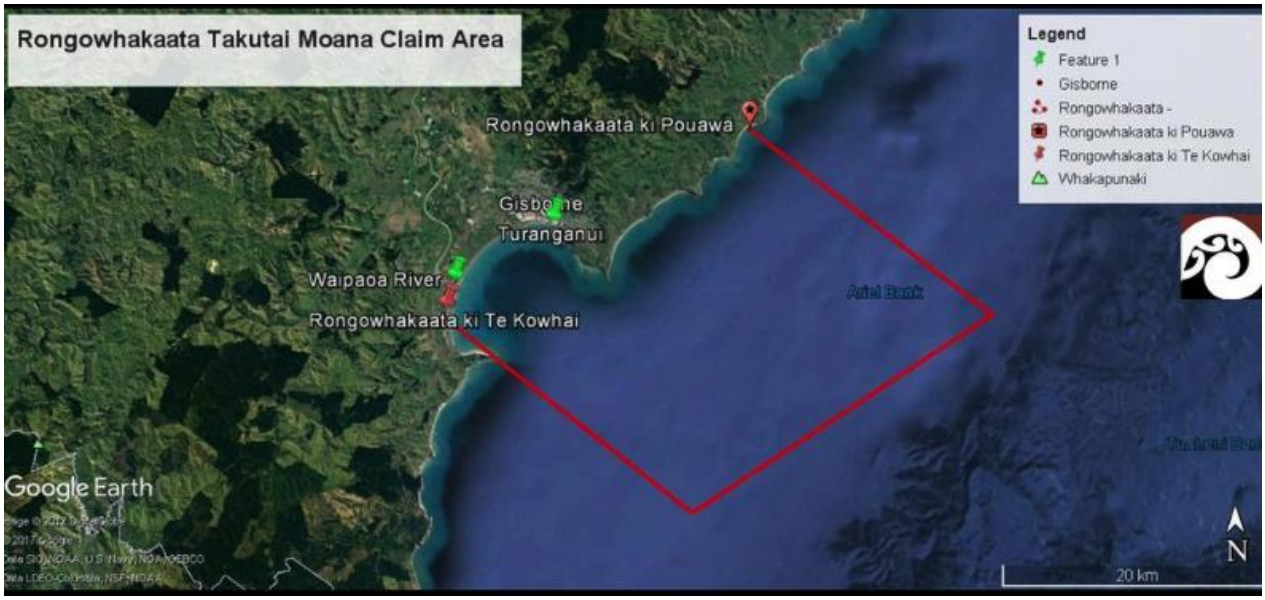


Figure 106: Plan of Rongowhakaata Takutai Moana Claim Area

Section 5.5 -Mahinga Kai, documents the different forms of customary gathering of food and natural materials and the places where these resources are gathered in the claim area and wider Turanganui-a-Kiwa/Poverty Bay. It outlines in some detail the customary fishing permits, customary/recreational fishing, commercial fishing, seaweed

aquaculture potential, other forms of aquaculture, surf calm fishery and documents several NZ studies on the effects of sedimentation on them.

The concerns raised in this section, along with others of an ecological/water quality nature in earlier parts of the draft CIA matters are responded to in the 4Sight Ecology and Water Quality report. Ongoing discussions have been undertaken and will continue between Eastland Port and Rongowhakaata Iwi Trust in respect to effects from maintenance dredging upon Rongowhakaata cultural values. Rongowhakaata have proposed conditions of consent which maybe incorporated into the TBP decision and an alternative disposal feasibility study in partnership with Rongowhakaata is being considered.

13.9 Effects on Landscape, Natural Character and Visual Amenities

13.9.1 Overview

The Proposal will result in a number of visual changes to the existing Port structures and activities, including from the increased height of the breakwater, the proposed reclamation, addition of a second berthed ship (temporal but constant), additional operational machinery and temporary storage of logs in the adjoining reclaimed land. The Proposal will also result in temporal changes to the Port resulting from the additional berth capacity created. The shipping channel will have a faster rate of turnover (and potentially more vessels) tracking across the bay and ships will have reduced waits at anchorage designated off Te Kuri o Pāoa Young Nicks Head awaiting a berthing space. It will also increase the amount vehicle and machinery movements associated with stacking and transferring logs.

A comprehensive assessment of the landscape, natural character and visual amenity effects of the Proposal is set out in the 4Sight *Landscape Assessment* (**Appendix N**).

The Report notes that landscape and natural character effects reflect the degree or magnitude of change from a proposal. Visual effects are how effects are experienced in views from different places by different viewing audiences and are a subset of landscape effects. Importantly, it notes that a change to the landscape, per se, does not necessarily equate to an adverse effect.

13.9.2 Natural Character Considerations

The Port is not located within an area of identified Outstanding Natural Landscape, Outstanding Natural Feature, or Outstanding Natural Character under the Tairāwhiti Plan. The 4Sight Landscape Assessment does not identify any characteristics or values of the Port and localised coastal landscape that would qualify as being outstanding. This is primarily because the landscape and natural character within and immediately surrounding the Port has been highly modified by human induced change. Natural elements, patterns and processes are evident; however, the influence of past landform modification, structures and activities, alongside the very presence of the Port as a working industrial character, reduce the quality of these values so that they are not outstanding. The report concludes that while Tītīrangi has strong heritage, cultural and associative value, this component of the landscape is unlikely to be considered an Outstanding Natural Landscape or Natural Feature if assessed today.

Section 5.2 of the report assesses the effects of the project on coastal natural character values with reference to Section 6(a) of the RMA. Section 6a requires the preservation and protection of the natural character of the coastal environment (including the coastal marine area) from inappropriate subdivision, use and development as a matter of national importance. This requirement is reflected in some associated objectives and policies in Parts B -D of the Tairāwhiti Plan, which are outlined later in this report.

Natural character is a term used to describe the naturalness of all coastal environments. The degree or level of natural character within an area is generally considered in relation to three components- natural elements, natural processes and natural patterns. Natural elements relate to the presence of unmodified land and water forms, and the relative absence of buildings. Natural processes are the less apparent ecological 'underpinnings' of an area, i.e., the processes such as erosion, deposition and vegetation succession, which sustain the natural appearance of an area. Natural patterns are more concerned with the appearance, i.e., whether a landscape appears to be a product of nature rather than human endeavour.

Sections 3 and 4 of the 4Sight Ecology and Water Quality report describe the natural elements and natural processes present in and around the Port and contain associated ecological natural character assessments. The ecology report notes that the Port is located on the south-western edge of the Gisborne urban area, which contains some unmodified natural elements, notably the largely vegetated hill slopes in the Titirangi reserve immediately inland along with Kaiti reef/beach area and Waikanae/Midway beach areas on either side. However, the natural elements are counterbalanced/dominated by the many built structures, including those in and adjacent to the Port and wider Gisborne urban area. The heavily built/modified nature of the Gisborne coastal/river edge is not confined to the Port as evident from the oblique aerial photograph in Figure 107.

Figure 107: Oblique Aerial Photograph of the Gisborne City Built Coastal Edge

The 4Sight Ecology and Water Quality report also highlights that natural processes, other than tidal changes, are not strongly evident in the Port area, even though they underpin it. The Port breakwater, Butlers Wall, the Turanganui River training wall, and the Port wharves, along with the Turanganui River walkway and associated structures very much constrain the natural processes in the area.

Section 5.2 of the 4Sight Landscape Assessment notes that the Port, like the adjacent Gisborne urban area, has few natural patterns with buildings, roads and other built facilities making the human imprint on the landscape very evident. This includes the Southern logyard area, which is the site of the proposed Outer Port reclamation.

The oblique aerial photographs earlier in this report show the current appearance of the logyard and its relationship to the adjacent largely vegetated Titirangi Recreation Reserve. Although natural patterns are clearly evident in the reserve and the wider bay, the 'built' logyard, Port and adjacent urban area are more clearly apparent.

The highly modified Turanganui River-coastal edge is well illustrated in the following Figure 108 photograph. Most of the Southern logyard is on reclaimed land. Historical survey and aerial photographic plans show the shoreline was much further inland. The outer edge consists of rock rubble and other material, with approximately the south-western two thirds recently upgraded as part of the Waikahua Seawall project.

Figure 108: Photograph of Highly Modified Turanganui River Area with Port in Background

In this context, existing natural character values at and surrounding the Port are assessed as very low, with adverse effects of the Proposal on natural character also assessed as very low. This equates to less than minor under the scale of effects ratings included as Appendix A to the report. This is because there will be a barely legible change to identified natural characteristics and qualities with no change to overall naturalness. This includes in relation to the proposed reclamation, which is considered to be of a relatively small scale within the context of the existing Port as a whole, notwithstanding that it will result in a change to the coastal edge of the Port.

13.9.3 Landscape Effects

The 4 Sight Landscape Assessment notes that the extent of visibility of the project is predominantly focussed around the Port itself and immediate local area, with long range visibility splayed out to the west along the coastline, and on the water within the bay itself.

There is limited visibility of the Port from the centre of Gisborne City with visibility limited to the eastern and southern extents where the Oneroa shared walkway/cycleway lines this coastal and river edge. Of similar proximity, and on the eastern side of the Port is Kaiti Hill within the Tītīrangi Reserve. The report notes that the Port is visible from some lookouts and walkways within this reserve.

The visual catchment of the project is assessed as being relatively small because the Port is located in an inner 'corner' of Tūranganui-a-Kiwa/Poverty Bay, at water level (not elevated) and generally screened to the north and west by the larger Gisborne urban area. In addition, the Proposal is confined to three discrete parts of the Outer Port, one of which Wharf 8 is entirely within the Port 'perimeter' (i.e. inside Butlers Wall and the line of the inner breakwater).

It is determined that the principal viewing audiences are likely to consist of:

- People using the public walkway and other recreational facilities along the northern side of the Tūranganui River that look south towards the Port.
- People visiting Tītīrangi Recreation Reserve, specifically those using the more elevated look out areas that look east towards the Port and beyond to the wider coastal environment, including Young Nick's Head/ Te Kurī a Paoā.
- Residents in the multi-level apartment and hotel buildings on the northern side of the Tūranganui River that look south-west across the river and Port towards Wharves 6-8 and the breakwater.

- Residents in 1-2 storey dwellings in the Waikanae Beach area that look south-east across a large body of water to the Port, including views of Butlers Wall and the breakwater and Tuamotu Island.
- People using water craft who pass through the Port to and from the marina, boat ramp and other inner Port facilities, or using the inner bay waters adjacent to the Port, including those who head south around to Kaiti beach.

Effects of the Completed Proposal

Section 5 of the 4Sight Landscape report assesses the effects of the completed Twin Berths facilities on the landscape, natural character and visual amenity values of the Port and surrounding area. The assessment is made with reference to the visual simulations of the completed facilities from selected public and private viewpoint locations.

Effects on Views of Tuamotu Island and Young Nicks Head

The Report notes the completed Twin Berths facilities will result in more frequent use of Wharves 6, 7 and 8 by log and other vessels. The berthing of a second larger ship, as well as the proposed reclamation and breakwater renewal modifications, has the potential to affect views of Tuamotu Island and Young Nicks Head from certain viewpoints.

In order to quantify the location and extent of these potential locations, Geographic Information System (GIS) analysis was utilised to determine theoretical viewing locations. The report explains the digital terrain model, based on LiDAR (Light detection and ranging) data used to determine locations from where the existing landforms were visible. This theoretical visibility model was based on the potential visibility of a number of elevation points and is illustrated in plate 27 of the report.

Following the determination of existing viewing locations the model was updated to include the Proposal. The theoretical visibility analysis was then re-calculated, with the outputs determining the locations from where existing views of these features would be impeded. The mapping analysis outputs (shown in report Figures LA07 and LA09) indicates that there are two distinct areas and viewing audiences impacted, these being:

- People using the Oneroa 'Taruheru' trail, in the vicinity of the Waikanae Beach Surf Lifesaving Club (Viewpoint 3 – viewing Tuamotu Island); and
- People using the Oneroa 'Taruheru' trail, in the vicinity of the apartments at 100 Customhouse Street (SH35) and 2 Reads Way, the Portside (Heritage) Hotel, including people within these properties (Viewpoint 5 – viewing Te Kuri-a-Pāoa / Young Nick's Head).

These two locations (Viewpoints 3 and 5) have been used to prepare visual simulations of the proposal and are representative public views to assist with assessment of effects on private views in these locations.

Twin Berths Visual Simulations

Visual simulations of the completed Proposal from the two representative viewpoint locations (No's 3 & 5) were undertaken by Virtual View Ltd (VVL) under 4Sight direction to assist in assessing the effects of the completed works.

One of the visual simulations is from 100 Customhouse Quay on the northern side of the Turanganui River looking south towards Wharf 8 (Viewpoint 5). It is reproduced in Figure 109.

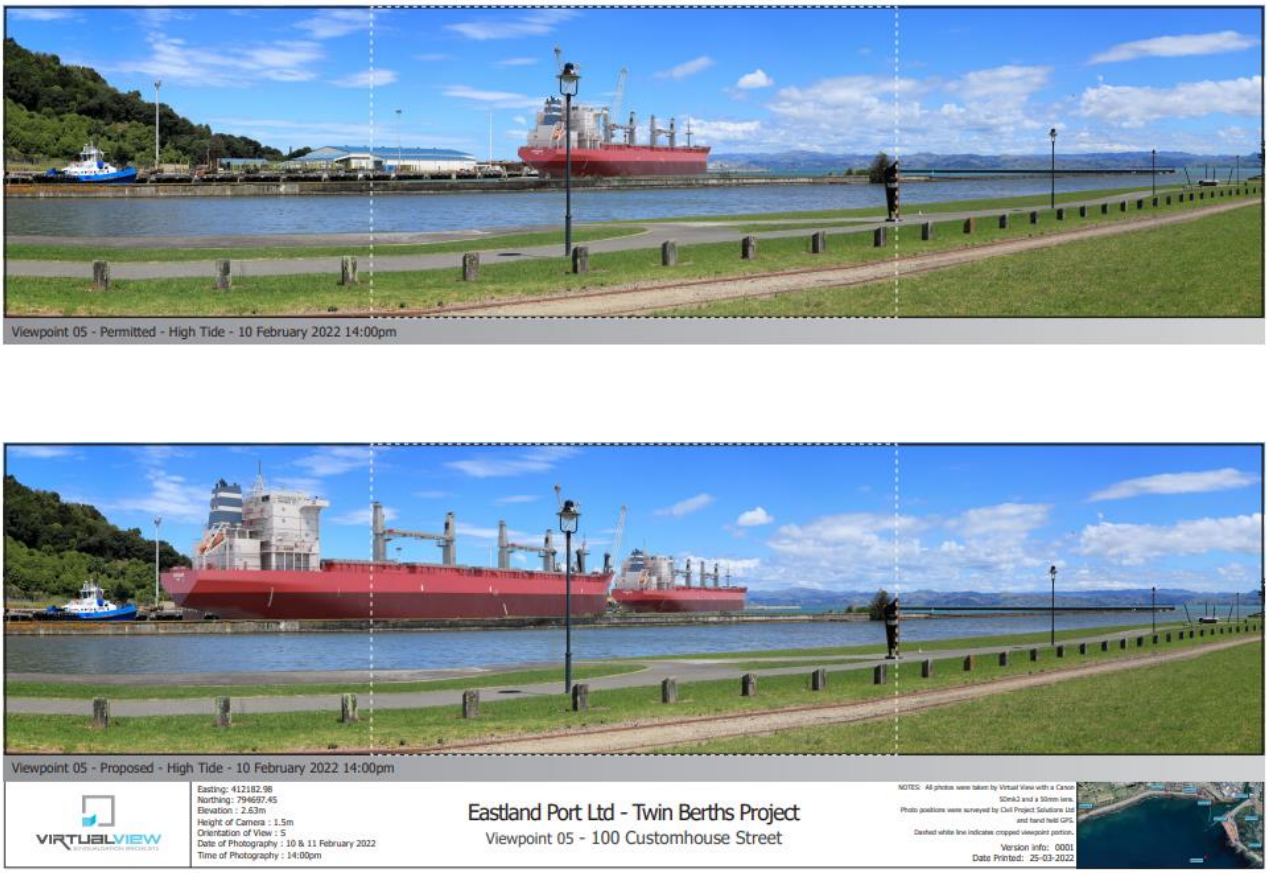


Figure 109: Proposal Visual Simulation of Two Log Vessels from Customhouse Quay (Viewpoint 5)

The visual simulation shows the visual effects of a second log vessel at the extended wharf at high tide. The Virtual View report appended to the 4Sight report also contains low tide based visual simulations, which have the log vessels siting lower in the water.

The 4Sight report findings include:

Viewpoint 3- 700m from the Site Looking South-East

- The addition of a second ship berthed at the Port from this viewpoint will not significantly impact on the outlook towards the wider coastal environment, nor towards Tuamotu Island.
- While the reconstructed outer breakwater will have more visual prominence in the outlook than the existing structure, it will be in the same location as the existing structure and of a scale and using materials that do not look out of place in the context of the existing Port operations.
- The area of proposed reclamation will represent a noticeable visual change, because of the height of this proposed landform. Some interruption of the current view towards Tuamotu Island will result, with the lower portion of this feature, including the interface with the waterline will be blocked. The upper portion of the feature will remain visible.

Viewpoint 5- 500m from the Site Looking South

- The introduction of a second vessel within the view will increase the prominence of Port activity because one ship will be located closer to the viewer (however, it is understood that this situation could occur under the existing conditions) and the doubling of vessels increases the scale of Port related activities when viewed from this location.
- There will be no noticeable change from the upgraded breakwater and the proposed reclamation will not be visible when ships are berthed at the Port.

- There will be some additional loss of view towards Te Kuri-a-Pāoa / Young Nick's Head from the area of proposed reclamation when no ship is berthed at the Port; however, this aspect of the proposal will not be visible when ships (either one, as at present, or two, as proposed) are berthed.

Twin Berths Visual Effects Summary

The 4Sight report contains the following visual effects findings:

- All project elements will be viewed within the context of an existing working Port environment. They will be viewed at distances between 400m-2.5km from public and private viewpoints, with some being from elevated locations (Kaiti Hill), others from a similar elevation (the Oneroa walkway) and some from private viewpoints to the north (e.g. the Portside Hotel). The project will not be seen by visitors to the Cook National Reserve, nor will the Cone of Vision be impacted.
- The Wharf 8 Extension will be the same height as the existing wharf but approximately 6m wider than the current Inner breakwater it will be built over. Exposure of the structure at MLWS will be the same as the existing wharf.
- The Outer breakwater upgrade involves a very small increase (approximately 0.9m) in the height of the approximately 195m long structure. The width of the breakwater structure on the seabed will be extended by 15-25m, but the visible component of this structure above the water will be much less and have an expected appearance of Port-related coastal protection structures in high-energy coastal environments such as the site.
- The Outer Port reclamation footprint of approximately 0.89ha is located in a part of the bay which has an existing low level of natural character. It will have a restricted viewing audience, has been located to avoid impacting the heritage boat harbour natural feature, and will not significantly reduce existing natural character.
- The proposed revetement associated with the Outer breakwater upgrade and Outer Port reclamation will be the most noticeable change to the coastal environment at the site. However, the changes are assessed as being appropriate because they will utilise materials that are typical for coastal protection works in high wave energy environments, with the overall appearance of these structures being visually cohesive, as weathering occurs.

The adverse landscape effects of the completed project will be 'low', because the newly constructed work will not significantly change the appearance of the existing Port operations, other than providing for an additional vessel to be berthed, seeing two relatively large vessels within the Port at the same time. As with the construction effects landscape assessment Appendix A to the report states that a 'low' or 'low to moderate' rating under the NZILA Scale of Effects Rating system equates to a 'minor' adverse effect in RMA assessment terms.

13.9.4 Effects of Dredging and Disposal

Effects of Capital and Maintenance Dredging

Dredging operations will have similar landscape related effects as those associated with the current maintenance dredging operations. Both involve physical disturbance of the seabed and associated discolouration of the waters. The turbidity and related water quality and visual amenity effects of the capital and maintenance dredging operations are assessed in the appended 4Sight Ecology report, with the key findings summarised in Section 13 of this AEE.

The following points are relevant to the landscape (primarily visual amenity) effects of the dredging activities:

- The capital dredging operations will be very similar to those carried out in the recent past (most recently 2011) and the current maintenance dredging operations. The operations will be staged over several campaigns varying in length of time but typically around a month each, and during a typical day not expected to affect no more than 1ha or 3% of the total 34.7ha Port water area.
- The operations will not directly affect any recorded or known natural area of cultural/heritage or ecological/landscape/natural character value. The indirect effects on nearby features, notably the heritage boat harbour will be of temporary discolouration/visual amenity nature.
- Vessel movements within the Port, especially those involving berthing of large log vessels regularly disturb the soft sediment on the seabed and the waters discoloured on a regular basis. The adjacent Turanganui River is also discoloured on a regular basis, especially following heavy rainfall events.
- The visual amenity effects of the discoloured waters in and around the dredging area will be seen from vantage points within Titirangi Reserve and possibly other elevated public locations. However, because of the relative distances involved, the heavily modified/built nature of the Port, background colour of the Port/river waters and

the discrete nature of the dredging operations, the visual amenity effects are assessed as being of an 'minor' nature.

The dredging activities during a typical day are expected to only affect approximately 2ha or 6% of the 34.7ha Port water area. The resulting temporary discoloration and visual amenity related effects will be confined to discrete areas and be little different in scale and effects to those associated with vessel maneuvering and berthing activities. As such they will be of a 'minor' nature.

Effects of Capital and Maintenance Dredge Spoil Disposal

The OSDG is approximately 2km from the Waipaoa River- Te Wherowhero lagoon OLU, as shown in Figure 110**.** The boundaries of the Outstanding Landscape Unit coincide with the Significant Values Management Area (SVMA) shown in green in this same figure. The figure also shows the location of the Port vessel anchoring area (in dark blue) defined in the Council navigation bylaws and referred to earlier in this AEE. It overlaps slightly with the OSDG and extends to within a short distance of the OLU. Log and other vessels are regularly anchored in this area and as such it forms part of the landscape setting for the OSDG.

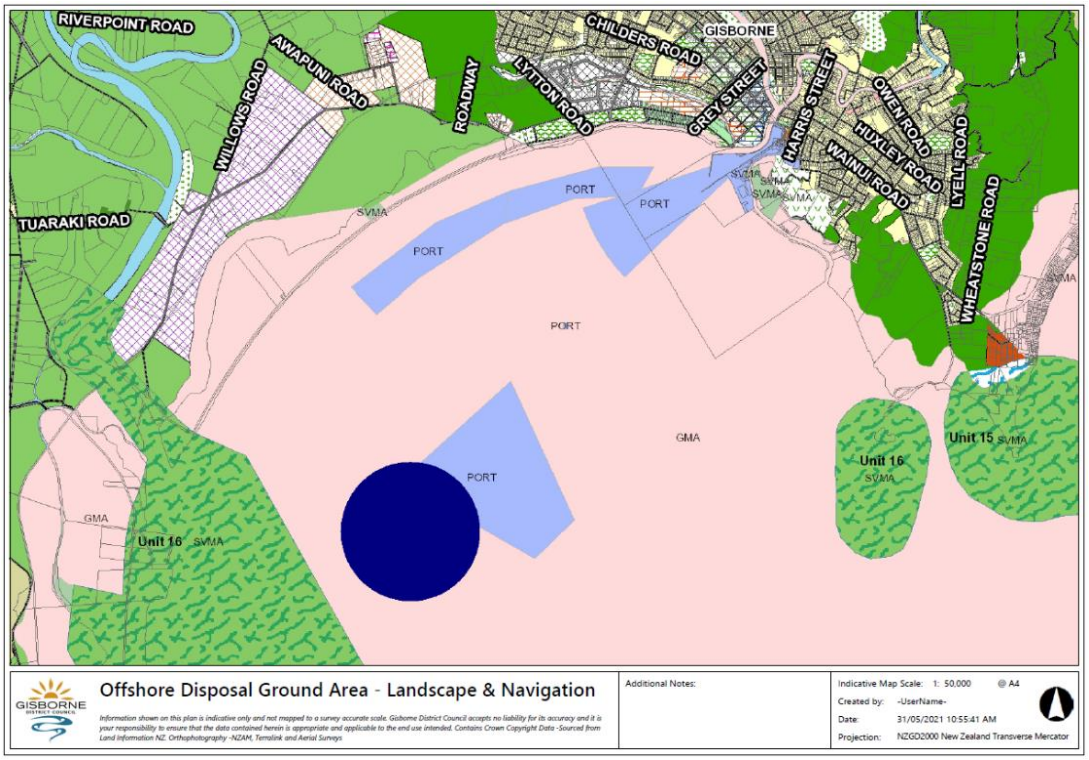


Figure 110: Tairāwhiti Plan Landscape and Navigation Map

The waters around the Waipaoa River mouth are subject to considerable 'natural' variations in colour, as shown in the Figure 111 oblique aerial photograph. As outlined in the MetOcean reports, the Waipaoa River discharges approximately 12.1 million m^3 of sediment into Tūranganui-a-Kiwa/Poverty Bay each year. The controlled nature of the dredge disposal operations, the 'background' sediment discharge from the nearby Waipaoa River, plus the impacts of storm events on the bay itself, mean that the effects of the disposal activities on the landscape, natural character and visual amenity values of the site and surrounding area will be 'minor'.

Figure 111: Photograph of the Waipaoa River Mouth

Source: Rivers- New Zealand's Shared Legacy: D Young: 2013

13.9.5 Construction Effects

Construction activity will be visible from several locations around the Port including from parts of the adjacent commercial, residential and recreational areas. Construction activity will occur over a projected timeframe of 8 years and will include the use of dredging ships and machinery, cranes, diggers, specialist machinery and additional truck movements, as well as the stockpiling and movement of construction materials.

The 4Sight Assessment of Visual Effects assesses the landscape and visual effects of the construction phase of the Proposal.

As detailed in preceding sections of the AEE, the context in which construction activity is to occur is an operational Port, primarily handling log exports, located in a highly modified coastal environment. The Port dominates the landscape and existing outlook.

Normal port operations involve activities of a similar nature to construction activity, such the use of heavy machinery, including barge mounted excavators for maintenance dredging, heavy vehicles for logs and other product deliveries and cranes for loading and unloading. Further, construction activities have been a regular part of the landscape over the last 10 years with projects including re-construction of the Southern, Upper and Wharfside logyards, along with demolition/alteration of several Port buildings.

Activities associated with construction of the Proposal, will therefore be familiar to viewers. The capacity of the landscape setting to accommodate the Proposal, that is the locality's ability to absorb the nature of the visual change proposed, during construction is considered to be relatively high (i.e. the change can be relatively easily absorbed).

13.9.6 Summary of Landscape, Natural Character & Visual Amenity Effects

The 4Sight landscape reports finds that the adverse effects of all aspects of the Proposal on natural character will be very low (being less than minor), with a barely legible change to identified natural characteristics and qualities and with no change to overall naturalness.

Landscape effects of the completed project will be low (minor) because the newly constructed work will not significantly change the appearance of the existing port operations, other than providing for an additional vessel to be berthed, seeing two relatively large vessels within the port at the same time, which is not unexpected in a port. The repair, removal and upgrade of the existing breakwater structures will also help to remedy the impact that the existing breakwater structures have on this coastal landscape, through an upgrade with appropriate materials.

Adverse landscape effects of the proposal during construction are also assessed as low (minor), primarily because: the machinery that will be utilised for the construction works is similar to that which operates within the port landscape at present; the mitigating effect of viewing distance and transitory viewing for those people that will be able to view the activity; and the temporary and localised nature of the proposed construction works.

13.10 Transportation Effects

13.10.1 Construction Traffic Effects

Overview

The Worley *Eastland Port Reclamation, Wharf 8 Extension and Outer Breakwater Engineering Report* identifies the construction traffic expected to be generated by the Proposal.

Construction traffic will involve heavy construction trucks, light construction vehicles (vans/utes) and construction staff trips. Tables 5, 6 and 7 in the report contain estimates of heavy truck movements based on component materials/products supply breakdowns. They are summarised in **Table 12** of this AEE.

Table 12: Proposal Construction Traffic Estimates (return trips)

Port Area	Estimated Total Trucks	Estimated Daily Maximum Trucks
Wharf 8 Extension	3,700	125
Outer Port Reclamation	23,700	150
Outer Breakwater Upgrade	4,800	45
Total	**32,200**	**45-150**

Source: Worley Report

The Worley report notes that the construction traffic estimates are of a preliminary nature only and the actual numbers will depend on final designs and selected contractor's method of material delivery. They are based on the delivery of all fill, rock and other materials by road. Although delivery of some materials from the water may be possible this has not been accounted for at this point.

Given the need to maintain an operational Port, the three landside construction projects (Wharf 8 extension, outer Port reclamation and outer breakwater upgrade) will be undertaken in a staged manner. The Wharf 8 extension and Outer Port reclamation are likely to start at similar times but the Wharf 8 extension needs to be completed in its entirety before the Outer Port reclamation can be completed. The Outer Breakwater upgrade is most likely to be undertaken post completion of the Wharf 8 extension and Outer Port reclamation. Construction of the Proposal is anticipated to occur over a period of up to 8 years.

Due to the sequencing of works and requirements to maintain safe operations on site, it is not expected that all aspects of the work will be conducted at one time. The estimated maximum number of trucks per day (as identified in Table 12 above) is, therefore, based on simultaneous construction of the Reclamation Area and Outer Breakwater extension.

Construction traffic will use the same transport connections as the operational activities at the site, using Kaiti Beach Road, Rakaiatane Road, Hirini Street and the SH35/Hirini Street intersection to connect to the State Highway network, or the Gisborne arterial network. Construction traffic is expected to use the Rakaiatane Rd Entry/Gate 4 and Main Entry/Gate 5 off Rakaiatane Rd and Kaiti Beach Rds respectfully.

Concrete armour units for the reclamation revetment and outer breakwater will be manufactured off site, probably at the Matawhero logyard, with the units delivered via Awapuni Rd, Customhouse Key, Wainui Rd and Hirini St. The expected route is shown in Figure 7.1 of the Worley report, which is reproduced in Figure 112 of this AEE.

Figure 112: Proposal Plan of Likely Concrete Armour Transport Route

Source Worley Report

Assessment of Construction Traffic Effects

The Traffic Assessment prepared by ECC (refer **Appendix O**) provides a detailed assessment of the likely effects of construction traffic. Key conclusions are summarised below:

- The Worley report estimates that heavy commercial (HCV) or truck volumes will reach a peak of up to 16 HCV/hour or 150 HCV/day. These are two-way totals, of inbound and outbound trucks.
- Construction traffic will rely on the same transport connections as the existing Port. The key issue is the safe and efficient operation of the SH 35/Hirini Street intersection, which is already subject to recognised safety and capacity issues.
- Sensitivity analysis of the capacity of this intersection to accommodate a 20% increase in HCVs (operational traffic) has been undertaken considering the existing intersection layout (Stop control) and the two upgrade options (signals and a roundabout) being considered by Waka Kotahi. This shows that in all cases, a 20% increase in HCV movements does not materially change the performance or the operating characteristics of the intersection.
- This 20% change in operational HCVs corresponds to an increase of 22 HCV/hour in the AM peak and 16 HCV/hour during the PM peak. This is the same or higher than the expected volume of construction traffic, meaning the operational analysis also provides a valid basis for assessing construction traffic effects.
- Traffic counts of current operational HCV generation show variation over time, with numbers ranging from 460 HCV/day to 1,175 HCV/day. The calculated average of 800 HCV/day includes a variation of plus or minus 400 HCV/day. The maximum estimated construction traffic of 150 HCV/day is well within the Port's typical range of existing variation.
- In the event of maximum construction traffic generation combining with a higher volume operational day, the existing intersection is likely to experience some increases in average delays and queue lengths, and the other outcomes such as avoidance of the intersection, adjustment of travel behaviour (different time, different mode) and more reverse priority operation (people on the major road letting in people from the minor road). The intersection may also be in its congested condition for longer periods through the day. Peak spreading is a common outcome in busy urban areas.
- Construction activities will also add demand for light vehicle travel to and from the site. However, start times are likely to be early and additional movements in the shoulder periods do not generate significant adverse effects.

Construction Traffic Management Plan

In order to appropriately manage construction traffic effects, especially in the event of peak construction traffic generation coinciding with a higher volume operational day, a Construction Traffic Management Plan (CTMP) is to be prepared and implemented. The ECC report recommends that such a plan address the following matters:

- Construction staging and programme;
- Light and heavy vehicle demands in each phase of activity;
- Transport routes;
- Measures to avoid use of particular routes (for example Crawford Road to the east);
- Separation of construction activities from ongoing Port operations;
- Nominated access points and parking areas for construction staff and visitors;
- Contractor office(s) and amenities;
- Communication/stakeholder engagement measures;
- Any temporary traffic management controls (on or off site); and
- Contractor contacts.

If deemed necessarily, the CTMP may address the merits of implementing part or full time temporary traffic management controls at the SH35/Hirini Street intersection to manage safety and efficiency effects.

The ECC report also notes that given CTMPs are prepared just prior to construction and generally updated throughout construction, there will be an ability to respond to any changes that Waka Kotahi or GDC make to the transport networks in the area prior to the commencement of construction.

Figure 7 in the report contains an aerial photograph of the intersection, which is reproduced in Figure 113 of this AEE.

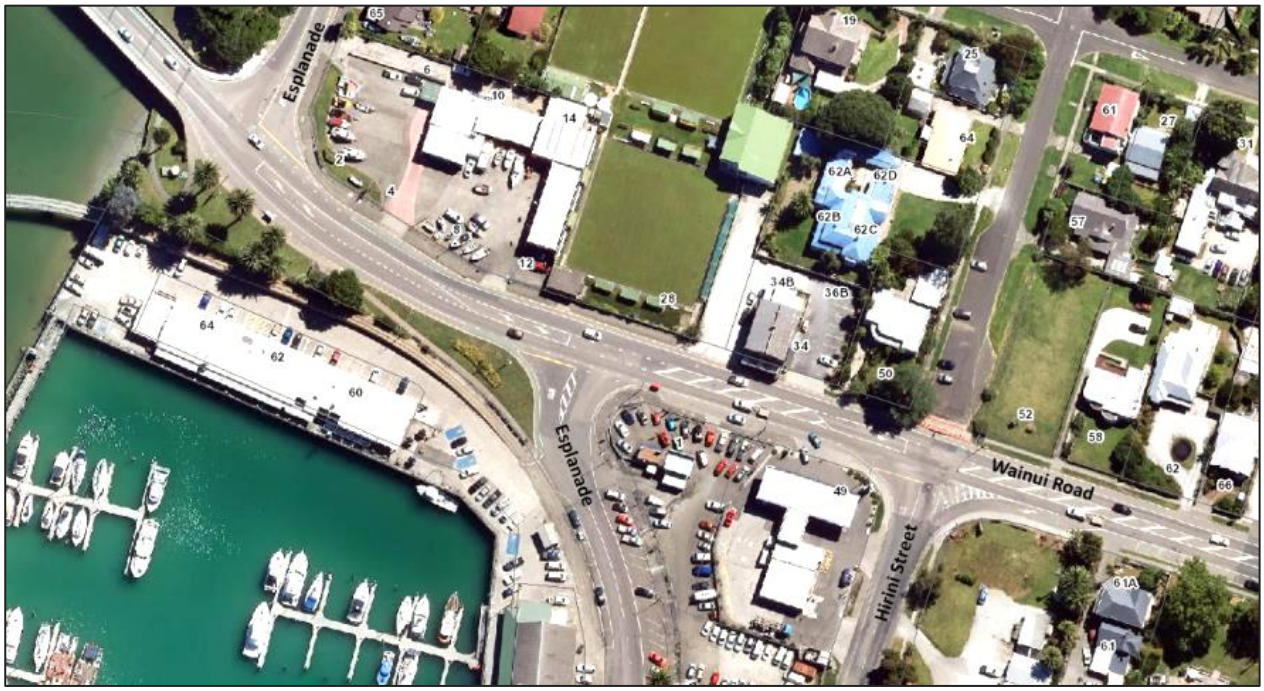


Figure 113: Aerial Photograph of SH 35 (Wainui Rd)- Hirini St Intersection

Overall Construction Traffic Effects

Subject to the implementation of an appropriate construction traffic management plan, it is considered there is capacity in the surrounding transport network to accommodate additional construction traffic without compromising the existing capacity, safety or efficiency of roads and intersections, including in relation to SH35/ Hirini Street intersection which is subject to existing capacity and performance constraints. The ECC report concludes that effects in relation to construction phase of the Proposal will be minor.

13.10.2 Operational Traffic Effects

The ECC Traffic Assessment (refer **Appendix O**) provides comprehensive detail and assessment of the expected transportation effects following completion of the Proposal.

The Proposal does not involve any changes to the established accesses to the Port and nor does it create any new roads, intersections, or vehicle crossings. As detailed in the Eastland Port Assessment of Alternatives (refer **Appendix D**) annual demand for movement of export of logs at the Port is expected to increase from approximately 3 million tonnes in 2020/21 to a peak of just over approximately 4.21 million tonnes by 2030, irrespective of the Proposal.

The ECC TAR contains the following key findings on additional operational traffic generation and parking demand expected as a result of the Proposal:

- Port activity is currently restricted by the availability of only a single wharf and externalities such as weather, which can make the Port completely inaccessible at times.
- The Port's maximum daily load rate (the rate at which logs can be lifted onto a ship and the rows restocked) has reached an equilibrium and has not materially increased as new on and off-port storage areas have been developed. Reasons for this include constrained physical space on the Port, operational health and safety considerations and practises, and practical limitations such as the availability of trucks and drivers to move logs.
- The primary effect of the Proposal from a transport perspective is that the Port will be able to increase its average level of daily activity. It is expected to achieve this by being active on more days each year (due to fewer shipping delays and weather interruptions) and achieving more consistent throughput on those days.
- Practical constraints on log handling and loading at the Port mean maximum daily and peak hour HCV activity is not expected to increase significantly as a result of the Proposal. Increased activity is expected to occur

across the day, including making better use of the shoulder periods, resulting in a more consistent rate of log movement through the Port.

- There is expected to be an increase in average daily cart in volumes, with the existing peak level of around 16,135 tonnes/day likely to occur more often. This will be influenced by a combination of factors including demand for wood export and the enabling effects of the Proposal.
- A larger workforce will be required to operate the completed Proposal, with additional staff involved in shipping, yard operations and support functions. A need for approximately 65 new roles is estimated, resulting in up to 43 more staff being on site at any one time.
- Staff activity, and associated light vehicle movements, are expected to peak between 6:00am and 7:00am with activity increasing from 38 vph to 54 vph because of the Proposal. Smaller peaks are expected to occur between 2:00pm and 3:00pm (16 vph increasing to 24 vph); and between 6:00pm and 7:00pm (25 vph increasing to 42 vph). These peaks are offset from those of the adjacent road network and are expected to occur before 7am and after 7pm, when the adjacent road network is operating below its peak levels.
- The Proposal is expected to generate demand for 34 additional parking spaces.

Effects of the Proposal on the SH35/Hirini Street Intersection

As detailed in the ECC report, and previously identified in other parts of the AEE, there are recognised safety and capacity issues at the SH35/Hirini Street intersection that exist irrespective of the Proposal. The intersection is currently operating beyond its capacity during peak times and at capacity in shoulder periods. Waka Kotahi, as the agency responsible for this intersection, is investigating alternative forms of control to address these issues.

As detailed in the ECC report, the performance of the intersection is measured using the 'LOS' framework, which provides a means of qualitatively summarising a quantitative assessment of the performance of a transport system. Turning movements, approaches and the intersection as a whole are given LOS A, B, C, D, E, or F based on the amount of time each vehicle has to wait to make a movement or pass through an approach or intersection.

Generally, in urban networks LOS D or LOS E is taken as the upper limit of acceptable operation during peak periods. LOS F indicates that a movement, approach leg or intersection has reached and is operating beyond its capacity

The analysis shows that the intersection is operating beyond its capacity (LOS F) in the AM and PM peaks. During the inter-peak, when volumes are lower, the intersection operates with LOS E, meaning it is operating at the upper limit of acceptable operation.

The number of staff working at the Port will increase as a result of the Proposal, resulting in an increase in the number of light vehicle movements including through the SH35 / Hirini Street intersection. Staff travelling in light vehicles will have the option of using Crawford Road as an alternative access route, such that not all additional light vehicle movements will be directed via the SH35 / Hirini Street intersection.

The timing of staff shifts means additional light vehicle movements will occur outside the existing peak period operation of the SH35/Hirini Street intersection when the intersection is identified as operating within acceptable levels of capacity (LOS C). Modelling demonstrates there is adequate capacity at those times to accommodate additional staff traffic movements without affecting intersection performance. For these reason, additional staff travel is not expected to have a material effect on the peak period operation of the intersection.

Nor is the Proposal expected to increase heavy traffic volumes through the intersection at peak hours of the day due to the practical constraints on log handling and loading at the Port. Instead, HCV traffic movements are expected to be spread across the day and make better use of shoulder periods. On this basis, and because intersection performance is assessed using peak hour volumes, the Proposal is not expected to materially reduce the performance of the intersection given it is already significantly underperforming.

The expected spread of HCV movements across the day can be ensured by way of an Operational Traffic Management Plan (OTMP) setting out methods to ensure HCV movements are spread throughout the day and don't contribute to the peak any more than is currently experienced.

Notwithstanding these conclusions, a sensitivity test of a 20% increase in HCV volumes has been undertaken in relation to both the existing intersection as well as the two upgrade options being considered by Waka Kotahi. Given increased HCV movements are anticipated to be significantly less than 20%, this is a highly conservative assessment. The analysis

shows that in all cases, a 20% increase in HCV movements does not materially change the LOS rating of the intersection, representing its capacity, performance or operating characteristics.

Overall, the Proposal is not expected to result in any material contribution to the intersection's current poor performance.

As Eastland Port does not control or manage the intersection it does not have the ability to change this part of the road network. Eastland Port will, however, continue its involvement in discussions with Waka Kotahi and Gisborne District Council to enable the Proposal's Construction Traffic Management Plan (CTMP) and Operational Traffic Management Plan (OTMP) to be prepared in a manner that anticipates the future intersection arrangements and the timing for any upgrades.

Effects on the wider area, Port access, parking, road safety, and walking and cycling networks.

The ECC report notes that forecast growth in demand for log exports will occur regardless of the Proposal and that without the Proposal in place, the same volume of logs would be transported through the Port, but potentially over a different time frame and/or less efficiently.

Notwithstanding that growth in log volumes is not an effect of the Proposal, the capacity of the surrounding road network has been modelled incorporating a 20% increase in peak hour HVC volumes added to all State Highways. The analysis is highly conservative as in practice HCV trips are distributed across the network rather than all travelling in the same direction on one route. Despite this, the analysis shows that, with the exception of the SH35/Hirini Street intersection, remain well within their capacities.

ECC assesses the existing Port access arrangements and gates as appropriately meeting the operational needs of the Port, including as a result of the Proposal, with no changes required.

The projected increased demand for 34 additional staff parking spaces is expected to be accommodated by existing parking supply, with parking surveys having identified availability of at least 65 spaces on Port land.

Increased staff numbers are identified as potentially increasing the demand for alternative modes of transport, such as walking or cycling. The Port already has good connectivity to the walking and cycling network. However, the provision of cycle parking is recommended to further encourage staff to use alternative modes of transport.

The road safety review shows a mixture of crash types and no apparent issues with the Port specifically. This is not expected to change as a result of the Proposal.

Operational Traffic Management Plan

To detail and manage operational traffic and parking matters associated with implementation of the Proposal, it is proposed to prepare and implement an operational traffic management plan (OTMP). This would effectively update and expand on the Ports existing internal TMP, and address the following matters, consistent with the recommendations of the ECC Report:

- Methods to ensures HCV movements are spread throughout the day and don't contribute to the peak any more than is currently experienced.
- The provision of at least one accessible parking space for people with disabilities.
- Supply of at least 14 cycle parking spaces;
- The overall approach to access, parking, and circulation with the Proposal completed; and
- Measures to manage and minimise potential safety and efficiency effects on external transport network.

Eastland Port has adopted with recommendation which will be reflected in the proposed conditions of consent.

Operational Traffic Effects Summary

Overall, it is expected the additional traffic generated by the Proposal will be able to be accommodated within the surrounding road network without compromising the existing capacity, function or safety of roads or intersections. This includes in relation to the Hirini Road / SH35 intersection for which there are recognised safety and capacity issues that exist irrespective of, and are not materially contributed to, by the Proposal. This is primarily because additional light vehicle movements will be outside existing peak use times, while existing constraints on log handling and loading

at the Port mean additional HCV movements will be spread across the day without increasing peak movements. Additional parking, walking and cycling demand can be largely accommodated by existing facilities, with the provision of additional cycle parking spaces proposed to assist in encouraging alternative modes of transport.

On this basis, and subject to implementation of an OTMP to detail and manage operational traffic and parking matters, the operational traffic effects of the Proposal are considered to be no more than minor.

13.11 Noise and Vibration Effects

13.11.1 Construction Noise Effects

The key findings of the Marshall Day Construction Noise report in relation to compliance with the various Tairāwhiti Plan rules, were outlined earlier in this report. This part of the AEE summarises the associated construction noise and vibration effects based findings in the report.

Airborne Noise Closest Receivers and Construction Noise Effects

Table 3 in Section 5.2 sets out airborne noise source levels for each type of piling and the corresponding setback distance to achieve compliance with the construction limits. The purpose of the table is to identify the key noise sources for each works area and the setbacks to comply with the relevant construction noise limits. The information in this table informs the predicted noise levels at the closest receivers in Section 5.1.

Section 5.1 of the Construction Noise and Vibration report notes that the closest receivers are:

- The apartments at 100 Customhouse Street: approximately 450m from the closest land-based works and around 250m from the capital dredging area.
- The Portside Hotel: approximately 500m from the closest land-based works and approximately 350m from the capital dredging area

The report notes that both sets of receivers are relatively similar in distance, with received levels no more than 1 – 2 decibels difference. On this basis they have been grouped together for assessing effects and determining mitigation/management measures.

Table 4 in Section 5.3 outlines the highest predicted noise levels from the loudest works for the Wharf 8 extension, Outer breakwater upgrade, reclamation and capital dredging activities, and their general compliance with the Tairāwhiti Plan rules. As outlined earlier compliance with all the plan rules is predicted, except for the following:

- Night-time capital dredging, which is predicted to exceed the Amenity Commercial zone L_{A10} limit of 45 dBA by approximately 10dBA, and exceed the Heritage Reserve zone L_{A10} limit of 50dBA by approximately 5dBA.
- Section 5.4 assesses the effects of the infringements, noting that capital dredging in the Twin Berth area will at times be audible, although similar to existing Port activities, both during the daytime and at night-time. The effects are assessed as being 'minimal/negligible'. On this basis the report simply recommends that the apartment and hotel owners/occupiers be advised of the planned capital dredging works, especially if they extend into the night-time.

Table 4 also records that Wharf 8 extension piling is also expected to be audible at times, even though compliant. Likewise, communication with the two closest receiver groups is recommended. This matter is expected to be dealt with generally through the PCLG meetings and more specifically through Eastland Port direct communication protocols with the apartment and hotel owners/occupiers.

Construction Effects Underwater Noise Assessment

Sections 7.0 and 8.0 of the Marshall Day Construction Report highlights the Tairāwhiti Plan bird/marine mammal behaviour modification rule referred to earlier, along with related policies. Section 7.3 (Table 5) discusses the marine mammal species of interest (dolphins, seals and whales) in the Port area and noise thresholds, primarily in relation to the recognised US Department of Commerce National Oceanic and Atmospheric Administration (NOAA) Guidelines 2018.

Section 4.4 and Appendix C contain the findings of an ambient underwater noise environment assessment using two hydrophones at two Port related locations, whilst Section 7.0-8.0 assesses the effects of underwater piling and

underwater dredging on the species of interest. Appendix C in the report shows the locations of the hydrophone recording sites and is reproduced in **Figure 114** of this AEE.

Figure 114: Plan of Port Related Underwater Noise Recording Sites

Source Marshall Day Report

Section 7.6 contains the following findings in relation to the effects of the Wharf 8 extension piling:

- The predicted Temporary Threshold Shift (TTS) zones in relation to the NOAA guidelines are around 100m for impact piling, and less than 10m for vibro piling. The Permanent Threshold Shift (PTS) zones are predicted to be negligible.
- Piling noise is predicted to be above ambient levels in the wider Tūranganui-a-Kiwa/Poverty Bay area. The existing Outer breakwater provides shielding which is predicted to reduce piling noise to below ambient levels beyond the bay. Marine mammals would detect piling noise in parts of the bay, which may result in behavioural response.
- The noise from the piling could result in a behavioural response from individual marine mammals, although there are no Eastland Port or 4Sight records of them being present within the Port. The 4Sight Ecology report notes seabirds using the very outer end of the Outer breakwater, but no significant use of other Port areas. Birds on the end of the Outer breakwater are unlikely to be affected by the Wharf 8 works and certainly no 'long term' behavioural response to noise is expected.
- Mitigation and management measures for piling works are recommended in accordance with current best practice. They involve use of a dolly/cushion for impact piling to mitigate noise emissions, use of a marine mammal observer to monitor the TTS zones where they extend beyond the Port entrance and underwater noise measurements be carried out at the first instance of impact and vibro piling to validate the predicted TTS zones.

Section 7.6 contains the following findings in relation to capital (and maintenance) dredging are:

- The Xcentric Ripper and TSHD have the potential to cause behavioural responses to marine mammal species in close proximity to the works (i.e. within the Port Management Area and General Coastal Marine Area). The character and level are generally comparable to the broadband noise of vessel movements, and therefore the likelihood of specific behavioural response to the dredging is low.
- Noise levels from the Xcentric Ripper and TSHD received in the SVMA that is 3.5km to the south are predicted to be very low, and comparable to existing vessel movements to and from the Port. The likelihood of specific behavioural response to the dredging is very low.
- The likelihood of behavioural response to the BHD operation is assessed as negligible in all areas due to the very low noise levels.

The recommended piling and dredging mitigation and monitoring measures are proposed to be the subject of a Construction Noise Management Plan (CNMP), as outlined in more detail in Section10.2of the report.

Construction Noise Effects on Birds

Section 8.0 of the Marshall Day Construction Report discusses the possible effects of the Twin Berths construction on birds, including kororā. It notes that the CMA area around the Port is characterised by high noise levels, including both continuous noise from equipment operating and impulsive noise from the movement of logs (bangs, crashes etc.). Noise received from the Twin Berths activities will be of a similar character and level to existing activities. This part of the report notes the findings of the 4Sight Ecology Report on use of the end of the Outer breakwater seabirds, along with kororā use of the Waikahua seawall and the Twin Berths Kororā Monitoring and Management Pan (TBKMMP) being prepared as part of the Proposal's mitigation measures.

The 4Sight report notes that the seabirds will be displaced during re construction of the Outer breakwater more by the construction activities, than noise per se. Also, once construction work is completed it is likely that the birds will take up residence on the extended breakwater and other structures as they currently do.

The 4Sight report notes that the recent Waikahua seawall construction effects on Kororā are more centred around habitat loss and other direct impacts, rather than noise as evident from their use of the revetment wall immediately adjacent to a noisy logyard.

The Marshall Day report refers to a construction project in the Auckland region with nearby Kororā habitat and a view that there is potential for disturbance at noise levels of 70 dBA and above, with 80 dBA being adopted as the upper limit. The 70 dB Laeq construction noise limits identified in the Marshall Day report are expected to be used as an 'effects envelope' and to determine whether specific noise management measures are necessary for parts of the Proposal, notably the Wharf 8 extension (Southern logyard side) and adjacent Outer Port reclamation, which adjoin or affect existing seawall areas. Noise based mitigation measures are unlikely to be required for the Outer Breakwater upgrade and other Proposal components.

Construction Vibration Effects

Section 6.0 of the Marshall Day report notes the earlier findings that the plan rule on construction vibration will be met, along with those in the more widely recognised German Standard. It also finds that the effects of the construction vibration will 'imperceptible' at nearby buildings/sites.

Proposed Construction Noise Management Plans

Section 10.2 of the Marshall Day report sets out the expected contents of the proposed Construction Noise Management Plan (CNMP). The plan is expected to highlight the consent conditions to be met, the predicted noise levels for relevant equipment and/or activities, the construction noise mitigation and management strategies, the noise monitoring requirements, with triggers and feedback mechanisms, and communication and complaints response procedures.

The proposed CNMP is expected to be similar to those developed recently for the Wharfside logyard, Wharves 6 and 7 redevelopment and former Slipway redevelopment projects. Draft plans are expected to be submitted for each component and certified by the Council before construction commences. Section11 of the Marshall Day report outlines draft consent conditions for the CNMP's.

13.11.2 Operational Noise Effects

The key findings of the Marshall Day *Eastland Port Twin Berths Operational Noise Assessment* were outlined earlier in this report in relation to the Tairāwhiti Plan rules that will affect use of the completed Twin Berths facilities. Other effects based findings of the report are summarised below, along with information on a few related Port operations matters.

The report outlines the applicable Tairāwhiti Plan rules, the NZ Port Noise Standard, the Port related resource consents in place for areas like the Wharfside logyard. It also covers past Council/consultant reports on these consents and the RMA provisions on noise. Parts of this report section are relevant to assessing the effects of the Twin Berths operating Port.

NZ Port Noise Standard & Proposed Noise Management Plan

The Marshall Day Report explains the background to the NZ Standard on Port Noise Management and Planning (NZS 6803) referred to earlier. In accordance with the standard the report recommends that a Port Noise Management Plan (NMP) be developed to complement the proposed Port Noise Control Boundaries and associated planning restrictions. It states: "*The need for a management plan recognises that noise levels adjacent to the Port may at times be higher than desirable."* The Port Noise Standard provides guidance on the development and application of an NMP to "*ensure that emissions of noise from Port activities is minimised, consistent with practicality, safety and the efficient operation, use and development of the Ports*".

Eastland Port have commissioned Marshall Day to prepare a NMP for the Outer Port Area. A draft NMP plan is to be provided to Council staff/consultants and other interested parties during processing of the applications and finalised before any Council hearing is held. The Marshall Day report notes that the draft NMP is expected to cover the Twin Berths operations, Wharves 6 & 7 and the Wharfside logyard areas. The Upper logyard and Southern logyards are not expected to be covered as they have existing NMP's.

The Marshall Day Report notes the applicable noise emission and monitoring related conditions in the different logyard and wharf redevelopment consents which are also relevant to the wider noise effects assessment picture. The Report also highlights the findings of a Council commissioned review of the Wharves 6 and 7 and former Slipway redevelopment consents, which is also a relevant matter.

Port Operations Noise Modelling

Section 3 - Methodology of the Marshall Day Reportsets out the predictive model-based investigations into the current (2021) Port operations and future Port operations with the Twin Berth facilities in place. It explains the noise sources, operational scenario, modelling methodology, and calibration used to assess the existing and proposed Port operations.

The Marshall Day model results for the two different Port operating scenarios, are as follows:

- Current operations: current peak operations with a log ship and kiwifruit ship in berth. This scenario has been calibrated to the measured level at the Portside Hotel Noise Monitoring Terminal (NMT) during a comparable peak operations period. The highest predicted levels at the adjacent noise sensitive receivers are 64 dB Ldn(5-day) at the Portside Hotel and 63 dB Ldn(5-day) at 100 Customhouse Road apartments.
- Future operations: two log ships with two harbour cranes loading each ship and a kiwifruit ship in berth. Representative of peak future operations. The highest predicted level at the adjacent noise sensitive receivers is 66 dB Ldn(5-day) at the Portside Hotel and 67 dB Ldn(5-day) at 100 Customhouse Road.

Noise Effects

Section 5 Assessment of Noise Effects, addresses the effects of the predicted noise levels taking into account the forecast future operations at the Port enabled by the Proposal.

The key findings from the future operations are that noise levels are predicted to increase by up to 4 decibels at the most exposed façade of 100 Customhouse Road. Subjectively, this is a just perceptible increase. A smaller increase of up to 2 decibels is predicted at the Portside Hotel which is a subjectively imperceptible increase. These increases are is considered to be reasonable on the basis that:

- The existing façade design requirements in place at the time of those developments were established are sufficient to ensure a suitable internal noise environment at current and predicted future noise levels. These require a 30 decibel reduction required across the façade); and
- The outdoor areas are already compromised by high port noise levels, and this is unlikely to change as a result of the Proposal.

A just perceptible increase of 4 decibels is predicted at the Holiday Park as a result of the Proposal.

This increase is unlikely to materially change the noise environment at this location, as it is already controlled by existing port noise and the close proximity of SH35.

Further afield, noise levels will be relatively unchanged in residential and commercial areas to the north and east

Effects of Maintenance Dredging

The noise effects of maintenance dredging are assessed separately as it does not form part of the port operations during peak periods. Noise generated by dreding activities (primarly anticipated to be a backhoe dredge) is predicted to be lower that that generated by a log ship at 110 dB L_{WA} and 113 dBL_{WA} respectively. The Marshall Day report concludes overall, tha the potential noise effects of maintenance dredging will be negligible.

This takes into account that dredging of the berth areas near to receivers would only be undertaken when there are no ships in berth. Noise levels would therefore be lower than typical port operations when dredging takes place. Further, that dredging of the port navigation channel would generally not be noticeable to nearby receivers due to the setback distance (more than 400m) and existing noise levels from the port masking the dredging noise.

13.12 Navigation and Safety Effects

13.12.1 Effects of Improved Port Access and Berthing

Section 7 of the Worley Design Parameter Justification report outlines the navigation and safety benefits arising from the Proposal. These benefits centre around the repairs to the outer breakwater, the capital and continued maintenance dredging, and the consolidation of the slipway (consented in the Twin Berth Stage 1 application).

Repairing the Outer Breakwater will help protect the Port assets and reduce swell incursion into the harbour. Currently the protection it offers is less than optimal. Vessels transiting the channel are subject to swell overtopping this structure and affecting vessel alignment as a vessel enters the harbour. Reinstatement will eliminate this navigational impediment and improve harbour safety. Conversely it is anticipated if it were not reinstated, in the years to come it would continue to sink below water level and offer even less protection and become a navigational hazard.

The capital dredging proposed will reduce the operating restrictions for vessels transiting the channel and make for safer navigation and less chance of a vessel becoming captured (caught in Port due to weather conditions preventing sailing.

The maintenance dredging and disposal consents being applied for as a part of the Proposal are required for the ongoing maintenance of these navigational channels to their increased depths and safety of vessels entering and departing Gisborne Harbour.

The design process for the TBP has not only considered the nearby physical environment but also consideration of the range of vessels likely to be involved in the future and practical aspects of approach and departure from the upgraded berths by larger vessels.

Three key manoeuvres required testing at the Smartship Australia Simulation system. There were

- the departure of a 200m LOA vessel off Wharf 7 with a 185m LOA vessel on Wharf 8 (Error! Reference source not found.**5** and Error! Reference source not found.**6**),
- The arrival of a 200m LOA vessel onto Wharf 7 (Error! Reference source not found.)
- and the arrival of 185m LOA vessel onto Wharf 8 while a 200m LOA vessel is berthed on Wharf 7.

The consolidation of the slipway is essential for the first manoeuvre to occur.

Figure 115: Departure of 200m LOA log vessel off Wharf 7 while 185m LOA log vessel on Wharf 8 at Smartship Simulator – Looking South

Figure 116: Departure of 200m LOA log vessel off Wharf 7 while 185m LOA log vessel on Wharf 8 at Smartship Simulator – Looking North

Figure 117: Arrival of a 200m LOA vessel onto Wharf 7 at Smartship Simulator

13.12.2 Effects of Port Dredging and Disposal Operations

The Eastland Port SOP for dredging and disposal operations covers current navigation and safety related issues. In terms of the ongoing maintenance dredging operations at the Port the SOP is generally reviewed on an annual basis to determine whether any new risks or hazards exist and need to be dealt with from a navigation and safety perspective.

13.12.3 Navigation & Safety Bylaw Affecting the Port

The Council's Navigation and Safety Bylaw 2012 places restrictions on people using the Port and adjacent parts of Tūranganui-a-Kiwa/Poverty Bay. The Bylaw is relevant to the Project insofar as the restrictions placed on people and vessels will apply in and around the extended Port structures, in the same way they do to the existing Port. None of the Project works are regulated by the Bylaw, with the exception that vessels used during construction will be required to operate in accordance with the Bylaw.

The following areas (illustrated in Figure 118 **and** Figure 119 below) are defined and controlled under the Bylaw:

- **Gisborne Pilotage Area** is defined as a circle with a radius of 3 nautical miles from the southern end of Butlers Wall. The area is subject to a specific set of navigation and safety directives and under the control of the Harbourmaster.
- **Large Vessel Anchorage Position** is defined as a circle with a radius of 0.5 nautical miles from a defined navigation chart position.
- **Prohibited Anchorage Area**. The PNC and VTB areas, along with a nearby Council wastewater outfall pipe are within a 'Prohibited Anchorage Area'.

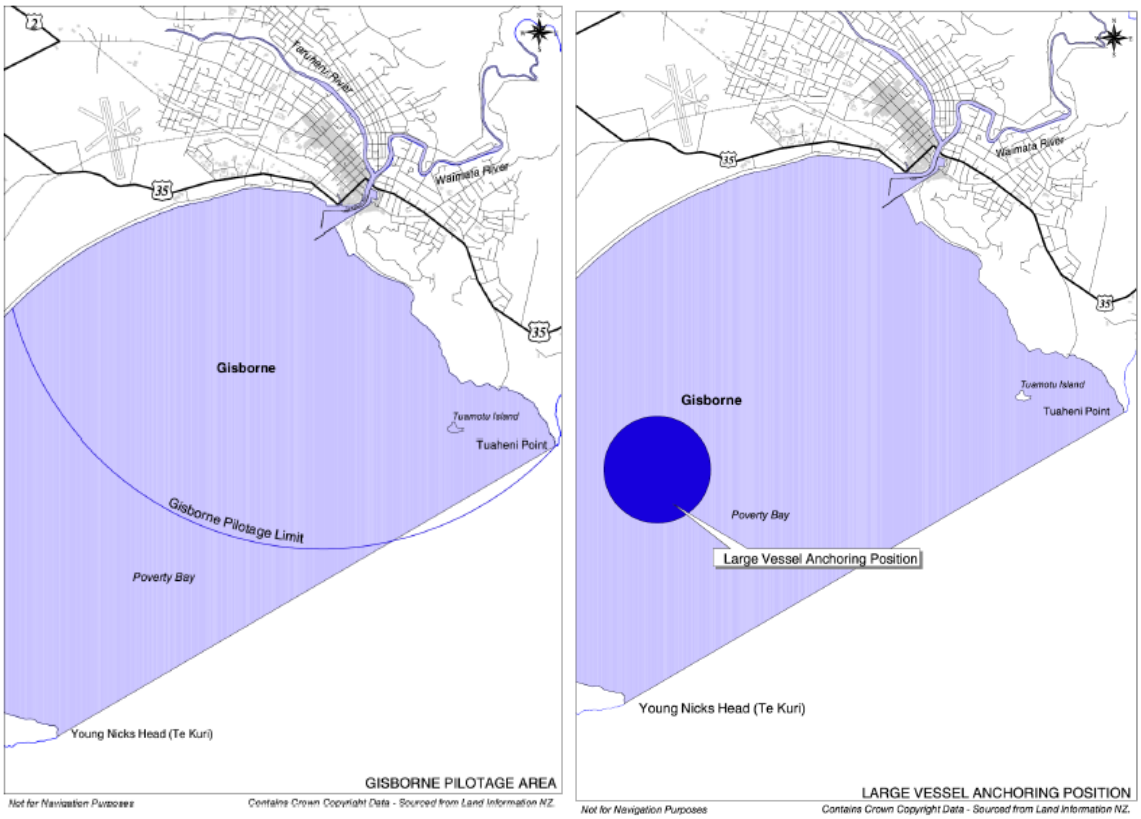


Figure 118: Gisborne Pilotage Area & Large Vessel Anchorage Plans

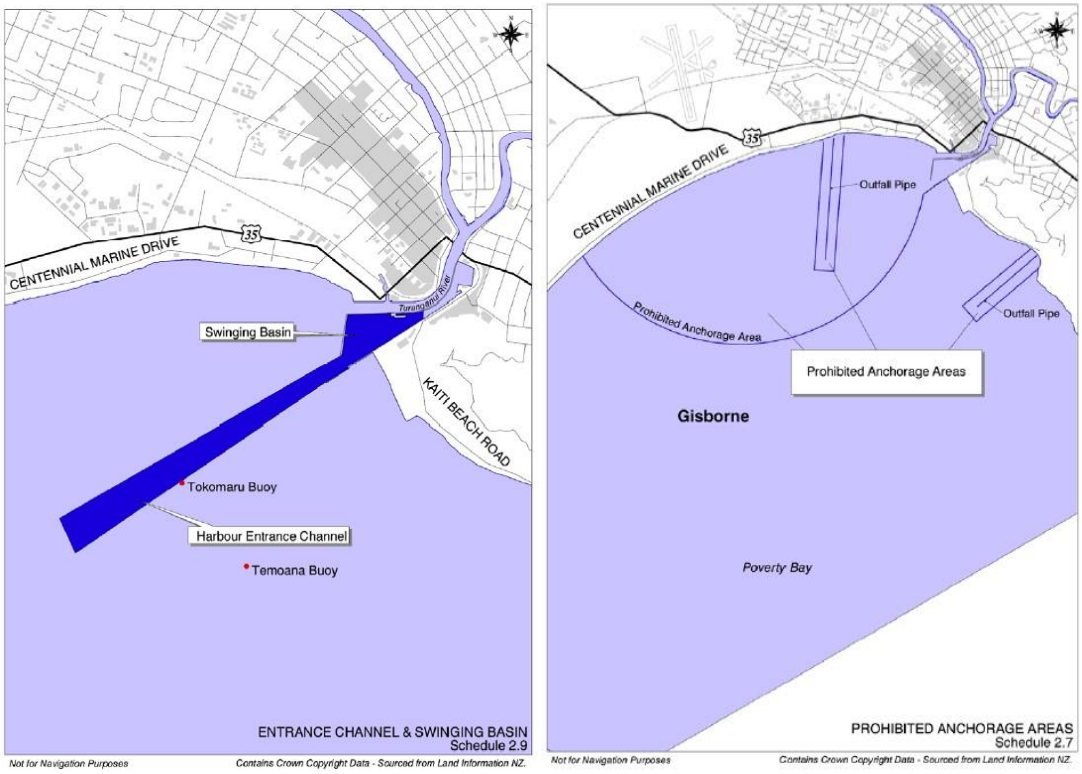


Figure 119: Gisborne Port and Prohibited Anchorage Area Plans

Key Bylaws

Several bylaws affect use of the Port water space and surrounding areas of the bay. Of most relevant are:

Bylaw 2.2. No diving, swimming or other related activities are permitted within 50m of any wharf or other Port facility used for vessel berthing nor any designated anchorage area.

Bylaw 2.9. No fishing apparatus is to be used in the Set Net and Crayfish Pot exclusion area shown in Schedule 2.5. Figure 120 contains a copy of the fishing exclusion area. The exclusion area includes all of the Port, including the PNC

Bylaw 2.14. No dive operations are to be undertaken in the PNC and VTB, except if a specific dive permit is issued in accordance with Schedule 5.

Bylaw 3.10. No vessel of less than 500 gross tonnes (such as all recreational craft) shall impede the navigation of any vessel exceeding 500 gross tonnes (such as a log vessel) in the Gisborne Pilotage Area.

Port Related Fishing Exclusion Area

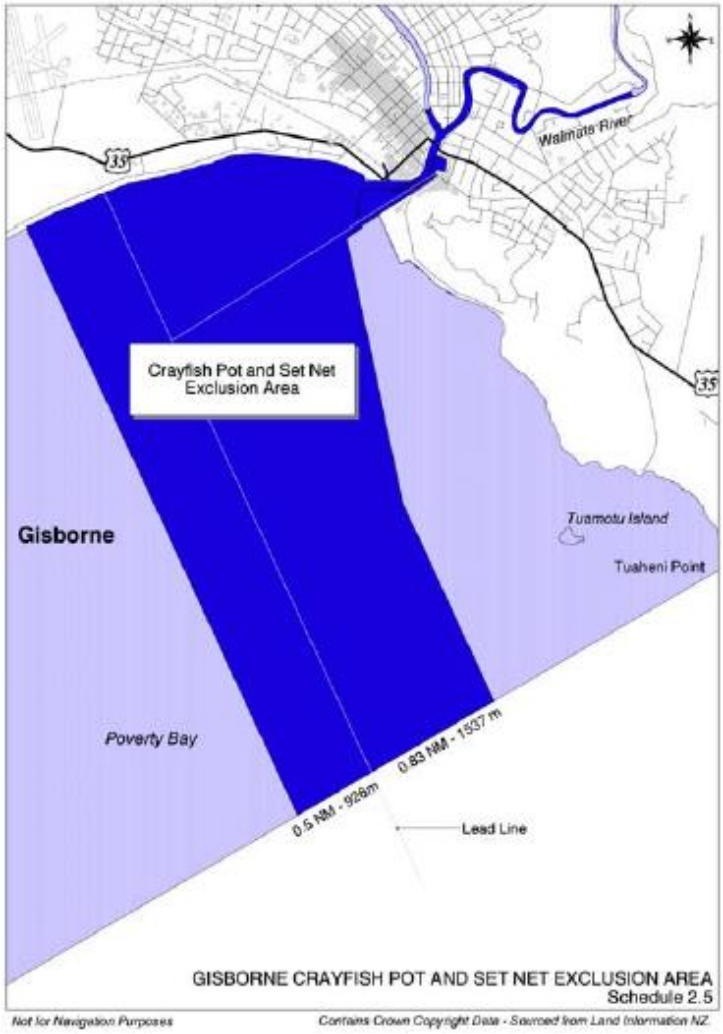


Figure 120: Port Related Fishing Exclusion Area Map

Notice of Proposed Structures to Maritime NZ and LINZ

Under the Tairāwhiti Plan rules Maritime NZ and LINZ are required to be formally advised of all new or altered structures at the Port. This will be done by Eastland Port in relation to the Wharf 8 extension, Outer Breakwater upgrade and Outer Port reclamation following the issuing of the Council decisions on these parts of the project.

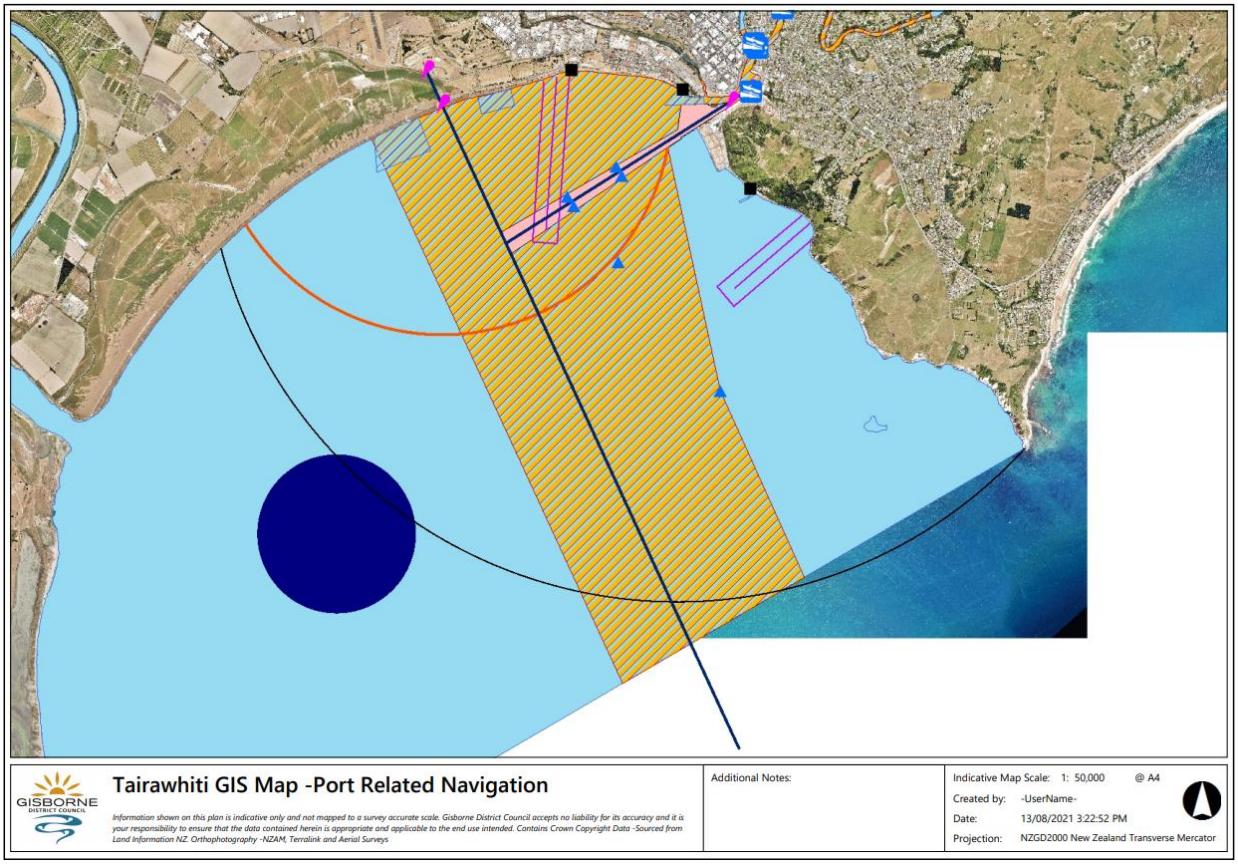


Figure 121: Port Navigation Related GIS Map

Procedures for Dredging and Disposal operations

Now Eastland has retired its internal dredging operation all dredging at Eastland is undertaken with a pilot on board, or the dredging operation must hold a Pilotage Exemption Certificate (PEC). A PEC is issued by Maritime NZ under the support of the GDC Harbourmaster.

To gain a PEC the Dredge Master will be required to produce Standard Operating Procedures (SOP'S) for dredging and disposal operations, which will cover current navigation and safety related issues.

Proposed Construction Management Plan

The Construction Management Plans (CMP's) being proposed for the Wharf 8/breakwater/reclamation will cover any additional navigation and safety arrangements required during the construction process. They will depend on the extent of CMA, as opposed to land based, construction equipment and machinery.

13.12.4 Summary of Navigation and Safety Effects

The effects of the Proposal on Port navigation and safety are assessed as negligible because of the Port bylaws in place which govern commercial and recreational craft use in and around the Port. Some additional restrictions on recreational boating may be required immediately around the Wharf 8, proposed reclamation and outer breakwater construction sites, but they are expected to be limited in both scale and time. Any such restrictions will be detailed in the Council-certified CMPs. The completed Proposal will have positive effects on boat navigation and safety for both Port users and commercial/recreational users of the inner Port/marina areas.

13.13 Effects on Public Access and Recreation

Existing Situation

The Port is located close to several important recreational areas, including Waikanae and Kaiti beaches, along with the Turanganui River. All three areas are used for a variety of fishing/seafood gathering and water sports activities, along with informal recreation. The Port is also adjacent to the Titirangi (Kaiti Hill) recreation reserve, which is used for a range of informal recreational activities.

Public access to the Port wharves and other facilities from both the land and water is restricted for security, safety and biosecurity reasons. However, water access through the Port to the inner harbour and marina is generally unrestricted and the area is widely used by a range of private recreational and some commercial (tour) craft.

Eastland Port does not keep records of the number and type of recreational craft travelling through the Port. A review of the Council website has not revealed any such information, nor any related data on fishing and other activities in the surrounding area.

The Council and the Land Air Water Aotearoa (LAWA) website indicate that as part of a swimming related data base, coastal water quality is monitored at sites in the Midway, Waikanae and Kaiti Beach areas, along with a site at the Gladstone St bridge over the Turanganui River. As outlined earlier, under the Council's Navigation and Safety Bylaws there are area-based restrictions on fishing and other recreational activities in and adjacent to the Port.

Effects of the Outer Breakwater Upgrade

The Outer Breakwater upgrade only involves an additional development 'footprint' of approximately 0.24 ha, compared to the existing footprint of approximately 0.8ha. However, there will be a wider temporary 'loss' of CMA public open space during construction for health and safety reasons. As outlined in the Worley engineering report the facility is expected to be built primarily from Port land and very limited, if any, additional restrictions on public access to the Port waters (over and above those applying under the Navigation and Safety Bylaws) are expected.

Any proposed temporary restrictions on public access during construction will be explained and illustrated in the CMP that is required to be certified by the Council before construction commences. As with other Port related construction projects any such temporary restrictions on public access to affected areas will be well publicised (through site signage and the media) so the boating public and others are very aware of them. On this basis the construction effects on public access and recreation are assessed as being of a 'minor' nature.

Effects of the Wharf 8 Extension and Outer Port Reclamation

Construction of the Wharf 8 extension and Outer Port reclamation will effectively remove approximately 1.5 ha (0.6 & 0.9ha) of CMA water space and seabed. The 'working platform' part of the Outer Port reclamation, along with any necessary ground stabilisation works, will be within this same area 'footprint', so there will be very limited temporary effects on public access and recreation beyond it. This is on the basis that, as set out in the Worley report, the construction works will be primarily undertaken from Port land and very little, if any, construction is undertaken from the water.

Eastland Port and 4Sight investigations indicate that although the affected seabed/water space has ecological and landscape (natural character) values, it has limited public access and recreational values. This is because the area is very exposed to the prevailing ocean swells and there are no significant rock outcrops or the like to provide shelter for recreational craft. Although the area is outside the prohibited anchorage area and the crayfish pot set net exclusion area set under the Navigation and Safety Bylaws, investigations indicate that it is not a popular fishing or seafood gathering area.

Effects of Dredging and Disposal Operations

Recreational and other craft from the marina and other facilities will be able to pass through the Port area while capital and maintenance dredging operations are underway. This is the case currently when maintenance dredging is undertaken. The capital dredging operations are not expected to be much different to the current maintenance dredging operations in terms of day-to-day management and boat access through the Port.

Eastland Port advise that they are not aware of any adverse public access and recreational effects associated with past capital and maintenance dredging operations and none are expected in the future. As outlined earlier, the Council's Navigation & Safety Bylaw 2004 place restrictions on use of the Port water space for fishing and other (non-access

related) recreational activities. No additional controls on these activities are expected to be required for the proposed capital dredging operations.

The OSDG is not recorded in any publication or known to be used to any significant extent for diving, fishing or other recreational boating activities, although at 'off use' times such activities are expected to occur. Eastland Port have management protocols in place regarding recreational craft access to the OSDG during disposal operations.

RMA & District Plan Provisions on Esplanade Reserves for Reclamations

The provisions in Section 108 (2) (g) of the Act and Tairāwhiti Plan on the provision of esplanade areas (reserves or strips) on reclamations were outlined earlier in this report. No esplanade reserves or strips are being proposed for the Outer Port reclamation, nor the reclamation components of the Wharf 8 extension and Outer Breakwater upgrade. This is because neither of the facilities have any public access at present and significant health and safety and security risks would arise if they did.

Effects of the Port Occupation Permit and Water Based Access to the Port

The proposed Port occupation permit, like the current permit, provides for the exclusive access to and use of the Port water area. This on the basis that such occupation is 'reasonably necessary for another activity' in this case, the safe and effective operation of the Port, as provided for under Section 12 of the RMA. A detailed explanation of the Section 12 provisions and the term 'occupy' in Section 2 of the RMA was provided earlier in this report.

The proposed Port 'occupation' provides access at any time for the manoeuvring, berthing and operation of large shipping vessels in the CMA, and for maintenance of structures below and above the MHWS. It also enables Eastland Port to freely undertake related biosecurity, navigation and safety and Port security works, whilst safeguarding other user interests.

The proposed occupation permit is very similar in area to that that has been in place since 1984. As outlined earlier, some relatively minor changes are proposed to the occupation area to reflect the changed extent of some Port facilities following completion of the Proposal and others that have or will be completed in the next few years.

The extended Port facilities, along with the increasing size of shipping vessels, mean that more complex vessel manoeuvres will be required in the future. The proposed occupation permit includes all areas expected to be required for the access, manoeuvring and berthing of both large and small vessels in the Port for the foreseeable future. The maximum 35 year term permissible under the RMA is being sought in order to provide long-term certainty for Port operations and maintenance.

The rights associated with the proposed occupation permit relate, as at present, to the need for 24-hour uninterrupted access for vessels seeking to access and use the redeveloped/extended Port facilities. They also enable Eastland Port to exclude other people/users from all or part of the permit area if necessary. Any such precautionary type exclusions are expected to be for specific navigation/safety, security or biosecurity risk/threats and be well documented and publicised in advance. Eastland Port advise that there have been no such other user exclusions from the Port over recent years and this is not expected to change in the foreseeable future.

The actual and potential effects of the proposed occupation permit primarily relate to the ability of Eastland Port to exclude other users from the water area on an as required basis. Any such exclusions are only expected to be made for specific Port safety, security or other clear reasons for a defined period of time. The actual and potential adverse effects are on this basis are assessed as being 'negligible'. At the same time there will be benefits to Eastland Port, in being able to exclude other users, if necessary, for such reasons and avoid significant environmental/and or public health risks/threats to the Port.

13.14 Effects Summary

Table 13 summarises the AEE and expert report findings on the actual and potential environmental effects of the Proposal.

Table 13: Summary of actual and potential effects of the Proposal

Effects Category	Reports	Effects Avoidance, Mitigation, & Remediation Measures	Effects Assessment
Economics	Brown Copeland	None	Positive
Natural Hazards	Worley	Allowance for storm surge, wave amplitude and future sea level rise in structure design will ensure the long term resilience of the Port to natural hazards. Structures have been designed to ensure they do not exacerbate natural hazard risk to the surrounding environment.	Positive
Soil Conservation and Contamination	Worley & 4Sight	ESCP's to control sediment discharges for all construction sites. SMP's to control disturbance of contaminated soils. Soil to be contained beneath hardstand on completion of works to ensure no exposure or erosion pathways.	Minor
Coastal Processes & Surf Breaks	MetOceans & T+T	Coastal processes monitoring of Wharf 8 extension/Outer Port reclamation, Outer breakwater upgrade. Coastal processes monitoring of maintenance dredging disposal at OSDG. Control and monitoring of sediment discharges from all construction sites.	Minor
Heritage	InSitu Heritage	Minimum specified separation distance of Outer Port reclamation from heritage boat harbour. Accidental discovery protocol.	Minor
Ecology & Water Quality	4Sight Ecology	TBKMMP to avoid adverse effects on kororā and manage effects on kororā habitat. Control and monitoring of all temporary sediment discharges. Monitoring of sediment quality in Port material to be dredged and OSDG ecological monitoring. Stormwater treatment device and outfall related monitoring of discharges to the CMA. Ecological and water quality monitoring of ongoing maintenance dredging/disposal.	Minor
Landscape, Natural Character & Visual Amenities	4Sight Landscape	None	Minor
Transportation	ECC	CTMP for each construction project. SH35- Hirini St intersection temporary traffic mitigation measures. Implementation of an Operational Traffic Management Plan to manage operational traffic effects upon transportation network.	Minor
Noise & Vibration	Marshall Day	Compliance with NZS6803 construction noise standards. CNMP and associated monitoring. Adjacent apartment/hotel capital dredging protocols. Best practice methods to manage effects of pile driving on marine mammals. Port Operations Noise MP. Ongoing Port noise monitoring	Minor

Cultural Heritage	-	Stormwater discharge quality monitoring, further investigation into alternative disposal locations for dredge material, protection of kororā, accidental discovery protocol and opportunity for cultural monitoring during construction works	Minor
Navigation & Safety	4Sight AEE	CMP to address any necessary temporary boating restrictions around construction sites to supplement Port bylaws.	Positive
Public Access & Recreation	4Sight AEE	CMP to address any necessary temporary boating restrictions around construction sites to supplement Port bylaws/site protocols	Negligible
Overall		**Consent conditions on above measures**	**Minor**

The following explanation of the respective effects assessments is provided.

Positive Effects

The Brown Copeland report clearly documents the positive direct and indirect economic benefits (employment, purchase of goods and services) arising from construction of the Proposal.

The effects of the Twin Berth construction on Port navigation and safety are assessed as negligible because of the Port bylaws in place which govern commercial and recreational craft use in and around the Port. Some additional restrictions on recreational boating may be required immediately around the Wharf 8, proposed reclamation and outer breakwater construction sites, but they are expected to be limited in both scale and time. Any such restrictions will be detailed in the Council certified CMP's. The completed Proposal will have positive effects on boat navigation and safety for both Port users and commercial/recreational users of the inner Port/marina areas.

Minor Effects

The MetOcean reports on the Twin Berths reclamation and Wharf 8 extension and the Outer breakwater upgrade predict changes in the wave climate and associated currents in and around the Port. However, they are generally confined to the Port vicinity and minimal changes are predicted in the wider bay area. Some of the changes are mitigated through the upgraded breakwater structure, which will be much more porous and approximately 30% less reflective than the existing facility.

The MetOcean report on maintenance and capital dredging and finds that continuation of the current operations is expected to have limited effect on bay morphodynamics, even though there will be subtle changes to sedimentation patterns and wave patterns to the north of the PNC. This report, along with the T+T surf break report, finds that maintenance dredging and disposal operations will have negligible to low effects on the surf breaks to the north and west of the Port.

The MetOcean reclamation works report predicts plumes of low concentrations mostly to the west. However, they will be generally less than recorded background levels and have a minor effect on suspended solids concentrations in and around the Port and near Waikanae beach. This report, along with the Worley engineering report highlight the importance of using the selected 'Plus 65' quarry material in minimising sediment discharges, along with progressive armouring of the constructed facility. The MetOocean breakwater upgrade report does not identify any adverse effects arising from construction works. The T+T surf break reports finds the effects of the construction activities, including disposal of capital dredging's at the OSDG, on the nearest surf breaks at Midway, Waikanae and the Waipaoa River mouth, will be negligible to low (or no more than minor).

The Worley engineering, 4Sight DSI and 4Sight ecology reports document the sediment and contaminant control measures and associated monitoring expected to be put in place as part of the Wharf 8, Outer Port reclamation, Wharf 8 extension and Southern logyard stormwater upgrade construction processes. All construction related sediment discharges from the different construction works will be carefully managed and monitored through a series of Council certified CMP's and water quality effects monitoring programmes. The 4Sight reports assess the effects of the

individual project components as being negligible to low (no more than minor) and the Worley report findings are assessed as the same.

The In- Situ Heritage report notes that none of the recorded archaeological sites in the Port or adjacent Kaiti – Titirangi area will be affected by the Twin Berths construction projects. It recognises that proposed reclamation is close to the heritage boat harbour remains, but the separation distance is adequate, given the CMP and related sediment discharge controls to be put place. This finding, along with report recommendation that an accidental discovery protocol be put in place for the whole project, means the adverse effects on heritage values will be no more than minor.

The 4Sight ecology report finds that the effects of construction of the breakwater upgrade and reclamation, along with the capital dredging and dredging disposal, are low and the construction effects of the Wharf 8 extension are very low, which are equivalent to minor and negligible effects in RMA assessment terms. The report also highlights the expected effectiveness of the CMP's, and Twin Berths Kororā Monitoring and Management Plan to avoid, minimise or mitigate the adverse effects of construction activities on birds, marine mammals and other species. The 4Sight ecology report effects assessment finds that the effects of the Twin berths Port operations will be very low (negligible) to low (minor) based on the EIANZ/BML guidelines. This includes the effects of the treated stormwater discharges to the Kaiti reef and Outer Port areas. Monitoring of the water quality effects of the additional stormwater discharges, and the maintenance dredging and OSDG activities along with proposed monitoring of Kororā activity in and around the Port through the TBKMMP, are also seen as an important measure.

The 4Sight landscape reports finds that the landscape effects of the completed project will be low -moderate (no more than minor) based on an assessment from eight representative viewpoint locations, including three from which from visual simulations were completed. The current working nature of the Port, relatively long viewing distances, small incremental increases in completed facility area/height and use of complimentary materials will effectively mitigate the adverse landscape effects.

The Marshall Day construction noise report assesses the effects of airborne noise, including capital dredging, in relation to adjacent residents in nearby commercial and residential zoned areas, along with birds (also airborne) and marine mammals (underwater). They are assessed as being minimal/negligible to low subject to the recommended pile driving, night-time capital dredging, construction noise management plan and other mitigation measures and as such will be no more than minor.

The Marshall Day operational noise report focuses primarily on the effects of airborne noise, including maintenance dredging, in relation to adjacent residents in nearby commercial and residential zoned areas. It finds that the combined existing and proposed operational noise level increase on those most affected (residential accommodation) are suitably (acoustically) designed to mitigate against the small increase in operational Port noise generated from this proposal. Marshall Day consider the Best Practicable Option is to impose a single suite of noise limits based on the Port Noise Standard for the whole of Port activities. This recommendation could be applied consistently to future applications or as part of the Tairāwhiti Resource Management Plan review. In terms of application of noise limits to the current TBP, compliance with the site-specific set of noise emission standards similar to those in place for the adjacent Wharf 6 and 7 redevelopment, along with a NMP containing mitigation measures such as Operator and staff training, Equipment selection, General measures, Safety/reversing alarms, Night-time activities, Noise monitoring and Community engagement will be sufficient to ensure that the effects generated from operational noise will be no more than minor.

The ECC traffic report recommends the preparation of a Construction Traffic Management Plan (CTMP) to manage the effects of construction traffic upon the road network to acceptable levels. Construction traffic will utilise the same transport routes as operational activities for the life of the project which is to be staged across 8 years. There will be additional demands on the Hirini Street/SH35 intersection. The CTMP will include mitigation measures including construction staging and timing, transport routes, traffic management controls, access points and parking for construction traffic, transport routes, communication measures to name a few. With the preparation and implementation of the CTMP, ECC consider that construction traffic effects of the Proposal will be no more than minor.

The ECC traffic report recommends the preparation of an Operational Traffic Management Plan (OTMP) which details the Ports overall approach to access, parking and circulation of vehicles throughout the operational phase of the development (including the provision of accessible carparking and bicycle parks). The OTMP will also include measures required to manage potential safety and efficiency effects upon the external transport networks.

Ongoing discussions relating to the upgrade of the Hirini Street/SH35 intersection will continue to be undertaken between Waka Kotahi and EPL regarding the timing of the upgrade of this intersection. With these recommendations implemented, ECC finds the effects of Twin Berths operations on the adjacent transportation network will be no more than minor.

Whilst no CIAs have been received from Iwi/Hapū which encompass the totality of the Proposal, a balanced approach has been applied to reach a conclusion as to the level of effect the project will have upon cultural values. Taking into account the Cultural Values and Relationships Frameworks, Rongowhakaata CIA (dredging), the various expert report findings and proposed mitigation measures as they relate to the project's separate components and the Eastland Port Engagement report, effects upon Cultural Values are anticipated to be minor. However, it is acknowledged that ongoing dialogue between the parties will be required.

Negligible Effects

The effects of the Twin Berths operations on public access will be negligible because the parts of the CMA that will be lost are very small, either within or immediately adjacent to the Outer Port and not readily available/used for marine based recreation. No additional restrictions on public access are being proposed, with reliance being placed on the existing Port bylaws and land-based site protocols to restrict public access to all working Port areas. Some additional short-term restrictions may be put in place in CMA areas around the Twin Berth construction sites, but they will not adversely affect recreational use of the nearby Kaiti beach/reef and Waikanae/Midway beach areas.

Potential risks and adverse effects associated with natural hazards are taken into account in the design of the Proposal. Structures have been designed to ensure they do not exacerbate natural hazard risk to the Proposal or surrounding environment and that they ensure the long term resilience of the Port to natural hazards. Overall, the works are considered to result in negligible adverse effects on natural hazards while resulting in positive effects on Port structures and operations in terms of improved resilience to natural hazards.

Overall Effects

Overall, the adverse effects associated with the Proposal are assessed as being no more than minor.

14 MITIGATION MEASURES

Section 14 below summarises the key mitigation measures and environmental monitoring included in the Proposal. These measures are integral to ensuring the effects of construction and operation of the Proposal remain at acceptable levels including over the duration of the associated consents.

14.1 Soil Conservation and Site Contamination

All works involving the disturbance of potentially contaminated soil will be undertaken in accordance with a Site Management Plan (SMP) for the management of asbestos and other possible contaminants, and under the supervision of a SQEP, in order to avoid or mitigate risks to human health and the environment.

On completion of the works, all soils will be contained within the armoured seawall or beneath hard stand, such that there will be no available erosion or exposure pathways. This will ensure residual soil contaminants are managed in a way that is appropriate for the proposed commercial / industrial use of the site.

14.2 Coastal Processes

The effects of the Proposal on Coastal Processes will be monitored to ensure effects remain consistent with what is expected and at acceptable levels over time.

14.2.1 Monitoring of Dredging Effects on Coastal Processes

As detailed in the MetOceans Report the effects of capital and maintenance dredging on coastal processes will be monitored to ensure proposed design depths and accessibility of the Port to ships is maintained, and the morphological responses of the dredged area and wider bay are consistent with what is expected.

Monitoring of dredged areas is proposed to comprise:

- Annual to bi-annual hydrographic surveys of the PNC and VTB using appropriate, industry standard approaches and qualified hydrographic surveyors, with a preference to multibeam surveying (over single-beam). All surveys to be reduced to an appropriate defined datum and survey results compared to the immediate prior survey in order to assess morphological trends.
- Hydrographic, shore normal transects to be completed at time of the annual to bi-annual hydrographic surveys. These are to be aligned with the Gisborne District Council beach profiles inshore of the Shipping Channel and coordinated with the Council's shoreline / beach profiling work and continue for the duration of the coastal permit consent provided the Council continue to undertake beach profiling. All surveys are to be reduced to an appropriate defined datum with the survey results compared to the immediate prior survey in order to examine trends.
- Records of all capital and maintenance dredging operations are to be maintained, including start/stop locations of dredging and approximate unconsolidated volume of sediment dredged. This monitoring will provide valuable information on the morphological response of the PNC and VTB to dredging and the shoreline stability monitoring work being undertaken by the Council.

Given the dredging operations are not expected to adversely impact surfing conditions at the nearby Waikanae or Midway beaches no specific monitoring of the either surf break is considered necessary.

14.2.2 Monitoring of Offshore Disposal Ground Use on Coastal Processes

MetOceans *Summary Report* recommends similar effects-based monitoring of the OSDG. The proposed monitoring involves:

- Annual to bi-annual hydrographic surveys using appropriate, industry standard approaches and qualified hydrographic surveyors, with a preference to multibeam surveying (over single-beam). As above all surveys are to be reduced to an appropriate defined datum with the survey results compared to the previous ones so as to examine morphological trends.

- Hydrographic, shore normal transects aligned with the Council beach profiles inshore of the OSDG to be completed at the time of the annual to bi-annual hydrographic surveys. As above coordination with the Council beach profile monitoring is expected, along with continuation of the surveys for the duration of the coastal permits, assuming the Council continue with the nearby beach profiling work.
- Records of dredging disposal operations are to be maintained, including disposal locations (beginning and end of discharge cycle).
- Annual to bi-annual surficial sediment sampling of the disposal ground and control sites, consistent with the sampling undertaken in 2017 to identify if any textural change to the surficial sediment occurs over time due to dredge disposal activities.
- Comparison analysis of the hydrographic survey data from the OSDG and control sites to help determine if the dynamic equilibrium of the OSDG is being adversely affected by the capital (and maintenance) dredge material.

14.2.3 Mitigation and Monitoring of Reclamation Related Sediment Discharges

Mitigation measures to be adopted during upgrades to Wharf 8 and the Outer Breakwater, and construction of the Outer Port reclamation to limit dispersion of fine sediments in coastal waters include:

- Minimising the area of exposed material during construction of the revetment by progressively armouring the core material with a secondary rock armour layer designed to filter and prevent fines from migrating through the outer armour layers. The secondary rock armour layer would be designed so that the armour rocks are large enough to not be washed through the voids between the concrete armour unit layer.
- Use of 'Plus 65' quarry run material in the reclamation, which contains fewer silt-sized particles than other aggregate options, to help mitigate the potential release of fines during reclamation works.
- Filling of the 'knuckle' transition between the Inner and Outer Breakwater with clean graded rock, which is expected to generate significantly less fines than the 'Plus 65' quarry run material. The rock fill here will also be protected with concrete armour units as construction progresses to minimise its exposure to wave action and hence minimise generation of fine sediment. Concrete units will be precast and stored on site and not expected to generate any significant fine material discharges to the CMA.

The following additional sediment control measures are expected to be adopted for the land based construction sites:

- Minimising plant movement during dry conditions to minimise dust generation and having a water cart on site during extended dry conditions to control dust
- Installation of hay bale barriers and silt fences prior to stormwater discharge locations from the site
- Stormwater pit/discharge location inlet protection, and runoff diversion channels and bunds
- Regular sweeping and washing of site entrance and exit points.

Monitoring of the predicted sediment discharges is best developed once more detail is known of the reclamation construction method and timing, taking into account the difficulties with in-situ monitoring in a very exposed marine environment. Visual based monitoring from land vantage points is envisaged and directed at ensuring that there is not consistent movement of high concentration sediment plumes towards the more sensitive ecology of the Kaiti reef.

14.3 Ecological and Water Quality

14.3.1 Mitigation of Ecological and Water Quality Effects

As detailed in the 4Sight Ecology and Water Quality Report, the Proposal will result in adverse effects on some habitat and ecological values due to the upgrade of structures, the reclamation and dredging proposed. Remediation of affected ecological values will occur to a large extent where post construction habitats are of the

same or similar type and in the same place, as they will develop a largely similar ecology. This will occur in relation to the outer breakwater, the Wharf 8 extension and dredged areas all of which represent heavily modified habitat.

Adverse water quality effects of dredging will be mitigated by applying best practice in the dredging method, limiting the duration of continuous dredging and allowing for natural dispersion and dilution processes to dissipate the intensity of plumes.

The concentration of sediment laden discharges from the reclamation area during construction can be mitigated by implementation of an appropriate Erosion and Sediment Control Plan.

The ingress of sediment laden water to the stormwater drainage system during land based works in the southern logyard can be avoided by adoption of best practice erosion and sediment control measures such as the placement of haybales around excavation and material handling areas, and the use of filter socks around adjacent inlet grates.

The proposed sediment control measures are expected to be detailed by the contractor in a Construction Management Plan (CMP). The CMP will sit alongside the Site Management Plan (SMP) for management of asbestos and other possible contaminants, as outlined earlier, with both plans being certified by the Council before construction commences.

Ecological effects of disposal of dredged material are mitigated by placing the material in a hydrodynamically highly active area of similar lithology to the source material and where larger coastal process dominate the factors which govern ecological communities.

On completion of works, the risk of pollutant discharges from the reclamation area and southern logyard will be mitigated by the upgraded stormwater treatment system.

14.3.2 Ecological and Water Quality Monitoring

The following ecological and water quality monitoring measures are proposed to ensure actual and potential effects of the Proposal can be tracked over time, and responded to as appropriate to ensure effects continue to be managed to an acceptable level:

- a monitoring regime directed at sediment losses and visual water quality associated with the reclamation construction be developed once further clarification is available on the reclamation method and timing.
- It is recommended that a regime of monitoring treated stormwater discharges from the upgraded SLY stormwater management system, and for monitoring receiving environment water quality within the existing consented mixing zones for the two discharge locations be developed. This should be based on but rationalise where appropriate, the existing monitoring programmes for the SLY discharges and have reference to recent monitoring regimes approved to the ULY and WLY stormwater discharges. To support ongoing assessment of the stormwater management system against the modelled outcomes, monitoring of rainfall, runoff, and discharge TSS concentrations of the proposed system is proposed. Such monitoring will support a better understanding of the system dynamics and enable system improvements to be identified and implemented over time.
- Continuation of the present programme of annual monitoring of heavy metals and selected other contaminants at representative sites within the VTB, and PNC, consistent with existing sediment monitoring in the port area and background sites. This monitoring is to reaffirm the quality of the sediments to be maintenance dredged relative to ANZAST, 2018 sediment quality guideline values, and its suitability for offshore disposal and to verify that contaminant increases do not occur at the OSDG relative to background conditions. It is further recommended that background sites are extended to better understand the extent of elevation of Nickel and Poverty Bay.
- Continuation of triennial elutriate testing of sediments from the VTB to confirm that mobilisation of heavy metals during dredging does not occur at levels that would cause toxicological risk in the water column.
- Preparation of an updated Biosecurity Management Plan to address the risk of vessels (dredgers and barges) from outside the region that are required to implement the Proposal introducing pest species to

the Port, and/or pest species that might already exist within the Port being moved beyond the Port on vessels or in dredged material or incidental to construction activities.

- Continued monitoring of the OSDG and background sites at five yearly intervals for biological community metrics and surficial sediment characteristics (texture and chemistry).

14.3.3 Kororā Management and Monitoring Plan

A high level of management is proposed in order to avoid adverse effects on kororā and managed effects on kororā habitat. This will be addressed by way of a Twin Berths Kororā Management and Monitoring Plan (TBKMMP). The staged approach to the project means removal of the existing southern logyard revetment is unlikely to commence prior to 2024 providing the ability undertake further survey work to better understand any existing Kororā use of this section of the revetment. Site characteristics may also change in that intervening time and will need to be addressed in the TBKMMP. The proposed management approaches take into account seasonal variations and learnings from previous kororā management projects and will be incorporated in the TBKMMP.

It is proposed to prepare the TBKMMP for certification by Council prior to the commencement of the deconstruction and reconstruction of the southern logyard revetment. As detailed in the 4Sight Kororā AEE, the TBKMMP will:

- outline proposed monitoring of kororā within the construction footprint,
- identify measures to avoid adverse effects on kororā, including:
    - the timing of deconstruction works to take into account periods of the year when nesting and moulting is/is not occurring,
    - during construction, interventions to discourage use of the works area by kororā to avoid adverse effects,
    - the necessary requirements to avoid adverse effects if active burrows are identified in the works footprint at the time deconstruction is planned to occur, despite the interventions,
- outline protocols to manage non-breeding or moulting kororā within the works area during the construction period, and
- detail offset/compensation enhancements for the loss of any active burrows within the construction area, should that be unavoidable.

14.4 Archaeology and Heritage

The following mitigation measures are proposed to ensure the Proposal does not affect historic heritage values:

- An Archaeological Site Discovery Protocol will be adhered to during construction works to ensure that if any redeposited archaeological material is encountered during ground disturbance it is managed appropriately. This can be included as a condition of consent.
- No construction activity, dredging sediment or debris deposition will be permitted to occur within the identified area of the Boat Harbour or the identified 5 metre buffer between the Reclamation Area and the Boat Harbour. This minimum separation distance is reflected in the design plans and will be addressed in the construction management plan for the Project.

14.5 Cultural Values

The CVRF outline the values of importance to Iwi/Hapū. Strong themes of preservation, protection, regeneration and enhancement of the natural physical environment and the metaphysical world of Tangata Whenua and recognition that everything is interconnected resonate through the CVRF although each is very unique to the others. The platform that is Te Tai Uru has been fundamental to the understanding of cultural values as provided in CVRF but also through kanohi ki te kanohi engagement and the forging of mutual understanding and desires of the groups including those expressed by Eastland Port.

The mitigation measures listed in this section and previous sections of this AEE address potential effects on the environment to ensure these are managed to an acceptable level. Ongoing engagement is expected to occur throughout the process of notification to address any issues as they may arise which may not have been addressed through proposed mitigation measures.

14.6 Landscape, Natural Character and Visual Amenities

Mitigation of potential landscape effects is primarily by way of the Proposal design, which proposes use of appropriate materials that will be viewed as typical for coastal protection within a working port landscape.

Specific design elements identified in the 4Sight Landscape Assessment include the simplicity and sculptural appearance of the Xbloc units on mass, which will ensure that the coastal protection structure integrates well into this working coastal landscape. The repair, removal and upgrade of the existing breakwater structures, will also help to remedy the impact that the existing breakwater structures have on this coastal landscape, through upgrade with appropriate materials. Finally, the extension to Wharf 8 and the additional area of reclamation within the Southern Logyard have been designed to ensure that they appear as integrated constructed elements of the Port as a whole and not incongruous.

14.7 Transportation

In order to appropriately mitigate actual and potential traffic effects, the following measures are to be incorporated into the construction and operational phases of the Proposal:

- Eastland Port will continue to participate in discussions with Waka Kotahi regarding the timing of its upgrade of the SH35/Hirini Street intersection, which is already operating at or beyond its capacity at peak times;
- A construction traffic management plan (CTMP) will be prepared and implement to detail and manage construction effects. This will need to be prepared and certified when the contractor is appointed, and the construction methodology is known and can be required as a condition of consent. If necessary, this may include the implementation of part-time or full-time temporary traffic management controls at the SH35/Hirini Street intersection to manage safety and efficiency effects.
- An operational traffic management plan (OTMP) will be prepared to detail and manage operational traffic and parking effects. This can be required as a condition of consent will include (but not be limited to) the following details:
    - The provision of at least one accessible parking space for people with disabilities.
    - Supply of at least 14 cycle parking spaces;
    - The overall approach to access, parking, and circulation with the Proposal completed (similar to the existing internal TMP); and
    - Measures to manage and minimise potential safety and efficiency effects on external transport network.

14.8 Noise and Vibration Effects

14.8.1 Construction Noise and Vibration Management Plan (CNMP)

The Marshall Day Twin Berths Construction Noise Assessment recommends two conditions of consent to manage the effects of construction noise. The first is compliance with construction noise standards in accordance with *NZS6803:1999 Acoustics: Construction Noise*. The second mitigation measure is the requirement for the preparation of a CNMP to provide ''*adequate mitigation for airborne noise, vibration, and underwater noise.*

The plan should include:

- *Performance Standards*
- *Predicted noise levels for relevant equipment and /or activities*
- *Construction noise mitigation and management strategies*
- *Noise monitoring requirements, with triggers and feedback mechanisms; and 'Communication, consultation and complaints response procedures*

Where practical and appropriate, specific measures which can be employed to reduce or manage the effects of underwater noise include:

- *Using a wooden (preferable) or plastic hammer cushion for the steel piles;*
- *Consideration of a bubble curtain to mitigate piling noise*
- *Undertaking visual monitoring during piling operations to identify any marine mammals in the area*
- *Not start piling if a marine mammal is identified within the TTS zones identified in Section 7.4.2 (subject to verification through monitoring)*
- *Using 'soft starts' (gradually increasing the intensity of impact piling) and minimising duty cycle; and*
- *Implementing low power shut down procedures when a marine mammal is identified within the TTS zoned identified in Section 7.4.2 (subject to verification through monitoring).*

14.8.2 Port Noise Standard & Proposed Operational Noise Management Plan

The Marshall Day Operational Noise Assessment report recommends that a Port Noise Management Plan (NMP) be developed to complement the proposed Port Noise Control Boundaries and associated planning restrictions. The Port Noise Standard states: "*The need for a management plan recognises that noise levels adjacent to the port may at times be higher than desirable."* The Port Noise Standard provides guidance on the development and application of an NMP to "*ensure that emissions of noise from port activities is minimised, consistent with practicality, safety and the efficient operation, use and development of the ports*".

Eastland Port have commissioned Marshall Day to prepare a NMP for the Outer Port Area. A draft NMP plan is to be provided to Council staff/consultants and other interested parties during processing of the applications and finalised before any Council hearing is held. The Marshall Day report states that the *draft NMP is expected to cover the Twin Berths operations, Wharves 6 & 7 and the Wharfside logyard areas.*

The NMP will include the following:

- *The relevant noise limits*
- *Operator and staff training*
- *Equipment selection*
- *General measures*
- *Safety/Reversing Alarms*
- *Night-time Activities*
- *Noise Monitoring*
- *Community Engagement*

14.9 Navigation and Safety

As detailed in Section 13 of this AEE, a number of navigation and safety legislative and bylaw provisions apply to the operation of watercraft in and around the Port and will continue to apply during the various construction and operational phases of the development:

The Construction Management Plan will cover any additional navigation and safety arrangements required during the construction process. They will depend on the extent of CMA, as opposed to land based, construction equipment and machinery.

14.10 Construction Management Plan

A Construction Management Plan (CMP) is to be prepared covering management of the site and compliance with health and safety, noise, vibration and other requirements.

The CMP is expected to be similar to that prepared for Wharves 6 and 7 and Slipway redevelopment projects and subject of associated resource consent conditions in the Environment Court decision. Additional detail is anticipated in relation to the Outer Port reclamation, to reflect the nature and scale of construction activities in this location and the proximity of the reclamation to the heritage boat harbour and Kaiti reef.

The CMP will complement and incorporate the more specific management plans to be prepared in relation to construction noise and traffic effects, silt and sediment control, management of contaminated soil (the SMP) and management of effects on kororā (the TBKMMP).

The CMP is expected to focus on mitigating possible adverse effects on the following activities, habitats and values:

- Control of sediment loss to the CMA from the filling of 'reclamation' areas and measures to minimise the exposure of the rock fill to wave action and hence minimise generation of fine sediments
- Control and monitoring of construction noise received in nearby waterfront commercial, historic and recreation reserve areas (to be addressed in more detail in the construction noise management plan discussed above).
- Management and monitoring of heavy traffic use of the SH 35 (Wainui Rd) – Hirini St intersection and other roads in the port area (to be addressed in more detail in the construction traffic management plan discussed above).
- Work protocols for possible accidental discovery of archaeological and/or cultural sites
- Control of recreational boat navigation and safety near construction activities.
- Control of sediment loss to the CMA as a result of disturbance of the seabed around the wider construction site, placement of construction material into the CMA and runoff from land-based activities.
- Heritage boat harbour and associated separation distances.
- Management of contaminated material to avoid human health and environmental effects (to be addressed in more detail in the SMP discussed above).

14.11 Proposed Operational Environmental Management Plan

The future operation of the extended Wharf 8 and Outer Port reclamation area is to be the subject of an Eastland Port prepared Operational Environmental Management Plan (OEMP). The OEMP is expected to be similar to that currently being prepared for Wharves 6 and 7 and Slipway. One OEMP is proposed for the combined Wharf 8 extension and Outer Port reclamation areas as their future use will be intricately linked.

The OEMP requirements are expected to be detailed in the resource consent conditions consistent with previously approved consent decisions.

The following matters will be covered:

- Bark and other debris management
- Dust control
- Noise emissions and monitoring
- Traffic management
- Site security
- Preconstruction checking/recovery of any Kororā, seal and other significant species.
- Stormwater system maintenance and monitoring
- Environmental incident recording and reporting
- Complaints recording and reporting
- Liaison with Te Tai Uru and the PCLG.

15 NOTIFICATION OF APPLICATION

15.1 Public Notification Assessment

Section 95A of the RMA requires a council to follow specific steps to determine whether to publicly notify an application.

Step 1: Mandatory public notification in certain circumstances

An application must be publicly notified if, under section 95A(3), it meets any of the following criteria:

(3) (a) the applicant has requested that the application be publicly notified:

(b) public notification is required under section 95C:

(c) the application is made jointly with an application to exchange recreation reserve land under section 15AA of the Reserves Act 1977.

Eastland Port Ltd are requesting public notification of the Proposal. This is because of the scale of the project, the Council decision to publicly notify the Wharfside logyard, Wharves 6 and 7 and Slipway redevelopment applications, along with the expected public interest in the applications. The applications must be notified, and the remaining steps of section 95A are not applicable.

Notification of the applications is being proposed notwithstanding that there is no Tairāwhiti Plan rule or national environmental standard that requires public notification of the activities which, as outlined earlier in this report are primarily of a controlled, restricted discretionary or discretionary nature.

15.2 Ngā Rohe Moana o Ngā Hapū o Ngati Porou Act

General Overview

The Ngā Rohe Moana o Ngā Hapū o Ngati Porou Act 2019 (Ngati Porou Act) came into force on 29 May 2019. As noted in Section 2, the Ngati Porou Act gives effect to a legal agreement between the Crown and Ngati Porou and is intended to contribute to the legal expression, protection and recognition of the continued mana of Ngati Porou Hapū in relation to their rohe.

Section 16 contains specific provisions relating to the processing of resource consent applications by the Council under the RMA. These provisions are in turn linked to Schedules 2 and 3 that describe and illustrate the rohe of Ngati Porou Hapū.

Ngāti Oneone Recorded Interests in the Port Area

Schedule 2 and Part 7 identify Ngāti Oneone as the Hapū with management interests in the area from Tokā a Taiau (in the Turanganui River) to the Pouawa River. This rohe, which is shown on the Schedule 3 map reproduced in **Figure 122**, includes the inner harbour and port area.

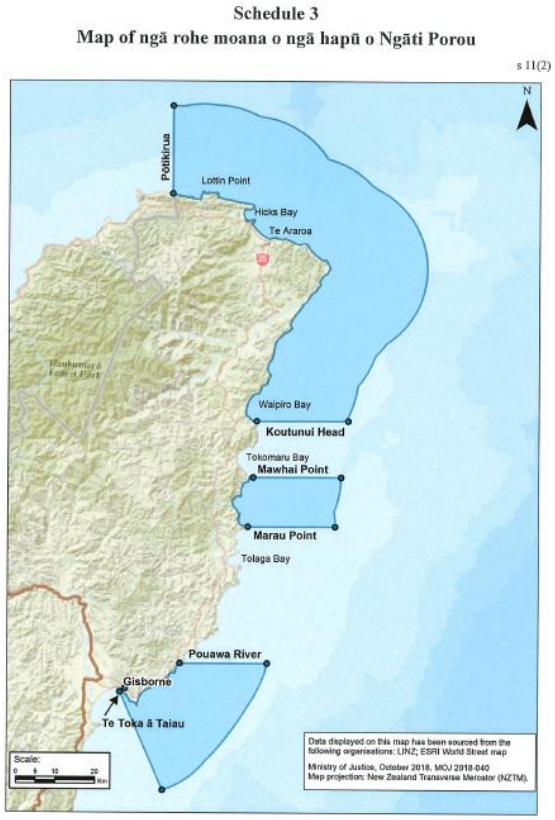


Figure 122: Ngati Porou Act Map of Hapū Rohe

Council Obligations

Section 16 requires the Council to notify Ngāti Oneone of any application that involves 'an activity within, adjacent to or directly affecting' a Hapū rohe and is being processed in a limited or non-notified manner. Alternatively, if public notification of an application is to be undertaken by the Council, notification of the application to Ngāti Oneone is required.

The Twin Berth project applications involve activities within the Ngāti Oneone rohe. On this basis the Council is required to notify Ngāti Oneone, under Section 16 and related Schedule 2 and 3 provisions in the Ngati Porou Act.

15.3 Crown Statutory Acknowledgements

Background

The Tairāwhiti Plan along with the Council's Ngā Whakaaetanga ā Ture mō Te Tairāwhiti (January 2013) report, which is an addendum to the plan, outline the Crown statutory acknowledgements in place with iwi in the Gisborne District.

Statutory acknowledgements are a formal acknowledgement by the Crown of the mana of tangata whenua over a specified area. It recognises the particular cultural, spiritual, historical and traditional association of an iwi with the site, which is identified as a statutory area. Statements of statutory acknowledgements are set out in Treaty of Waitangi claim settlement legislation.

Statutory Acknowledgment Areas Including and Adjacent to the Port and Offshore Disposal Ground

The Council report records the different statutory acknowledgements in place with three local iwi, being Ngati Porou (3), Rongowhakaata (8) and Ngai Tamanuhiri (2), along with relevant sections of the associated Ngati Porou Claims Settlement Act 2012, Rongowhakaata Claims Settlement Act 2012 and the Ngai Tamanuhiri Claims Settlement Act 2012.

The following statutory acknowledgments include areas within the port and OSDG subject to the current Proposal:

- Ngati Porou Statutory Acknowledgement for the Turanganui River and Waimata River.

- Rongowhakaata Statutory Acknowledgement for the Turanganui River.
- Rongowhakaata Statutory Acknowledgement for the Coastal Marine Area.

The following statutory acknowledgments include areas adjacent to the port and OSDG:

- Rongowhakaata Statutory Acknowledgement for the Waipaoa River.
- Rongowhakaata Statutory Acknowledgement for the Waikanae Creek.
- Nga Tamanuhiri Statutory Acknowledgement for the Waipaoa River.
- Nga Tamanuhiri Statutory Acknowledgement for the Coastal Marine Area.

Maps showing the statutory acknowledgment areas relevant to the port and OSDG are included in **Figure 123, Figure 124 and Figure 125** below.

Statutory acknowledgements affect the Council's processing of resource consent applications under respective Claims Settlement Acts and the RMA including in the following ways.

Claims Settlement Act Provisions Regarding Summaries of Resource Consent Applications to be Provided to Iwi Holding Statutory Acknowledgement Prior to Making any Notification Assessment

Under the respective Claims Settlement Acts the Council is required to forward summaries of resource consent applications to the relevant iwi for activities 'within, adjacent to or impacting directly' on any statutory acknowledgment area as soon as reasonably practicable after the consent authority has received the application, and prior to making any determination as to notification of the application.

Claims Settlement Act Provisions Regarding Submissions on Applications by Iwi Holding Statutory Acknowledgement

Under the respective Claims Settlement Acts the relevant iwi governance entity and any member of that iwi may cite a statutory acknowledgement as evidence of association with the area in any resource consent application proceedings concerning activities within, adjacent to or impacting directly on any statutory acknowledgement area.

Figure 123: Council Map of Ngati Porou Turanganui River Statutory Acknowledgment Area

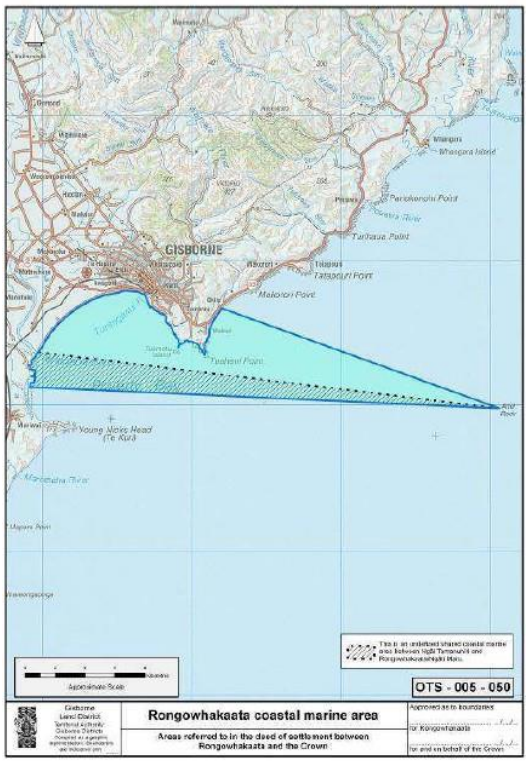


Figure 124: Council Map of Rongowhakaata Coastal Marine Area Statutory Acknowledgement Area

Figure 125: Council Map of Nga Tamanuhiri Coastal Marine Area Statutory Acknowledgement Area

16 STATUTORY ASSESSMENT

The following section analyses the relevant statutory provisions that apply to the application and the locality. These are the provisions of the Resource Management 1991 and associated policies and documents that relate to resource consents. The RMA sets out the statutory framework, within which resources are managed in New Zealand. The framework sets out a hierarchy of tests that must be passed in order for resources to be utilised, either on a temporary or permanent basis. Section 104 of the RMA sets out the matters for consideration when assessing a resource consent.

Section 104(1) requires that when considering an application for a resource consent, the consent authority must have regard to:

(a) any actual and potential effects on the environment of allowing the activity; and

(ab) any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from allowing the activity; and

(b) any relevant provisions of—

(i) a national environmental standard:

(ii) other regulations:

(iii) a national policy statement:

(iv) a New Zealand coastal policy statement:

(v) a regional policy statement or proposed regional policy statement:

(vi) a plan or proposed plan; and

(c) any other matter the consent authority considers relevant and reasonably necessary to determine the application.

These matters are addressed below, and all are subject to Part 2 of the Act. An assessment of the relevant statutory documents that corresponds with the scale and significance of the effects that activity may have on the environment has been provided below.

Overall, the proposal is to be considered as a discretionary activity. Section 104B states that a consent authority may grant or refuse an application for a discretionary activity. If it grants consent, conditions may be imposed under section 108 of the Act.

16.1 Actual or Potential Effects on the Environment

Section 104(1)(a) requires the consent authority to have regard to 'any actual and potential effects on the environment of allowing the activity'.

As assessed in Sections 14 and 15 above, it is concluded that the actual and potential effects of the proposal will be less than minor.

In addition, the following positive effects have been identified:

- The construction and operation of the Proposal will have positive economic effects on the regional economy, including through employment, the purchase of goods and services, economies of scale, greater competition and increased resource utilisation.
- The Proposal will improve the efficiency and capacity of the existing Port facilities. It will facilitate an increase in the diversity of trades through the Port and increase its resilience in terms of safeguarding the large log trade and possible loss of business to other ports.
- The Proposal will improve the resilience of the Port to natural hazards, particularly through the upgrades to the outer breakwater and design of the new outer revetment to enclose the reclamation.

- The proposal will improve navigational safety for both port users and commercial / recreational users of the inner port / marina areas.
- The Proposal will improve the quality of stormwater discharges from the Southern Logyard by upgrading the existing stormwater treatment system to provide a higher level of treatment and greater treatment capacity, that ensures all runoff is directed through the treatment train. This will reduce the potential for adverse effects on water quality in the receiving environment.
- The design of the upgraded outer breakwater and reclamation revetment will provide enhanced sub-tidal and inter-tidal habitat that is expected to result in positive ecological effects in the long term.

It is considered that on balance, any actual or potential effects arising from the proposal will be positive and any adverse effects will be less than minor.

16.2 Measures to Offset or Compensate Adverse Effects

Section 104(1)(ab) requires that the consent authority consider "any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from allowing the activity".

As detailed in section 15 of this application, if active kororā burrows are identified in the TBP Outer Seawall, appropriate management and offsetting / compensation of the loss of habitat will be required. Sufficient enhancement opportunities exist in the adjoining buffer seawall section adjacent to the TBP Outer Seawall and any such enhancement will be addressed and described in the TBKMMP, which is proposed to be provided as a condition of consent.

16.3 National Environmental Standards

Due to the history of land reclamation and Port activities, the site is a HAIL site. The NES-CS is relevant to the removal of parts of the existing Southern Logyard revetment and the disturbance of soil within the southern logyard for the purpose of upgrading the existing stormwater treatment system. As detailed in Sections 14 and 15 of this AEE, all relevant matters of control set out in Regulation 9(2) of the NES-CS are met, including that the DSI has been undertaken by a SQEP in accordance with the relevant MFE Contaminated Land Management Guidelines and industry best practice and is considered to appropriately characterise residual contaminants present at the site. All intrusive works will be appropriately managed in accordance with industry best practice, the relevant national guidance, and in accordance with protocols set out in the CSMP, to ensure that the potential adverse human health and environmental effects will be appropriately managed. There are no objectives and policies under the NESCS against which the proposal can be assessed.

16.4 Other Regulations

Under the Resource Management (Marine Pollution) Regulations the disposal dredge material from capital and maintenance dredging activities to the OSDG is deemed to be a discretionary activity in the Tairāwhiti Plan.

Section 5 – Assessment Criteria

Section 5 (1) requires that every coastal permit application to dump waste or other material in the CMA include the information listed in Schedule 3- Part 1- Additional Matters to be Included in Application under Section 88.

Part 1 contains eight sections (1-8), several of which contain very detailed requirements. The required information is generally of a port engineering, coastal processes or ecological/water quality nature and contained in the appended Worley, MetOceans and 4Sight specialist reports.

The Worley Capital and Maintenance Dredging and Disposal Report contains information on 'reuse' and 'disposal to land' (Section 5) along with the 'potential effects of land-based options' (Section 7).

The MetOceans reports describe the 'physical and chemical characteristics of the water column and seabed' and 'constituent fluxes' (Section 6). Sections 3-6 of the 4Sight Ecology & Water Quality Report document the 'biological characteristics of the water column and seabed', and the 'values and uses of the sea in the area under consideration.'

Section 5(2) requires the Council in processing the OSDG applications to have regard to the Schedule 3 - Part 1 matters, along with the matters listed in Part 2- Additional Matters to be Considered by Consent Authority.

Part 2 directs the Council to consider consent conditions on four matters, being "*the types of material to be dumped, the location of the dump site, method of dumping, and monitoring and reporting requirements*." All four matters are expected to be the subject of consent conditions, as outlined in this AEE. The draft monitoring/reporting consent conditions are based on associated proposals/recommendations in the appended expert reports.

Section 7- Record Keeping

Section 7 requires all holders of disposal permits to keep records of the source of the material, location of the disposal site, method of disposal and quantity of material disposed of.

The records are to be provided to the Director of Maritime NZ by 1 February each year. As this matter is covered by the regulations, an advice note on this matter, rather than a consent condition, is being proposed.

16.5 NZ Coastal Policy Statement

The current NZCPS came into force in December 2010. The purpose of the NZCPS is "*to state policies in order to achieve the purpose of the Act in relation to the coastal environment of New Zealand."*

Applicable Objectives and Policies

The following NZCPS are considered to be most relevant to the Proposal:

- The Objectives on the biological and physical processes (1), natural character (2), Treaty of Waitangi principles (3), public open space and recreation (4), use and development of the coastal environment (6).
- The Policies on the Treaty and related matters (2), activities in the coastal environment (6), ports (9), reclamation (10), indigenous biological diversity (11), preservation of natural character (13), restoration of natural character (14) surf breaks of national importance (16), historic heritage identification and protection (17) sedimentation (22) and discharge of contaminants (23).

Objective 5 on climate change based natural hazards is of some relevance in terms of recognising the effects of sea level rise on design of the extended port and its future operation. Objective 7 on recognising New Zealand's international obligations regarding the coastal environment is of limited relevance to the project.

Objective and Policies on Biological and Physical Processes, Indigenous Biodiversity, Sedimentation and Discharge of Contaminants

Objective 1 seeks to "*safeguard the integrity, form, function and resilience of the coastal environment and sustain its ecosystems*" by:

- '*maintaining or enhancing natural biological and physical processes*',
- '*protecting representative or significant ecosystems and sites of biological importance'* and
- '*maintaining coastal water quality and enhancing it where it has deteriorated.*'

The directives on 'significant ecosystems' and 'sites of biological importance' are refined in relation to the underlying Policy 11.

Policy 11 of the NZCPS is directed at the protection of indigenous biological diversity in the coastal environment. Policy 11(a) requires the avoidance of adverse effects of activities on six biological elements; specifically:

i. indigenous taxa that are listed as threatened or at risk in the New Zealand Threat Classification System Lists;

ii. taxa that are listed by the International Union for Conservation of Nature and Natural Resources as threatened;

iii. indigenous ecosystems and vegetation types that are threatened in the coastal environment, or are naturally rare;

iv. habitats of indigenous species where the species are at the limit of their natural range, or are naturally rare;

v. areas containing nationally significant examples of indigenous community types; and

vi. areas set aside for full or partial protection of indigenous biological diversity under other legislation.

The New Zealand threat classification of Kororā is 'at risk-declining'. A detailed assessment of effects on Kororā and Kororā habitat is set out in the 4Sight Kororā AEE. This concludes that direct ecological effects on kororā are expected to be very low, with all effects being assessed as 'negligible', with the exception of disturbance where the magnitude of effect is considered to be 'low but temporary'. This assessment relies on the proposed TBKMMP, which is proposed to be included as a condition of consent. In accordance with case law on NZCPS policies, effects that are temporary or transitory are unlikely to be needed to be considered under an 'avoid' requirement.[4] Accordingly, the proposed management of, and effects on, Kororā is consistent with Policy 11(a). The Kororā habitat that will be disturbed by the Proposal is the existing SLY revetment and is not habitat that is specifically protected by the Policy 11(a) criteria.

Part (b) of Policy 11 requires 'significant adverse effects be avoided' and 'other effects be avoided, remedied or mitigated' on six further specified areas/habitats (Clauses i- vi). The following assessment is drawn from Section 5 of the 4Sight Ecology report and the 4Sight Kororā AEE (as relevant):

Clause (i): Areas of predominantly indigenous vegetation in the coastal environment.

None of the affected areas contain a predominance of indigenous vegetation (such as seagrass or kelp beds). Common marine alga utilise parts of the Outer breakwater subtidal area (which is modified), but they are likely to recover following the breakwater upgrade. On this basis this clause is met.

Clause (ii): Habitats in the coastal environment that are important during the vulnerable life stages of indigenous species.

All indigenous marine life is potentially 'vulnerable' at some point in its life cycle and the habitats occupied at those times can be considered 'important'. However, at a population scale, the habitat affected by the Proposal is unlikely to be 'important', unless there are specific species which have an obligatory need to use it, rather than any other area beyond or more widely available. Furthermore, the development 'footprint' is, for the most part, manmade, highly developed or influenced by existing port activities. In this context, no 'vulnerable' indigenous marine species have been identified in the ecology field work or are considered likely to be present. This clause is also met for marine species.

Actual and potential effects on potential Kororā habitat in the Southern logyard seawall have been assessed in the 4Sight Kororā AEE. That reports concludes that such effects are likely to be low, unless active burrows are found to be present in the proposed pre-construction monitoring, in which case the effects are assessed as 'moderate' (which is generally understood to be less that the NZCPS Policy 11(b) threshold of significant. This potential 'moderate' effect will be addressed by way of the TBKMMP, which provides for both monitoring and compensation/enhancement of immediately adjoining higher quality Kororā habitat, and is expected to reduce the level of effects to low, with the potential for an overall net gain. Consequently, there are no 'significant' effects that are inconsistent with NZCPS Policy 11(b).

Clause (iii): Indigenous ecosystems and habitats that are only found in the coastal environment and are particularly vulnerable to modification, including estuaries, lagoons, coastal wetlands, dunelands, intertidal zones, rocky reef systems, eelgrass and saltmarsh

No significant natural intertidal areas or significant rocky reef systems are affected, and this clause is not 'triggered'.

Clause (iv): Habitats of indigenous species in the coastal environment that are important for recreational, commercial, traditional or cultural purposes

None of the affected habitats (natural or man-made) are 'important' recreationally or commercially, being very difficult to access. Notwithstanding that it is created habitat, the Outer Breakwater hosts a population of juvenile crayfish. Effects on the crayfish population are likely to be short term and to recover once the breakwater upgrade is completed. The post development habitat is expected to be considerably more extensive for crayfish given that subtidal parts of both the Outer breakwater and the Outer Port reclamation revetment will have approximately 60% voids.

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4 *Environmental Defence Society Inc v New Zealand King Salmon Company Ltd* [2014] NZSC 38, at [145].

Several important habitats near to the Proposal have been identified in the CIA. However, none of these are expected to be adversely affected by works associated with the Proposal, including dredge spoil disposal. This criterion is therefore assessed as being met.

Clause (v): Habitats, including areas and routes, important to migratory species

None of the affected habitats, areas or routes are likely to be 'important' to migratory species in the context of this clause. It is unknown if the Outer breakwater is used by crayfish as a transit route between settlement in the port and wider reef areas. In any event, that habitat potential will not be lost as the facility is to be expanded, not lost. This criterion is therefore assessed as being met.

Clause (vi): Ecological corridors, and areas important for linking or maintaining biological values identified under this policy

The importance, if any, of the breakwater to the local crayfish populations is largely unknown. However, it indicates that proposed upgrade will preserve any corridor or linking role it may have.

In summary the 4Sight Kororā AEE together with the 4Sight ecology report find that the Proposal, including its mitigation measures, are consistent with Policy 11 and that all adverse effects on threatened species will be avoided and other adverse effects on matters listed in 11(b) will not be significant. Effects on indigenous biological diversity will be temporary in nature associated with the construction period and/or can be appropriately avoided, remedied or mitigated.

The Worley and MetOceans reports address the effects of the project on physical (or coastal) processes. Although they recognise that the capital dredging and additional/extended port facilities will alter sediment transport and other physical processes the report findings show that the effects will be of a 'minor' nature and Objective 1 will be met.

Policy 22- Sedimentation, is primarily directed at land-based development activities that give rise to sedimentation in coastal waters. In terms of Policy 22(1) Eastland Port regularly monitors, through the annual hydrographic surveys, sedimentation levels in the port and 'their impacts on the coastal environment', notably port operations and the need for maintenance dredging.

Eastland Port also regularly monitors sediments levels in the logyard stormwater discharges in accordance with this clause. In terms of Policy 22(2) the Proposal has been designed to 'not result in a significant increase in sedimentation to the CMA'. The CMPs for each project component, along with the associated effects monitoring programmes, will ensure this policy is met. Clause (3) relating to forest harvesting effects is not applicable.

Policy 23 – Discharge of Contaminants, has five parts, with only Policy 23(1), (4) and (5) being applicable to the Proposal. Policy 22(1) relates to discharges generally and applies to both the temporary discharges associated with construction, dredging and dredge spoil disposal. Policy 22(4) is directed at stormwater discharges, whilst Policy 22 (5) is specific to discharges (all) from ports and other marine facilities. The 4Sight ecology report findings indicate that all three clauses will be met.

Objective and Policies on Natural Character, Natural Features and Natural Landscapes

Objective 2 is directed at preservation of the natural character of the coastal environment and protection of natural features and landscape values through:

- recognising the characteristics and qualities that contribute to natural character, natural features and landscape values and their location and distribution;
- identifying those areas where various forms of subdivision, use, and development would be inappropriate and protecting them from such activities; and
- encouraging restoration of the coastal environment.

The preservation directive is underpinned by Policy 13 – Preservation of Natural Character and expanded/refined further in Policy 14 – Restoration of Natural Character. Policy 15 – Natural Features and Natural Landscapes is also related to Objective 2 and the abovementioned policies.

Policy 13 – Preservation of Natural Character has two parts, both of which are applicable to the applications. Policy 13(1)(a) and (b) are directed at 'avoiding adverse effects in areas of outstanding natural character' and 'avoiding significant adverse effects and avoiding, remedying and mitigating other effects' on natural character in all other areas

(respectively). The port, OSDG and localised coastal landscape areas are not identified in the Tairāwhiti Plan, any published report or either the 4Sight Ecology or 4Sight Landscape assessments as being of either high or outstanding natural character so there is no possibility of adverse effects on areas with outstanding natural character.

As outlined in this AEE and the appended 4Sight Ecology and Landscape reports, the effects avoidance and mitigation measures built into the Proposal, will ensure that 'significant adverse effects on natural character are avoided' and that other adverse effects are appropriately avoided, remedied or mitigated such that Policy 13(1)will be met. In this context, the Proposal is assessed as not being 'inappropriate development' in terms of Policy 13(1).

Policy 13(2) notes that natural character is not the same as natural features/landscapes/amenity values and lists eight matters that may be included in the assessment. All of the matters listed have been assessed in the 4Sight ecology and landscape reports.

Policy 14 – Restoration of Natural Character, is relevant to parts of the Proposal, mainly the Outer Port reclamation, which is immediately adjacent to Southern logyard revetment wall. This is in terms of the associated Tairāwhiti Plan objectives and policies on 'degraded landscapes and ecosystems' noted later in this report, and the natural character benefits that would result from 'restoration or rehabilitation' of this area. There will be natural character benefits from the proposed restoration and enhancement of habitats along the new seawall and improved stormwater treatment across the Southern logyard, with associated reduction in adverse effects on water quality.

Policy 15- Natural Features and Natural Landscapes, like Policy 13, is in two parts, with Policy 15(a) directed at avoiding adverse effects on 'outstanding natural features and landscapes', and Policy 15 (b) directed at avoiding significant adverse effects and avoiding, remedying or mitigating other adverse effects on 'other natural features and landscapes.' Only the Policy 15 (b) directive applies to the Proposal as the works are not located within any areas of outstanding natural features or landscapes, as identified by the 4Sight Landscape assessment. As outlined above, the Proposal will not result in any 'significant adverse effects' on natural features or landscapes. The new facilities will all adjoin existing port structures, and every effort has been made through design to avoid, minimise or mitigate effects on the natural character of the seabed and intertidal edge in this part of the port.

Objective and Policy on the Treaty of Waitangi, Kaitiakitanga and Tangata Whenua

Objective 3 on the Treaty of Waitangi and tangata whenua involvement in decision making is underpinned by Policy 2, which lists seven treaty and related kaitiakitanga matters.

Policy 2(b) and parts of Policy 2 (c) (d) and (e) are directed at Council policy statement/plan preparation and are of limited relevance to the Proposal applications. Clauses (a), (f) and (g) are more resource consent oriented and applicable to the Proposal.

Eastland Port recognises the 'traditional and continuing relationships' the different iwi, hapū and whanau have with the port and wider area. These are fostered through Te Tai Uru and other direct engagement initiatives that are in accordance with Policy 2 (a). Through Te Tai Uru and on-going port related investigation and monitoring programmes, Eastland Port anticipates further opportunities for kaitiakitanga to be exercised in accordance with Policy 2 (f). In terms of Policy 2 (g) Eastland Port recognises the sensitive nature of the cultural sites in and around to the port area and for appropriate protocols to be in place relating to earthworks, stormwater discharges and other activities.

Objective and Policies on Public Open Space and Recreation, Surf Breaks and Walking Access

Objective 4 aims "*to maintain and enhance public open space qualities and recreational opportunities of the coastal environment*" by:

- recognising that the CMA is an extensive area of public space
- maintaining enhancing public walking access' and
- recognising the potential for coastal processes, including climate change, restrict public access.

The Proposal is consistent with this objective and the below policies on surf breaks of national importance, public open space and walking access.

Policy 16 – Surf Breaks of National Importance, refers to surf breaks listed in the schedule and is in two parts. Policy 16 (a) is directed at ensuring that activities in the coastal environment do not adversely affect listed surf breaks, whilst Policy 16 (b) is directed at avoiding adverse effects of other activities on access to and use and enjoyment of surf breaks. As outlined in the MetOcean and T + T reports, the Proposal will not have any noticeable adverse effects on

coastal processes in Tūranganui-a-Kiwa/Poverty Bay, including on the surfing wave dynamics at the listed surf break or accessibility to surf breaks.

Policy 18 – Public Open Space, directs that provision be made for public open space within and adjacent to the CMA and lists five opportunities for this. These include:

- maintaining and enhancing walking access linkages between public open spaces (Policy 18 (c)); and
- recognising the importance of esplanade reserve and strips in meeting open space needs (Policy 18 (e)).

As a working port with safety obligations to persons on site, there is currently no public access to the port and limited access to the adjacent areas of the CMA. That is because there are very real human health and safety risks with public access around or through the Outer Port and Proposal site. As outlined earlier, Eastland Port recognise the importance of the heritage boat harbour area to iwi and other parties and as such detailed consideration was given to providing public access to this area around the edge of the Southern logyard as part of the Proposal (in accordance with Policy 19(c). However, because Kororā utilise parts of the seawall structure, and in light of the health and safety risks to the public, access was not supported. On this basis the policy is met.

Policy 19- Walking Access, supports walking access to the coast, which as noted above was considered as part of the project but which was not included in the Proposal to both provide for public safety and minimise further impacts on Kororā. Policy 19(3) specifically recognises that 'restrictions on public walking access to, along or adjacent to the CMA' may be acceptable in specific circumstances, including:

- Policy 19(a) "*to protect threatened indigenous species;"* and
- Policy 19 (e) "*to protect public health or safety*".

On this basis it is considered that the Proposal's approach to public walking access is consistent with Policy 19.

Objective and Policies on Coastal Hazard Risks, Development and Use of Land

Objective 5 requires the effects of climate change be managed by locating new development away from risk prone areas, considering managed retreat and protecting or restoring natural defences. It is underpinned by Policy 25 that directs six matters be considered in areas of coastal hazard risk and Policy 27 which sets out strategies for protecting significant existing development from coastal hazard risk. As outlined in earlier sections of this AEE and the appended Worley and MetOceans reports, the effects of sea level rise, tsunami and other coastal hazards risks have been taken into account in the design and operation of the Twin Berth project facilities and the improvements to the port facilities will therefore directly contribute to compliance with Policy 25 and 27.

Objective and Policies on Economic and Social Wellbeing, Activities in the Coastal Environment, Ports and Reclamation

Objective 6 is "*To enable people and communities to provide for their social, economic, and cultural wellbeing and their health and safety, through subdivision, use, and development,* recognising eight particular matters. The following five matters are most pertinent to the project:

- *the protection of the values of the coastal environment does not preclude use and development in appropriate places and forms, and within appropriate limits;*
- *some uses and developments which depend upon the use of natural and physical resources in the coastal environment are important to the social, economic and cultural wellbeing of people and communities;*
- *functionally some uses and developments can only be located on the coast or in the coastal marine area;*
- *the protection of habitats of living marine organisms contributes to the social, economic and cultural wellbeing of people and communities;*
- *historic heritage in the coastal environment is extensive but not fully known, and vulnerable to loss or damage from inappropriate subdivision, use and development. "*

Policy 6 – Activities in the Coastal Environment, Policy 9 – Ports, and Policy 10 – Reclamation and De-reclamation are related to Objective 6 and applicable to the Proposal. They are generally of an enabling nature as set out below. Objective 6 directs that development in appropriate places and forms not to be precluded, and recognises that some uses, such as ports, have a functional need to locate on the coast, and depend on the use of natural and physical

resources in the coastal environment. As such their contribution to community wellbeing is recognised in this objective.

Policy 6 – Activities in the Coastal Environment, has two parts. Policy 6(1) lists ten matters that are to 'be recognised, considered or taken into account' in relation to the 'coastal environment', whilst Policy 6 (2) lists a further five additional matters specific to the CMA.

Policy 6(1)(a), which recognises that the provision of infrastructure in the coastal environment is important to the social, economic and cultural well-being of people and communities, is of direct relevance to the Proposal. Policy 6(1)(h) requires consideration be given to avoiding adverse visual impacts of development in areas sensitive to such effects. As detailed in the 4Sight Landscape assessment, the new facilities will be viewed in the context of existing Port structures and will not significantly change the existing visual impression of the site as an active Port. The location of the works means there will be no adverse effects on sensitive headlands or ridgelines, such that the Proposal is consistent with this policy. Policy 6(1)(j) encourages the buffering of areas and sites of historic heritage value, where appropriate. This is achieved by the proposed 5m buffer between the proposed reclamation and the heritage boat harbour.

Policy 6 2(a) directs consideration of the potential contributions to the social, economic and cultural wellbeing of the community from 'use and development of the CMA'. Policy 6(2)(c) recognises that some activities have a 'functional need' to be within the CMA, and that such activities should be provided for in appropriate places. This provision is directly relevant to the situation with the Proposal, given the port has a functional need to be in the coastal location and at the location of existing port facilities and transport links.

Policy 9- Ports, requires recognition of the importance of "*a national network of safe ports, servicing national and international shipping with efficient connections with other transport modes ....*" and has two related directives. Policy 9(a) requires that 'other' (non- port related) activities in the coastal environment do not adversely affect 'the safe and efficient operation of ports.' This clause is primarily applicable to the port occupation permit application, which is directed at controlling public access in and around the port, and in particular the VTB and wharf berths, but also is indicative of the need to consider the context in which other development around the port should be considered with respect to its sensitivity to effects from an active port. Policy 9(b) directs appropriate provision be made in regional policy statement and plans for "…. *The efficient and safe operation of ports and the development of their capacity for shipping, and their connections with other transport modes."* The Tairāwhiti Plan provides for the ongoing development and use of Gisborne Port through the site-specific Port B zone, Port CMA, the OSDG and associated policies and rules. The Proposal is to be largely undertaken within the defined Port zone and Port management area, other than the southern part of the Outer Port reclamation that is in the General CMA, as outlined earlier in this report.

Policies 10(1)-(3) - Reclamation are particularly relevant to the Proposal and are considered below. Policy 10 seeks to avoid reclamation of land in the coastal marine area unless specified criteria relating to need and significant benefit are met, including the extent to which it would allow infrastructure to operate efficiently. As detailed below, the Proposal is considered to clearly meet these criteria. Where a reclamation is considered to be a suitable use of the coastal marine area, Policy 10 requires decision-makers to have particular regard to a range of potential effects that may arise from the proposed reclamation's form and design. As detailed below, the form and design of the reclamation has been developed to avoid, minimise or mitigate adverse effects to the extent practicable such that these design related criteria are also met. Policy 10 also requires particular regard be given to the extent to which the reclamation and its intended purpose would provide for the efficient operation of infrastructure. In this case, the purpose of the reclamation is to enable access to the proposed new Wharf 8 and is necessary to enable the improved efficiency of the Port sought by the Proposal.

Policy 10(1) where Reclamation need not be avoided

Policy 10(1) reads as follows:

(1) Avoid reclamation of land in the coastal marine area, unless:

(a) land outside the coastal marine area is not available for the proposed activity;

(b) the activity which requires reclamation can only occur in or adjacent to the coastal marine area;

(c) there are no practicable alternative methods of providing the activity; and

(d) the reclamation will provide significant regional or national benefit.

(a) Availability of Land Outside the CMA

Section 5.2 of the Eastland Port Twin Berths Assessment of Alternatives report notes that in relation to Clause (a) it is not feasible to operate an extended Wharf 8 without an associated Outer Port reclamation. For the extended Wharf 8 to operate safely and effectively logging trucks need to access it through the proposed reclamation.

The Wharf 8 extension will primarily be used for the loading and unloading of log vessels and other craft. As noted in the Eastland Port report there is inadequate wharf space available to accommodate Handymax vessels and there is no other land in the port area that can be utilised.

The reclamation component of the Outer Breakwater upgrade clearly is not able to be accommodated on land. There simply is no available land next to the breakwater that can be used. Any upgrade that extends above MHWS inevitably involves some form of reclamation.

(b) CMA Dependent Activity

The Clause (b) requirement that 'the activity which requires reclamation can only occur in or adjacent to the CMA' is met. All of the Wharf 8 extension and Outer Port reclaimed land will be used for servicing vessels moored at the extended Wharf 8 and associated vehicle access for vessel loading and unloading. As above, the Outer Breakwater can only be re-armoured seawards into the CMA. As such a form of reclamation is involved, even though there is no intention to 'form additional land' for port use. The 'additional land' created here will simply serve a port protection function.

(c) No Practicable Alternatives

The Clause (c) requirement that 'there are 'no practical alternative methods' is also tied to the above matters and is covered in the Eastland Port Twin Berth Project Alternatives Assessment Report and section 3 of the Worley Eastland Port Reclamation, Wharf 8 Extension and Outer Breakwater Engineering Report. The report highlights the combination of extremely difficult engineering design/construction driven by geological conditions, and protection requirements given the very exposed/high energy wave location emphasised by the size of armour units required for the revetment and breakwater.

Possible alternatives, notably a deck type structures for the Outer Port reclamation, are not practical given these challenges and the need to maintain adequate sea defences to port operational areas this alternative would not provide. The Worley report also discusses the possible use of alternative armouring products, primarily rock as distinct from concrete, for the Outer breakwater upgrade and proposed reclamation. It finds that the quantity of rock of appropriate size and quality is not locally available.

(d) Regional Benefits

The Clause (d) requirement that reclamations 'provide significant regional or national benefit' is also met, this is tied to the Assessment of Economic Effects Report by Brown Copeland and Co Ltd. All three reclamations are integral components of the Proposal and without them Wharf 8 will continue to underperform and not serve the regions shipping needs. This matter is explained in detail in section 2 of the Eastland Port Twin Berths Alternatives Assessment Report but is outlined in three key objectives of the project in the same report being to:

1. Provide necessary upgrades to ageing port infrastructure to provide suitable resilience to natural hazards,
2. Increase the export capacity to cater to forecast export wood resource volumes, and
3. Provide future opportunity for regional exports and other activities from the Eastland Port.

Section 4 of the Alternatives Assessment Report discusses the 5 options considered to increase shipping capacity. Option 3 would result in the 3 key objectives being realised where shipping capacity to accommodate forecast forestry exports, and the ability to provide for 2 vessels (185m+200m) simultaneously would result in maximisation of Port infrastructure to be utilised to its full potential, allowing other forms of import-export to be realised in Tairāwhiti.

Policy 10(2) on Reclamation Form and Design

Part 2 lists seven matters that 'suitable' reclamations are to 'have particular regard to' with respect to their form and design. It reads as follows:

(2) Where a reclamation is considered to be a suitable use of the coastal marine area, in considering its form and design have particular regard to:

(a) the potential effects on the site of climate change, including sea level rise, over no less than 100 years;

(b) the shape of the reclamation, and, where appropriate, whether the materials used are visually and aesthetically compatible with the adjoining coast;

(c) the use of materials in the reclamation, including avoiding the use of contaminated materials that could significantly adversely affect water quality, aquatic ecosystems and indigenous biodiversity in the coastal marine area;

(d) providing public access, including providing access to and along the coastal marine area at high tide where practicable, unless a restriction on public access is appropriate as provided for in policy 19;(e) the ability to remedy or mitigate adverse effects on the coastal environment;

(f) whether the proposed activity will affect cultural landscapes and sites of significance to tangata whenua; and

(g) the ability to avoid consequential erosion and accretion, and other natural hazards.

The matters listed, in summary, are effects of climate change, visual appearance, use of 'clean' (not contaminated) material, provision of public access, remedy or mitigate adverse effects, avoidance of cultural sites/landscapes, and avoidance of natural hazards. All of the matters listed have been 'had regard to' in the form and design of the proposed reclamations.

The Worley report (section 7.4.1 – 7.4.3) effectively covers Clauses (a), (c), and (g). The report findings on the matters were summarised earlier in this AEE.

In terms of Clause (a) the Wharf 8 extension, along with the Outer Port reclamation and Outer Breakwater upgrade includes a sea level rise allowance of 0.65m for 'non-habitable assets', in accordance with the most recent Interim-guidance-on-the-use-of-new-sea-level-rise-projections-August-2022 which is unchanged from the 2017 Ministry for the Environment guideline publication.

In terms of Clause (b), Section 5.1 of the 4Sight DSI for the Southern logyard notes the concentrations of all CoPC are within criteria adopted for the protection of human health and the environment, so the risk of significantly impacting water quality as a result of re-using the material in the reclamation is highly unlikely. Furthermore, given the marine environment is tidally well flushed, and given concentrations of all CoPC were generally below the DGV's and all below the GV-high, the concentrations of contaminants are not in sufficient quantities to pose a risk to the marine environment.

The appended 4Sight Landscape report also addresses Clause (b). It generally finds that the 'shape of the reclamation is appropriate', and 'the materials used will be visually and aesthetically compatible' with the port and the adjacent existing heavily modified coast.

In terms of Clause (d), no provision is being made for public access to the Outer breakwater upgrade, Wharf 8 extension and Outer Port reclamation. As explained earlier in this report this is also the current situation because of the high human health and safety risks associated with public access to working port areas.

The appended archaeology and ecology reports address Clauses (e) and (f).

In terms of Clause (g) the Project has been designed to improve the resilience of the Port to natural hazards, including sea level rise and coastal erosion. As summarised in the MetOceans' report, significant investigation has been undertaken into the effects of the Proposal on coastal processes. The conclusion is that the structures and reclamations will not exacerbate natural hazard risk associated with storm surges and sea level rise on the Port or adjoining land. On this basis, natural risks to people, property, infrastructure and the environment are considered to be appropriately mitigated.

Policy 10(3) on Reclamation at Ports

Part 3 of the policy reads:

"In considering proposed reclamations, <u>have particular regard to the extent to which the reclamation and intended purpose would provide for the efficient operation of infrastructure, including ports</u>, airports, coastal roads, pipelines, electricity transmission, railways and ferry terminals, and of marinas and electricity generation." (emphasis added)

As outlined in the Eastland Port Twin Berths Alternatives Assessment Report, the Proposal's reclamations are required for the efficient operation of the port and are therefore in accordance with Policy 10(3).

Policy 10(4) on Declamation

Policy 10(4) encourages 'de-reclamation' of reclaimed land that is no longer needed, to assist with the restoration of natural character and resources, and to provide for more public open space. Declamation of an area of land associated with the former slipway was authorised by way of Stage 1 of the TPB. While no further declamation is proposed as part of the current Proposal, this demonstrates that Eastland Port has assessed the ongoing need to retain areas of previously reclaimed land. The Proposal seeks to adjust the boundaries of the Port Occupation area, including to reflect the declamation of land at the slipway and, therefore, supports the approved declamation process.

16.6 National Policy Statement for Fresh Water Management

The National Policy Statement for Freshwater Management 2020 applies to all freshwater (including groundwater) and, to the extent they are affected by freshwater, to receiving environments such as estuaries and the coastal marine area. The Proposal is located primarily within the coastal environment. While some upgrades are proposed to the existing stormwater management network in the Southern Logyard to improve treatment standards, discharges will be to coastal waters and no streams or other fresh water bodies are affected. Therefore, the application falls within the jurisdiction of the NZCPS. However, to the extent that, as noted in the NPS-FM, the management of coastal water and fresh water requires an integrated and consistent approach, the application seeks to improve the quality of stormwater discharges from the logyard to coastal waters to reduce effects on coastal water quality.

16.7 Tairāwhiti Plan Regional Policy Statement

Part B has nine sections. All, except B2 – Air Quality and B6 – Freshwater, are applicable to the Proposal.

- B1 -Tangata Whenua.
- B3 – Built Environment, Infrastructure and Energy.
- B4 – Coastal Management.
- B5 – Environmental Risk, including Natural Hazards.
- B7- Cultural and Historic Heritage.
- B8 – Land Management.
- B9- Natural Resources.

Tangata Whenua

Section B1.1 – Involvement of Tangata Whenua in Resource Management, explains the Māori environmental resource management system, domains of the environment from the Māori perspective, the domains of atua, moana, waiora a tane, the principles of the Treaty of Waitangi, recognition of kaitiakitanga and important concepts in Māoridom.

It also sets out the Council's view on engagement with tangata whenua, with reference to some case law, and the legislative framework surrounding iwi resource management strategies and plans.

Sections B1.2 to B1.5 sets out four issue-based sets of objectives, policies and methods, directed at taking into account the principles of the Treaty of Waitangi (B1.2), recognising kaitiakitanga (B1.32) and recognising the relationships Māori have with their culture, traditions, ancestral lands and other resources (B1.4), and tangata whenua and freshwater (B1.5).

The later policy set records the Crown statutory acknowledgements in place over water bodies, including the Turanganui River adjacent. Iwi, hapū and whanau groups with interests in Tūranganui-a-Kiwa, including those with customary marine title applications under MACA, have engaged with Eastland Port Ltd on the Proposal and this will continue during Council processing of the applications, recognising the Treaty and other policy directives in this section. The engagement to date has largely been undertaken between EPL and the members of Te Tai Uru and Ngāti Oneone through regular hui. Iwi and hapū have undertaken CVRF which identify *relevant hapu interests, relationships, values, rights and responsibilities which will help inform CIA* (Wharf 6,7 & Slipway Consent Order) related to the TBP.

The full extent of engagement between the parties is outlined extensively in the TBP Stage Two Engagement Report (**Appendix I**).

Built Environment, Infrastructure and Energy

Section B3.1- Energy Management – Introduction, backgrounds the ensuing issue-based objectives and policies on 'inefficient use of energy' in B3.2 and the 'Gisborne regions dependence on non- renewable resources' in B3.3. Both sets of objectives and policies are of very limited relevance to the Proposal.

Section B3.5 contains one objective and six policies relating to 'efficient, effective and safe transport and network utility systems. The Proposal is consistent with the objective and policies in this section. Of particular note are the port related Policies 3, 6 and 7, which read as follows:

"3. To recognise and promote the environmental and economic advantages of efficient rail and sea.

6. To be willing to consider new transport options – such as barging or new port facilities – which might reduce the region's dependence on roading.

7. To encourage efficient and sustainable port developments."

The Proposal is directed at meeting the current/future export log industry needs, and will also serve the small, but growing, inter-regional cargo/container market and make for a much more efficient port. As such is very much in accordance with these plan policies.

Coastal Management

Section B4 – Coastal Management, has three issued based sets of objectives, policies and methods, along with cross references to wider ranging provisions in other chapters that apply to a variety of different environments. The three sets of objectives policies and methods relate to the following matters:

B4.2 – The effects of activities that straddle administrative boundaries under the RMA.

B4.3 – The effects of some activities that may destroy or damage coastal natural character.

B4.4- Activities that can inhibit natural processes or degrade the ability of natural features and resources to sustain life.

Some of the Twin Berth project component, notably the Outer Breakwater upgrade, the Wharf 8 extension and Outer Port reclamation straddle the CMA/land boundary. As such the one objective in B4.2.1 and four policies in B4.2.2 are applicable to these parts of the project.

Policy 1 simply refers to other coastal environment provisions in the plan, whilst Policies 2 and 3 are directed at Council consulting closely with Māori on plan preparation and resource consent applications, where kaitiaki concerns are raised, and other authorities concerned with coastal management, such as DoC.

Policy 4 is wider ranging and directs all parties "*to recognise and maintain, in as natural a condition as possible, the dynamic, complex and interdependent nature of natural and physical resources in the coastal environment*." The Proposal is consistent with this policy, with the Worley design of the works recognising the dynamic, complex and interdependent nature of natural and physical process/resources, as described in the MetOceans, 4Sight and other expert reports.

Section B4.3 has three objectives and six policies on natural character. Objective 1 effectively rephrases the RMA Part 2, section 6 requirements on preservation of natural character and protection of outstanding natural features and landscapes, significant indigenous fauna, flora and habitats. Objective 2 is directed at 'rehabilitation of degraded landscapes and ecosystems in the coastal environment, whilst Objective 3 is directed at maintenance and enhancement of coastal water quality and Objective 4 is directed at maintenance and enhancement of coastal amenity values. All four objectives are applicable to the project, along with the ensuing policies.

Objective 2 and the underlying Policy 5 on 'degraded landscapes' are relevant to the Outer Port reclamation, which adjoins a section of the Southern logyard revetment that could be considered a 'degraded landscape'. The term 'degraded' is not explained in the ensuing methods nor in the Part E- Definitions, part of the Tairāwhiti Plan. However, Section 2.4 of the 4Sight landscape report notes that the existing revetment is 'degraded'. Policy 5 seeks 'to promote the rehabilitation of degraded landscapes and ecosystems using indigenous species of local genetic stock'. The 4Sight Ecology and Landscape reports generally indicate that this policy will be met.

Policy 6 expands on the RMA Part 2 direction and seeks to ensure that only 'appropriate development and use occurs in the coastal environment'. It effectively sets three 'appropriateness bottom lines', these being:

"(a) Adequate services such as the disposal of wastes can be provided for.

(b) The adverse effects of those services can – as far as practicable – be avoided. Where complete avoidance is not practicable, the adverse effects should be mitigated and provision made for remedying them, to the extent practicable.

(c) Financial contributions are sought, where appropriate, to offset unavoidable environmental damage in the coastal environment or protect or rehabilitate the coastal environment."

In terms of Clause (a) the Proposal is based around the 'adequate provision of services', notably stormwater treatment and disposal. In terms of Clause (b) the upgraded/extended stormwater services have been designed to avoid adverse effects on the local ecology in terms of treatment and the effects of the additional discharge to the CMA will be effectively remedied. Clause (c) which enables the Council to seek financial contributions to 'offset unavoidable environmental damage', is not applicable to this part of the project.

Section B4.4 contains three objectives and three policies on natural processes and natural features. Objective 1 is very similar to the RMA Part 2 requirements, whilst Objectives 2 and 3 also have their genesis in Part 2 and the NZCPS. The policies are also very similar to those in the NZCPS.

Policy 1 (B4.4.) seeks to 'avoid/remedy/mitigate the effects of activities on biological diversity and ecosystem integrity. The Proposal achieves this as set out in the 4Sight ecology report. Policy 2 'encourages activities that rehabilitate or enhance degraded ecosystems. Sections 4, 5 and 7 of the 4Sight ecology report highlight the 'rehabilitation and enhancement' aspects of the project that will occur through extended/improved habitat for crayfish, Kororā and other marine biota.

Environmental Risk, including Natural Hazards

Section B5 contains nine issued based sets of objectives and policies on environmental risk. Two of the sets, on natural hazards in B5.1 and site contamination in B5.6 are applicable to the Proposal. The other policy sets on hazardous substances and waste, transportation of the same and wastewater are not applicable.

Section 5.1 describes the natural hazards threats to the region, including coastal erosion and tsunami. The Port of Gisborne is not identified as being particularly vulnerable to these or other natural hazards. The two objectives and six policies in this section are enabling and/or limiting in nature. Policy 2 refers specifically to the port and reads:

"To recognise the limitations of attempts to control natural processes by physical work and limit such attempts to appropriate situations where they are:

(a) <u>needed to protect</u> existing development, or waahi tapu or <u>new public infrastructure such as ports,</u> roads, bridges; and

(b) have a favourable benefit to cost ratio;

(c) will not have significant adverse effects on the natural character of the coastal environment, or other adverse environmental effects; and

(d) will not cause or worsen hazards to other lands/waters; and

(e) can be designed with confidence of long-term effective performance; and

(f) are the only practical alternative." (Emphasis added)

The Outer Breakwater upgrade, Wharf 8 extension and Outer Port reclamation are intended to 'protect' existing port facilities that are old and in poor condition and as such fall within the ambit of Clause (a). Based on the findings of the Worley, MetOceans and other expert reports they will also meet the other conditions (b-f) in this policy. As such it is 'appropriate to control natural processes by physical works.'

Section 5.6 notes that there are a number of actual and potential sites with contaminated land. The two objectives seek to minimise human and environmental health risks, as do the five associated policies. The DSI investigations of the Proposal parts of the port identified some low level residual contaminants within acceptable standards for human health and environmental risks associated with reuse in the reclamation and continued use of the site for Port

activities. All works will be carried out in accordance with a Contaminated Site Management Plan in a manner that is consistent with the policies and NES-CS.

Cultural and Historic Heritage

Section B7 – Cultural and Historic Heritage, has one issue-based set of objectives, policies and methods, directed at protection of recorded sites, including historic places and waahi tapu. The InSitu Heritage report and Te Tai Uru based CVRF work to date has not identified any adverse effects of the Proposal on recorded sites.

Land Management

Section B8 contains three issue-based sets of objectives and policies on 'soil erosion and erosion prone land' 'detrimental effects of pests' and 'loss of productive/versatile soils.' The last two sets are not applicable to the project and the first set is only of relevance in that the site earthworks if improperly managed could lead to some soil erosion and discharges to the CMA. The CMP, SMP and site protocols will ensure this does not happen and the applicable objectives and policies are met.

Natural Resources

Section B9 has two issue-based sets of objectives, policies and methods, relating to 'natural values' and 'public access.' Both are relevant to the Proposal.

The B9.1 'natural values' policy set cover 'natural character, outstanding natural features and landscapes' and 'significant indigenous vegetation/habitats.' They provide very little additional direction over these same matters in Part 2 of the RMA and the NZCPS. Policy 8 on significant indigenous vegetation/habitats and Policy 9 on natural character are the most applicable in the sense of referring to the CMA and coastal environment.

Policy 8 on the 'rehabilitation of degraded areas of significant indigenous vegetation/habitats' is very similar to others highlighted earlier in this AEE. As outlined earlier, Section 5 of the 4Sight ecology report finds that no 'significant' indigenous vegetation/habitats will be damaged or lost.

Policy 9 seeks 'to protect outstanding natural features and significant landscapes from inappropriate development'. As outlined earlier in this AEE the port is not within or adjacent to any outstanding natural features. The term 'significant landscape' is not explained in the ensuing methods nor defined in Part E of the plan.

The 4Sight landscape report considers the adjacent Titirangi reserve to be a 'significant landscape'. However, as set out in this same report, views of it and from it will not be adversely affected in an 'inappropriate' manner by the Proposal. The project will be in a part of the port coastal environment that has been heavily modified over the last 100 or more years. The port itself, excluding the PNC, is approximately 20ha and there is another approximately 15ha of land-based facilities, including eight wharves and three logyards. The Proposal will only increase the port land 'footprint' by approximately 1.03ha or 7%. This is on the basis that the Outer Port reclamation is 7,000m^2, the Outer Breakwater upgrade reclamation is 2,400m^2, and the Wharf 8 extension reclamations are 900m^2.

The B9.2 policy set on public access focus on maintenance and enhancement of public access to the CMA and other water bodies. The Proposal maintains the current level of public access to the port. It does not present any practicable opportunities to enhance public access, without attendant ecology habitat protection, health and safety risks. It is consistent with Objective 1 and Policies 1 and 2.

Policy 1 sets out six circumstances (a-f) where restricting public access may be necessary, one of which (d) is "*to protect public health and safety such as diversion away from areas of danger such as….port operational areas….*".

Policy 2 seeks to ensure there is 'no reduction in the quality of public access' through land development projects, which is the situation with the Proposal. Recreational craft access through the port will remain like at present, as will land based public access to some of the inner port wharf areas.

16.8 Tairāwhiti Plan Region Wide Objectives and Policies

Part C- Region Wide Provisions, contains eleven sections. The following sections contain provisions that are applicable to the Proposal:

- C2 – Built Environment, Infrastructure and Energy, only in relation to stormwater drainage and access/traffic.

- C3 - Coastal Management, in relation to all construction activities in the coastal environment (CMA and land), including reclamation, along with capital and maintenance dredging and disposal of dredge spoils at the OSDG.
- C4 - Cultural and Historic Heritage, in relation to nearby archaeological and cultural sites.
- C11 - General Controls, in relation to noise and vibration.

Built Environment, Infrastructure and Energy

Section C2 has six objectives on infrastructure (in C2.1.3) and five sets of policies on network utility operations, funding and provision of infrastructure, design and reticulation of infrastructure, structure plans and works and services (in C2.1.4). All of the objectives are applicable to the Proposal. Most of the policies also apply, apart from those in Policy set 4- Structure Plans. There are no structure plans affecting the port area.

The policies in C2.1.4.1- Network Utility Operations, are met. The Proposal, like the existing port, will not adversely impact or put 'constraints' on local electricity, water, wastewater and other utility services. It will also not affect the airport and high voltage transmission lines.

Some of the policies in C2.1.4.2 - Funding and Provision of Infrastructure, are relevant to the ECC traffic report findings on the existing limitations of the SH 35- Hirini St intersection. Policies 1 and 2 are of limited application as they primarily relate to 'within subdivision and development sites' (in this case the port itself) and the Council's capital works planning process. Policies 9 and 10 are likewise of limited relevance as they are directed at these same matters. Policy 3 refers to the Council's development contributions policy (under the Local Government Act). It directs the Council "*to use development contributions as the primary method to provide funding for Council's capital expenditure on water…. land transport …. infrastructure related to developments. To also consider in special circumstances, other funding methods such as financial contributions and special rating areas*."

Policies 4 -7 are also directed at financial contributions, as provided for under Section 108 of the RMA. However, as outlined above, Policy 3 directs the Council to use the development contributions policy in its Long-Term Plan 2021-2031, rather than the Tairāwhiti Plan financial contributions provisions, for any contributions towards Council infrastructure. The relationship of the Proposal to the Council's development contributions policy is briefly explained later in this AEE.

Most of the policies in C2.1.4.3 - Design and Reticulation of Infrastructure, are relevant to the Proposal. This is in terms of the ECC report findings on the adequacy of off-site road/pedestrian/cycleway facilities and the Cheal report findings of the adequacy of the on-site stormwater ponding/overflow facilities for the Southern logyard and new Twin Berths areas. The policies (8 in total) are generally met in relation to the above two matters.

C2.1.4.5-Works and Services, contains four policies on property access and roads. Policy 2 requires that "*property access occurs in a manner that does not affect the wider functions of the road reserve"*, whilst Policy 4 requires that "*the development and use of existing roads does not adversely affect the character of local communities or the surrounding environment.*" The ECC traffic report notes all port vehicle crossings/gates to be used during both construction and operation of the Twin Berths are safe/effective and require no upgrading. As such Policy 2 is met. Policy 4 is also met in that the increased use of the adjacent Council and Waka Kotahi roads during construction is to be mitigated through CMP's and temporary traffic restrictions. During the subsequent extended port operations, the effects will not be of such a nature to 'adversely affect the character of local communities or the surrounding environment.' This is because additional operational vehicle movements generated by the Proposal (both light and heavy) are expected to occur outside of peak times, with maximum daily HCV load rates limited by practical constraints on the availability of trucks and drivers to move logs. While average daily activity is expected to increase, as a result of fewer shipping delays, HCV movements are expected to occur more consistently during the day.

Policy 6 in C2.4.1.5 relates to stormwater and reads as follow:

"To require stormwater systems to be designed and constructed to:

- *Protect people, infrastructure, land and buildings against flooding and nuisance effects.*
- *Avoid, remedy or mitigate adverse environmental effects – including the pollution, sedimentation and erosion of receiving environments.*
- *Provide adequate capacity and design standards to service the catchment within which they occur, taking into account foreseeable growth and development."*

As set out in the Cheal and 4Sight reports, the proposed stormwater system generally has 'adequate capacity and design standards', 'avoids/mitigates adverse effects', including those of a flooding and nuisance nature. Both reports recognise the possibility of ponding and overland flow path discharges to the port in extreme weather events, but they are expected to be very limited. Also, the Cheal report proposes a 2 year 'trial' effects monitoring and Council reporting process to see if further design changes are necessary.

Coastal Management

Section C3.1 - Introduction, primarily highlights the matters of national importance in Section 6 of the RMA and some of the associated provisions in the NZCPS. It has no objectives or policies. Sections C3.2 - C3.6 contain five 'issue' based objectives, policies and methods. They are on natural character, outstanding natural features and landscapes, significant indigenous flora and flora, public access to the coast and tangata whenua values.

C3.2 highlights the findings of the 1995 Boffa Miskell report entitled '*An Assessment of the Landscape Character of the Coastal Environment of the Gisborne District (1995)',* which was referred to earlier in this AEE. As outlined earlier investigations indicate that this report was used by the Council to prepare the former Coastal Plan (now part of the Tairāwhiti Plan and has some background information and 'policies.' Although it predates the 2010 NZCPS it is an important background report. The 4Sight Ecology and Landscape reports contain assessments of the effects of the Proposal in relation to the C3.2 objectives and policies on coastal natural character. Based on these findings the objectives and policies on coastal natural character are met.

The C3.3 provisions on outstanding natural features and landscapes are applicable to the project, in terms of views of Tuamotu Island and Young Nicks Head. They are met as set out in the 4Sight landscape report.

The C3.4 objectives and policies on significant indigenous flora and fauna will be met based on the findings of the 4Sight Ecology report. Objective 1 and Policies 1 and 3 focus on recorded areas that either are currently or could be in the future included within the Significant Values Management Area, rather than PCMA and GCMA, and are not relevant. The other objectives and policies are of a more general nature. The policies are directed at 'protecting significant habitats from adverse effects' (Policy 2), 'protecting the integrity, functioning and resilience of natural processes and ecosystems' (4), 'encouraging rehabilitation and restoration of habitats where already adversely affected' (5), 'or likely to be damaged or degraded' (6). The findings of the 4Sight ecology and water quality reports show that the Proposal is consistent with these policies.

The C3.5 objectives and policies on public access to the coast are applicable to the project. As outlined earlier, no changes are being proposed to the existing very limited public access arrangements to the port. They are directed at protecting people's health and safety in what is a challenging (exposed to rough weather) and risky (with large ships, cranes and heavy vehicles operating) work environment.

Part C3.5 Issue – Maintaining and Enhancing Public Access to and along the Coastal Marine Area and Lakes and Rivers in the Coastal Environment, of the Tairāwhiti Plan contains the following applicable provisions:

"Policy 8. The Council will require esplanade reserves on all new subdivisions, developments and reclamations approved adjacent to the CMA except:

a) Where alternative means of providing for public access such as esplanade strips or covenants, would be more appropriate.

b) For minor boundary adjustments.

c) Where the provision of esplanade reserves, esplanade strips or covenants would not promote the sustainable management of natural and physical resources.

"Policy 14. The District Plan for the Gisborne district shall ensure that esplanade reserves or esplanade strips should generally be taken on new subdivisions, developments and reclamations formed adjacent to the CMA unless there are specific reasons for not doing so."

No esplanade reserve (or possible alternative strip) is proposed for along the edge of the Outer Port reclamation, nor the reclamation components of the Wharf 8 extension and Outer Breakwater upgrade for human health and safety reasons. The provision of unrestricted public access to a working port would not 'promote the sustainable management of natural and physical resources.'

The C3.6 objectives and policies on tangata whenua values, highlight relevant provisions of the NZCPS and important concepts to Māoridom, including kaitiakitanga, mauri, waahi tapu and mahinga maataitai. Policy 3 states that *"the Council will encourage applicants for coastal permits in the coastal environment to demonstrate that tangata whenua have been consulted."* As outlined earlier Eastland Port have engaged iwi, Hapū and whanau organisations known as having interests in the applications and further engagement is planned during the Council processing of the applications.

C3.7-C3.13 also contains sets of objectives, policies and methods, which are 'activity' based. The following are applicable to the Proposal:

- C3.7 - Structures.
- C3.8 - Occupation of Space.
- C3.9 - Alteration of the Seabed and Foreshore.
- C3.10 - Discharges.

The C3.7- Activities: Structures, objectives and policies, are primarily applicable to the Outer Breakwater upgrade and Wharf 8 extension.

Objective 1 recognises that general provision needs to be made for 'appropriate' structures in the CMA, but 'adverse effects should be avoided as far as practicable'. The project components do this with reference to the appended expert engineering and environmental reports. Objectives 2 and 3 on 'preservation and where appropriate enhancement of natural character' and 'maintenance and diversity of aquatic life' are also met as set out in the 4Sight ecology and landscape reports. Objective 4 on public access is met because there will be 'no reduction in the level and quality of public access to and along the CMA'.

Policies 5 -10 on cultural/heritage values/sites, damage through coastal processes/events, interference with dynamic coastal processes, efficient resource use, high level of safety and amenity values are also met with reference to the appended reports.

Policy 3 is directed at avoiding the 'inappropriate proliferation or sprawl of structures' in the coastal environment, noting they will be encouraged in 'already developed areas where appropriate'. Gisborne City is the most developed part of the regions' coastal environment, and the port is regions' most developed part of the CMA.

The Proposal involves extension of existing port structures and has no elements of 'inappropriate proliferation or sprawl' of structures.

Policy 5 on 'new' structures is of limited relevance as the Twin Berth project involves extension and redevelopment of existing structures, rather than new structures. Policy 6 on modifications or additions to existing structures is more applicable and met in terms of the increased port 'efficiencies' arising from the project.

Policy 8 is related to Objectives 2 and 3 directed at 'sustaining the diversity of organisms and biological communities within the CMA'. The project does this based on the findings of the 4Sight ecology report.

Policy 10 on public access is similar to Objective 4 and met. Policies 11 and 12 on protection of cultural and heritage values are met with reference to the InSitu Ltd *Twin Berths Project Archaeology and Heritage Assessment* **Appendix J**, and the consideration of cultural values as set out earlier in this AEE.

Policies 12 and 13 on coastal processes are based on the findings of the appended Worley and MetOceans reports. As set out in Section 7.4.1 of the Worley report the 'design location and management of the proposed structures' takes into account the most recent Inter-Governmental Panel on Climate Change best estimate for sea level rise of 0.65m. Policy 16 regarding the impacts of natural hazards is also met with reference to these same reports.

The altered/extended port structures have been designed to not 'pose a risk to coastal navigation and shipping', as set out in the Worley report, and Policy 17 will be met. Policy 18 directs that coastal amenity is not adversely affected by wharves and marinas and also requires that applicants developing them provide 'adequate convenient rubbish disposal facilities.'

This same policy requires that applicants seeking to establish new ports and marinas provide 'adequate and convenient ship sewage collection facilities.' Both of these facilities are in place in the Inner Port where there is a marina and wider public access.

Section C3.8 - Activities: Occupation of Space, has six objectives and six policies. The introductory explanation contains a few dated statements, including a reference to the 'usual ownership of the seabed by the Crown'. It also contains outdated references to 'coastal tendering' and does not recognise the MACA legislation introduced in 2010. The

ensuing issues section are not so dated and more generic, as are most of the subsequent objectives and policies. However, Policy 3 refers to the 'provision of public access across Crown space occupied in the CMA', which is not really applicable now.

The proposed port occupation coastal permit is consistent with the applicable occupation of space objectives and policies. The port has a 'functional need to locate in the CMA' as required under Objective 1 and 'exclusive occupation is reasonably necessary to provide for lawful activities', as directed under Policy 2. The permit will not result in a 'reduction in the level of public accesses, as required under Objective 5 and further qualified under Policy 3. Policy 6 is also met. Although the proposed occupation permit includes some 'culturally valuable space' (notably part of the heritage boat harbour) it is very similar to the current occupation permit and will not prevent access to this site in the future.

Section C3.9 - Activities: Alteration of the Seabed and Foreshore, covers a range of activities, including reclamation, dredging and dredge spoil deposition. The section introduction notes that "*the effects of these activities are variable and can include changes to seabed topography, destruction of habitats of benthic organisms, discolouration of water and changes to patterns of water and sand movements*." This recognition that activities like dredging, spoil deposition and reclamation will have 'adverse effects and modify the coastal environment' is tempered by the recognition that they should not 'undermine the integrity of the coastal environment and people's enjoyment of it.'

The section lists five 'issues' and then sets out three objectives and ten policies. All of the objectives and seven of the policies are applicable to the Proposal. Policy 2 on mineral extraction, Policy 5 on activities on beaches and dunes, and Policy 8 on the Significant Values Management Area are not relevant.

The proposed dredging, spoil deposition and reclamation activities are consistent with the relevant C3.9 objectives and policies. The 4Sight ecology report shows that Policy 1 on 'indigenous habitats and areas of strategic significance to aquatic species', along with Policy 5 on the effects of 'disposal constituents' on specified ecological communities have been given due regard with appropriate mitigation measures being proposed. The report notes that the crayfish settlement within the port is unlikely to be of 'strategic' importance to the wider fishery or its sustainability.

Policies 3 and 4 on 'natural character' and 'amenity values' are met with reference to the MetOceans coastal processes, 4Sight ecology and 4Sight landscape reports. The integrity/functioning of sediment transport process will be maintained, and measures have been incorporated into the Outer breakwater and Outer Port reclamations to mitigate effects on biodiversity notably in terms of artificial habitat creation for crayfish, Kororā, seabirds and other species.

Policy 7 is also met in that the effects of the project on the heritage boat harbour will be 'minor', based on the In Situ Heritage and other reports.

Policy 9 on reclamation directs the Council "*to have regard of alternatives to reclamation or activities that alter the foreshore or bed of the CMA and the applicant's reasons for the activity*……."

The reasons for the proposed reclamations, along with the other seabed disturbance activities, and possible alternatives were set out earlier in this AEE and in the EPL alternatives assessment report. In this regard Eastland Port have provided the Council with all the required information and effectively complied with the policy directive.

C3.10 – Activities: Discharges, contains background material relating to discharges generally, the water classification system and standards mentioned earlier. It makes no specific reference to discharges from port related stormwater systems nor capital or maintenance dredging and disposal operations. The three objectives and sixteen policies are also mainly of a general nature, although some relate solely to the city's wastewater discharge to Tūranganui-a-Kiwa/Poverty Bay.

The discharges associated with the Proposal, including those associated with partial demolition of the Southern logyard seawall and associated earthworks, are consistent with the section objectives and policies based on the findings of the 4Sight DSI's and ecology/water quality reports.

C3.14 - Coastal Environment Overlay, contains one objective and two policies. Objective 1 and Policy 1 are similar to the broader coastal management provisions. Policy 2 is directed at wetlands in the coastal environment and not applicable to the project.

C3.15 -Coastal Financial Contributions and Occupation Rents outlines the Councils approach to these two matters. It is somewhat dated and does not account for recent legislative changes. The objectives, policies and other provisions are of very limited relevance to the Proposal.

Cultural and Historic Heritage

C4 contains 'general' objectives and policies and 'specific' objectives and policies related to the different overlays and notations. The 'specific' objectives and policies relating to the Heritage Alert overlay are applicable to the project, as are the general objectives and policies.

The Proposal is in accordance with the applicable objectives and policies. The general objective in C4.1.3 is directed at "*the recognition and protection of the cultural heritage resource*". The underlying policy in C4.1.4 simply directs the Council to maintain a record of heritage sites, which it does and of limited relevance to the project.

The C4.1.5 objectives and C4.1.6 policies on the Heritage Alert overlay are directed at avoiding identifying archaeological sites, avoiding damage to them and having on going management regimes in place for them. The Eastland Port management protocols outlined in the In-Situ archaeological report are consistent with these objectives and policies.

Noise and Vibration

The following parts of C11.2- Noise and Vibration, are applicable to the Proposal:

- C11.2.4 – Objectives for Noise and Vibration.
- C11.2.5 - Policies for Noise, including Vibration.
- C11.2.8 – Objectives for Transport Noise
- C11.2.9 – Policies for Transport Noise.
- C11.2.12 - Objectives for Noise in the Coastal Environment.
- C11.2.13 - Policies for Noise in the Coastal Environment.

The two objectives in C11.2.4 and the six policies in C11.2.5 are directed at protection of human health and safety and the 'protection the amenity/ character of each area.' Although not explicitly stated they appear more directed at noise from land- based activities. Policy 3 on noise in rural zones is not applicable. Policy 5 on noise in reserves is applicable, as is Policy 4, which directs the Council to consider specific matters when assessing resource consent applications.

In relation to Policy 5 the Marshall Day reports note that Tairāwhiti plan rule infringements in relation to the adjacent Titirangi Hill and Northern Waterfront reserve areas for both construction noise and port operations noise are negligible and will not adversely affect users of the reserves. As such Policy 5, which seeks to "*manage noise on reserves in a manner which reflects both the amenity of the reserve….*" will be met.

Policy 4 directs the Council (and indirectly applicants) to consider the following four 'factors':

a) the impact the noise will have on individuals and communities' health and safety, in particular the effects of night time sleep interference such as through awakening by startle effect, difficulty getting to sleep or disturbed sleep patterns

b) the character and amenity of the areas which will be affected by noise emissions, and the appropriateness of the noise for that area;

c) in the case of reserves, any Reserve Management Plan which is developed for the reserve;

d) the extent that the characteristics of noise emitted contribute to the adverse effects of emission such as:

- *the level of noise,*
- *the duration, number and timing of events throughout the 24 hour day or over a year when the noise limit is exceeded,*
- *the characteristics of the location in which noise will impact including the background noise levels in this area (L95) and stipulated standards for noise in the Plan,*
- *noise characteristics- including but not limited to - the frequency, tone, impulse and spectrum of noise,*
- *the cumulative effect that the noise has on background (L95) of the area."*

The Marshall Day reports address all the above 'factors', including background noise, night-time noise, noise in reserve areas and cumulative noise from all the Outer Port operations. The report proposes they be managed through limits on construction noise (from the NZ Standard/other port related consents), project specific CMP's, limits on port operating noise, an Outer Port Area NMP, and associated consent conditions.

C11.2.12 has three objectives and C11.2.13 six policies on noise in the coastal environment. Policy 2 refers specifically to the Port Management Area and reads as follows:

"*To recognise that some activities, especially those associated with the Port Management Area, create noise and to manage the effects of this noise with regard to the operational requirements of ports*."

The 'coastal environment' noise objectives and policies are also fairly general in application and apply to both land based 'zones' and CMA based 'management areas'. The policies are the most directive and set out below:

1. *To ensure that activities located within the CMA do not create noise emissions which exceed standards set landward of the Mean High Water Spring mark.*
2. *To recognise that some activities, especially those associated within the Port Management Area, create noise and to manage the effects of this noise with regard to the operational requirements of ports.*
3. *Where doubt arises as to the ability of a proposed activity to comply with the noise performance standards to require applicants for resource consents to supply an acoustic design certificate from a qualified acoustic consultant demonstrating that the performance standards will be met.*
4. *Where noise may disrupt or have an adverse effect on significant habitats of indigenous fauna to require adequate measures be taken to avoid the adverse effect.*
5. *Noise Levels in the CMA shall be measured and assessed in accordance with the requirements of New Zealand Standards NZS6801:1991"Measurement of Sound" and NZS6802:1991"Assessment of Environmental Sound".*
6. *Construction noise arising from any activity in the CMA shall meet the limits recommended in, and be measured and assessed in accordance with, New Zealand Standard NZS6803P:1984 'The "Measurement and Assessment of Noise from Construction, Maintenance and Demolition Work".*

The Marshall Day reports outline how noise from construction of the Proposal and noise from operation of the extended port are to be effectively managed and monitored, primarily through individual component CMP's, an Outer Port NMP and associated noise level standards. The Marshall Day report findings are very much in line with Policies 1, 5 and 6 which direct all parties to use the NZ Construction Noise Standard and have port operating noise standards that are consistent across land and CMA areas.

The Tairāwhiti plan rules are, in this regard, not consistent with the policy directive. The Marshall Day report also addresses noise impacts on marine mammals, Kororā and other significant fauna in a much more effects-based manner than the Tairāwhiti Plan rules.

The transport noise objectives in C11.2.8 and the policies in C11.2.9 are primarily directed at the Airport Noise Impact overlay and projects involving alterations to the road network and designations. However, Objective 1 is of wider application and applicable to the project. It reads as follows:

"Mitigation of the adverse effects on residential sites of traffic noise generated by vehicles using the roading network."

The ECC and Marshall Day do not identify any traffic noise issues in relation to residential areas.

16.9 Tairāwhiti Plan Area Based Objectives and Policies

The following Part D - Area Based Provisions, are applicable to the project:

- DP2- Port Management Zones
- DP1- Port Coastal Management Area.
- DC2- General Coastal Management Area

Port Management Zones

Section DP 2.1 - Introduction, explains the purposes of the Port Management zones (A & B). DP 2.2- Issues, sets out three issues, which are addressed in the ensuing DP 2.3 – Objectives and DP 2.4 - Policies. There are five objectives and eight policies set out under the headings of 'management of port', 'access' and 'road and rail links.'

The Proposal is consistent with the 'management of port' objectives and policies. Objective 1 is directed at 'continued operation and redevelopment of the port', whilst Objective 2 aims to 'provide for the operational needs of the port, while ensuring adverse effects are avoided remedied or mitigated'. Objective 3 is directed at 'introduced' (non-port) activities and not relevant here. The four underlying policies deal with port/non port activities, effects on residential areas, parking, and the Cook heritage reserve landing site/Cone of Vision. All are met, with reference to the findings in the appended engineering, traffic and landscape reports.

Policy 3 is important in relation to financial contributions. It enables the Council to impose a condition requiring a financial contribution in lieu of providing on-site parking in the Port A and Port B management zones. There is no similar policy enabling a financial contribution to be required towards the upgrading of Council or Waka Kotahi managed roads and associated pedestrian/cycle facilities.

Policy 4 on the Cone of Vision and associated Cook Landing Site National Reserve is relevant. It reads:

"To ensure that whilst enabling the continued operation of the Port:

a) the visual linkage between the landing place of Captain Cook, the waters of Poverty Bay and the outstanding landscape of Te Upoko o te Kuri a Paoa (Young Nick's Head) is preserved

b) the visual amenity of the Cook cone of vision is maintained and enhanced

c) the cultural symbolism of the Cook landing site is recognised and protected.

This policy is met as no buildings or structures are proposed within the Cone of Vision and the proposed reclamations, stormwater and facilities are well separated from the Cook Landing Site National Reserve.

The 'Access' objectives and policies are directed at public pedestrian (rather than road) access to the port and met. Policy 1 directs that 'public access to port operational areas be restricted where public safety is at risk.' The proposal to not provide any public access to the Twin Berths area, including esplanade areas on the proposed reclamations, is consistent with the policy. It is also consistent with the overarching objective that 'continual access by the public to and along the CMA margin may be inappropriate for public health and safety reasons.'

The 'Road and Rail Links' objectives and policies are directed at 'safe and efficient traffic flow', whilst 'avoiding, remedying and mitigating any adverse effects.' As above they do not direct the Council to consider financial contributions to mitigate any off- site adverse effects on public roads.

Port Coastal Management Area

Section DP1.3 - Objectives, has five objectives, the first three of which relate to port operations and are relevant to the Twin Berth project applications. Objective 4 is directed at non- port related activities, whilst Objective 5 is directed at the next review of the Tairāwhiti Plan and of limited relevance. Objective 2 is directed at avoiding, remedying or mitigating any adverse effects, which the Twin Berth project does.

Policies 2 and 3 in DP1.4 - Policies, are also directed at the Tairāwhiti Plan review and non-port related activities. Policy 1 is the most applicable. It requires the Council (as 'consent authority') to "*have particular regard to the need to provide for activities related to the use and service of vessels, the storage of cargo and petroleum products and port infrastructure for which a location in the coastal environment is an operational necessity*." The Proposal is directed at improved 'use and service' of cargo vessels to the port and for improved heavy vehicle access to the extended/redeveloped wharf and 'cargo storage and port infrastructure.' It is very much consistent with Policy 1.

General Coastal Management Area

Section DC2.3 -Objectives, has four objectives. They are directed at 'appropriate and sustainable development' (Objective 1), 'maintenance and enhancement of the quality and integrity of the coastal environment' (2), a 'low level of environmental risk in decision making' (3) and 'involvement of communities in identification and protection of values and preservation of natural character' (4).

The five ensuing policies are primarily directed at the Council doing things, notably ensuring applicants provide information on adverse effects (Policy 1), undertaking research and monitoring effects (2), initiating community care programmes (3), adopting a precautionary approach to decision making (4) and encouraging agencies, such as DoC and MPI to consider other means of protection (5). The components of the Proposal that affect the GCMA, i.e. the Southern half of the proposed reclamation and the Southern logyard Northern catchment treated stormwater discharge, are consistent with the abovementioned objectives and policies.

The extent of the Proposed Port Occupation Area in the GCMA has been minimised, with Occupation rights only sought along the outer edge of the reclamation to prevent boat landings and any unauthorised mooring of boats in the vicinity of the reclamation. No occupation area is proposed along the outer edge of the SLY as the logyard is security fenced which prevents any public access to this port area.

17 OTHER MATTERS (SECTION 104(1)(C))

17.1 Navigation & Safety Bylaw Affecting the Port

As noted previously, the Council's Navigation and Safety Bylaw 2012 places restrictions on people using the port and adjacent parts of Tūranganui-a-Kiwa/Poverty Bay. The Bylaw is relevant to the Project insofar as the restrictions placed on people and vessels will apply in and around the extended Port structures, as they do to the existing Port. None of the Project works are regulated by the Bylaw, with the exception that vessels used during construction will be required to operate in accordance with the Bylaw.

17.2 Council Development Contributions Policy

The Council's Development Contributions Policy is part of the Long-Term Plan 2021-2031. Section 2.7 notes that development contributions under the Local Government Act "*are in addition to, and separate from, financial contributions under the RMA*." It further notes that "*financial contributions cannot be applied as a condition of consent where a development contribution has been required for the same purpose on the same development.*"

Section 3.1.2 notes that development contributions will be charged for "*land transport, reserves and other community infrastructure, water, wastewater and stormwater*", within the Gisborne Urban Area. Section 3.1.3 notes that they will be applied to both 'residential and non-residential activities.' The term 'non- residential' is not defined in the glossary of terms (Section 7). However, with reference to Section 1, it is not expected to include port development activities. Tables 2 and 3 list eight different 'non-residential activity' and 'building floor area' categories, none of which refer to port-based activities or buildings. There are also no other references to the port in the development contributions policy. This interpretation is consistent with Eastland Port advice that the recently completed Wharfside logyard redevelopment project has not been the subject of any Council development contributions.

17.3 Gisborne Surf Break Identification and Protection Report

The Council report entitled *Surf Break Identification and Protection in the Gisborne District 2011*, is a relevant 'other matter' to consider under Section 104. It has ten chapters along with seven appendices. Appendix 6 contains descriptive material on the different surf breaks and their 'significance'.

The surf break at 'The Island' (Tuamotu) is identified as 'nationally significant'. As noted earlier, it is formally 'scheduled' in the same manner in the NZCPS. The surf breaks at Big River (Waipaoa River mouth), Roberts Rd (Waikanae Beach), The Pipe (Midway Beach), the Cliffs and Sponge Bay are all identified as 'regionally significant'. The respective locations of the surf breaks in relation to the port and OSDG are shown in the 4Sight plan earlier in this AEE.

The findings of the MetOceans *Dredging and Port Upgrade Effects on the Surfing Wave Dynamics Report* and the T+T *Twin Berths Surfbreak Assessment* were outlined earlier in this report. No adverse effects or other issues in relation to nationally or regionally significant surf breaks were identified in the two reports.

18 OTHER RELEVANT SECTIONS OF THE ACT

18.1 Section 104(2A)

This provision is applicable to the port occupation permit application as it is being made at least 6 months before expiry of the current coastal permit in accordance with Section 124 of the RMA. As such under Section 104 (2A) the Council *"must have regard to the value of the investment of the consent holder."*

The economic value of the port to the Gisborne region and the need for Eastland Port to be able to have occupation rights over the CMA surrounding the existing port and proposed Twin Berths facilities were explained in earlier parts of this AEE and are detailed in the Brown Copeland economic assessment. Eastland Port has made a considerable investment in the port over the 32 year term of the current occupation permit and this is expected to continue over the 35 year term of the new occupation permit being sought.

18.2 Sections 104(2B) and (2C)

The provisions in these two sections relating to aspects of the Marine and Coastal Area (Takutai Moana) Act 2011 (MACA) are not considered to be applicable to the project. Eastland Port and 4Sight investigations indicate that no planning documents have been prepared by customary marine title groups under Section 85 of MACA and no such documents have been registered under Section 86 of MACA. Additionally, Eastland Port's and 4Sight's investigations indicate that no environmental convenant under section 19 of Ngā Rohe Moana o Ngā Hapū o Ngati Porou Act 2019 has yet been issued and this has also been confirmed by the Council.

18.3 Section 105 and 107 Considerations on Coastal Permits for Discharges

Section 105

Section 105(1) requires consent authorities to 'have regard' to the following matters (additional to those in Section 104) when considering coastal permits for discharges to the CMA:

(a) The nature of the discharge and the sensitivity of the receiving environment to adverse effects;

(b) The applicant's reason for the proposed choice; and

(c) Any possible alternative methods of discharge including discharge to any other receiving environment.

This requirement applies to the following applications:

- Outer Breakwater Upgrade Coastal Permit Application (CP 1), Wharf 8 Extension Coastal Permit Application (CP 2). Outer Port Reclamation Coastal Permit Application (CP 3). All three applications are seeking consent to the incidental discharge of contaminants to the CMA during construction.
- Southern Logyard Stormwater Upgrading Coastal Permit application (CP 4). This application seeks consent to the discharge of treated stormwater from the two existing outfalls to the CMA on an ongoing basis.
- Outer Port Capital Dredging Coastal Permit Application (CP 5) and Outer Port Maintenance Capital Dredging Coastal Permit Application (CP 7). Both applications are seeking consent to discharges of decant water from the respective capital dredging and maintenance dredging operations.
- Disposal of Outer Port Capital Dredgings Coastal Permit Application (CP 6) and Disposal of Outer Port Maintenance Dredgings Coastal Permit Application (CP 8). Both applications are seeking consent to discharges of decant water from the respective capital and maintenance dredge spoil disposal operations.

Information on the three Section 105(1) matters is provided in 4Sight Ecology and Water Quality Report and was summarised in earlier parts of this report together with the Cheal Consultants Stormwater Management Engineering Report (section 4.5 – Alternatives and associated appendix 4).

Section 107

Section 107 imposes restriction on the granting of certain discharge permits.

Subsection (1) states:

"Except as provided in subsection (2), a consent authority shall not grant a discharge permit or a coastal permit to do something that would otherwise contravene section 15 or section 15A allowing:

(a) the discharge of a contaminant or water into water; or

(b) a discharge of a contaminant onto or into land in circumstances which may result in that contaminant (or any other contaminant emanating as a result of natural processes from that contaminant) entering water; or

(ba) the dumping in the coastal marine area from any ship, aircraft, or offshore installation of any waste or other matter that is a contaminant,

if, after reasonable mixing, the contaminant or water discharged (either by itself or in combination with the same, similar, or other contaminants or water), is likely to give rise to all or any of the following effects in the receiving waters:

(c) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials:

(d) any conspicuous change in the colour or visual clarity:

(e) any emission of objectionable odour:

(f) the rendering of fresh water unsuitable for consumption by farm animals:

(g) any significant adverse effects on aquatic life.

The information provided in the 4Sight Ecology and Water Quality Report indicates the following:

- The temporary discharges associated with construction of the Wharf 8 extension, Outer Port reclamation and Outer Breakwater upgrade, will comply with subsection (1), other than potentially in relation to 'any conspicuous change in water colour or clarity' (Clause (d)). Such changes in water colour and clarity are predicted to be localised and intermittent and the fine sediment which is likely to be the cause will rapidly dilute and disperse. Section 107(2) provides for such situations, where the discharge is of a 'temporary nature', as outlined below, which is the situation here.
- The temporary discharges associated with the capital and maintenance dredging operations will comply with the relevant requirements above, other than intermittently in relation to 'any conspicuous change in water colour or clarity' in Clause (d). However, Section 107(2) provides for such situations, where the discharge is of a 'temporary nature', or 'associated with necessary maintenance work', which is the situation here.
- The temporary discharges associated with the capital and maintenance spoil disposal dredging operations will likewise not comply at all times with Clause (d).
- The periodic discharge of treated stormwater from the two Southern logyard outfalls following installation of the new treatment facilities will generally comply with Clause (d).

Subsection (2) reads:

"*A consent authority may grant a discharge permit or a coastal permit to do something that would otherwise contravene section 15 or section 15A that may allow any of the effects described in subsection (1) if it is satisfied—*

(a) that exceptional circumstances justify the granting of the permit; or

(b) that the discharge is of a temporary nature; or

(c) that the discharge is associated with necessary maintenance work—

and that it is consistent with the purpose of this Act to do so." (emphasis added)

The terms 'temporary' and 'associated with necessary maintenance work' are not defined in the RMA. However, with reference to dictionary definitions of 'temporary' the changes in water colour and clarity associated with the dredging and disposal plume discharges identified in the 4Sight Ecology report are assessed as such and can be approved accordingly by the Council. They can also be considered as 'associated with necessary maintenance work', as the port cannot receive log vessels and other craft without regular maintenance dredging and offshore disposal of the spoil material.

19 CONSENT TERMS & CONDITIONS

19.1 Proposed Consent Terms

Wharf 8 Extension and Outer Port Reclamation Construction Works

Eastland Port are seeking fifteen (15) year consent terms from the date of commencement of construction works for coastal permits relating to these activities because the works could take 8 years to complete, following the detailed engineering design, tendering and the letting of construction contracts. The works also could be delayed or temporarily paused after commencement because of regional, national and/or international economic conditions.

Outer Breakwater Upgrade Construction Works

Eastland Port are seeking fifteen (15) year consent terms from the date of commencement of construction works for the Outer Breakwater upgrade set of resource consents. This is because the works are expected to be undertaken following the Wharf 8 extension and Outer Port reclamation, which as outlined above, could take 8 years to complete. The works also could be delayed because of regional, national and/or international economic conditions.

Reclamation

In accordance with s123 of the RMA, the period for which a coastal permit for a reclamation is granted is unlimited. Eastland Port is seeking an unlimited duration of consent for the reclamations authorised by this consent, including the Wharf 8 Extension, Outer Breakwater Upgrade and Outer Port Reclamation.

Southern Logyard Stormwater Upgrade

A thirty-five (35) year term is being sought for the coastal permit for stormwater discharges to the CMA from the logyard northern and southern outfalls. The term is the same as that for the current consents that were issued in late December 2010 and will expire in late December 2045.

Capital Dredging and Disposal of Capital Dredgings

Eastland Port are seeking fifteen (15) year consent terms from the date of commencement of construction works for the capital dredging and disposal set of coastal permits. This is primarily on the basis that some of the dredging and disposal could be undertaken following the Wharf 8 extension, Outer Port reclamation and Outer Breakwater upgrade. Also, as above, allowances need to be made for any possible change in the economic climate surrounding port operations.

Maintenance Dredging and Disposal of Maintenance Dredgings

Eastland Port are seeking thirty five (35) year terms (from the date of commencement of dredging works) for the maintenance dredging and disposal coastal permits. This is based on the findings of the MetOceans Summary Report into the ability of the OSDG to accommodate the proposed dredgings over this period, along with a review of past Gisborne Port consents and those for other New Zealand ports.

The 1993 and 1998 coastal permits for maintenance dredging and disposal at Gisborne Port had fifteen (15) year terms, with the most recent permits only having five (5) year terms because of the limited coastal processes information on the disposal ground. However, now that MetOceans have undertaken a comprehensive investigation of the effects of the continued offshore disposal, a longer term 35 year consent is being sought.

A 4Sight review of maintenance dredging permits for other NZ ports found that the consent terms vary, with most of the recent ones being for 20-35 years. The most recent maintenance dredging permits issued for the Port of Otago in 2017 were for 20 year terms, whilst those for the Port of Lyttleton in 2014 and Port of Napier in 2018 were for 35 years. Port Taranaki Ltd holds maintenance dredging and disposal permits which have approximately 27 year terms.

The other port consents generally involve much larger annual volumes with Port Taranaki, Port Lyttleton and Port Otago involving 3-4 times the maximum expected at the Gisborne Port (i.e. up to 140,000m^3 /year).

Port CMA Exclusive Occupation

A thirty-five (35) year term is being sought for the coastal occupation permit. The maximum duration is considered reasonable given the long term nature of the activities supported by the permit.

19.2 Matters to be Covered by Consent Conditions

The Proposal is being promulgated on the basis that construction and operation of the upgraded port facilities will be subject to comprehensive sets of consent conditions. This AEE, along with the appended expert reports, have identified several project effects related matters that are expected to be controlled, managed/and or monitored through consent conditions. They are summarised below.

The matters listed are drawn from the appended expert reports, along with the resource consent decisions for the Wharves 6 and 7 and former Slipway redevelopment projects (December 2020), Port Entry redevelopment project (August 2020), Wharfside logyard redevelopment project (February 2017) and Outer Port maintenance dredging and disposal (August 2015).

All Resource Consents

- Port Community Liaison Group (PCLG). Ref. 4Sight AEE and Conditions 5-8 of Wharves 6 & 7 redevelopment consents.
- Te Tai Uru (TTU) - Ref. 4Sight AEE and Condition 4 of Wharves 6 & 7 redevelopment consents.

Wharf 8 Extension - Coastal Permit Application (CP 1) & Land Use Consent Application (LUC 1), Outer Port Reclamation - Coastal Permit Application (CP 2), Land Use Consent Application (LUC 2) & Discharge (to Land & Water) Permit Application (DP 1), Outer Breakwater Upgrade – Coastal Permit (CP3) & Land Use Consent (LU4), Southern Logyard Stormwater System Extension/Upgrading - Coastal permit application (CP 4), Land Use Consent Application (LUC 6) & Discharge (to Ground & Water) Permit Application (DP 2).

- Construction Management Plan (CMP) – Ref. Worley Twin Berths engineering report and Conditions & 10 of Wharves 6 & 7 redevelopment consents
- Earthworks, Erosion & Sediment Control Plan (EESCP) – Ref. Worley Twin Berths engineering report and Conditions 19-27 of Wharves 6 & 7 redevelopment consents
- Construction Traffic Management Plan (CTMP) - Ref. ECC traffic report and Condition 36 of Wharves 6 & 7 redevelopment consents
- Construction Noise Management Plan (CNMP) - Ref. Marshall Day construction noise report and Conditions 34 & 35 of Wharves 6 & 7 redevelopment consents
- Marine Pest Management Plan (MPMP) – Ref. 4Sight ecology report and Condition 10 of Wharves 6 & 7 redevelopment consents
- Korora Conservation Management Plan 2022 – 2032 - Ref. 4Sight Little Penguin/Korora Assessment of Ecological Effects
- Construction Activity Notification & Monitoring – Ref. Conditions 12-14 of Wharves 6 & 7 redevelopment consents
- Construction Noise Limits – Ref. Marshall Day construction noise report and Conditions 34 & 35 of Wharves 6 & 7 redevelopment consents
- Construction Vibration Limits - Ref. Marshall Day construction noise report and Condition 33 of Wharves 6 & 7 redevelopment consents
- Outer Port Reclamation Construction Visual Monitoring of Sediment Discharges - Ref. 4Sight Ecology report.
- Contaminated Land - Site Management Plan (SMP) and Post Remediation Works Validation Report (PRWVR) - Ref. 4Sight DSI and Conditions 29-31 of Wharves 6 & 7 redevelopment consents.
- Port Operations Noise Management Plan- Ref. Marshall Day Port Operations Noise Report and Condition 41 of Wharves 6 & 7 redevelopment consents decision.
- Port Operations Noise Emissions - Ref. Marshall Day Port Operations Noise Report and Condition 42 of Wharves 6 & 7 redevelopment consents decision
- Port Operations Noise Monitoring Programme – Ref. Marshall Day Port Operations Noise Report and Condition 43 of Wharves 6 & 7 redevelopment consents decision.

Southern Logyard Stormwater System Extension/Upgrading - Coastal permit application (CP 4)

- Stormwater System Management – Ref. 4Sight AEE report and Conditions 53-55 of Port Entry redevelopment consents decision

- Stormwater Outfalls Management - Ref. Cheal stormwater report and Condition 56 of Port Entry redevelopment consents decision
- Stormwater Quality Monitoring Programme & Mixing Zone Determinations - Ref. 4Sight ecology report and Conditions 10,11 & 17 of Southern logyard s127 variation decision
- Receiving Environment Water Colour & Clarity Monitoring - Ref. 4Sight ecology report and Conditions 57-59 and 69-70 of Port Entry redevelopment consents decision
- Port Sediment Quality Monitoring Programme - Ref. 4Sight ecology report and Conditions 53-58 of Wharves 6 & 7 redevelopment consents decision
- Northern Catchment Area Ponding and Overland Flowpath Mitigation Report- Ref. Cheal stormwater report

Outer Port Capital Dredging - Coastal Permit Application (CP 5) & Outer Port Maintenance Dredging - Coastal Permit Application (CP 7)

- Annual Dredging Report- Ref. 4Sight AEE and Condition 52 of Wharves 6 & 7 redevelopment consents decision
- Area of Dredging Operations - Ref. Worley engineering report and Condition 51 of Wharves 6 & 7 redevelopment consents decision
- Marine Pest Management Plan (MPMP) - Ref. 4Sight ecology report and Condition 10 of Wharves 6 & 7 redevelopment consents
- Management of Dredging Operations to Limit Effects on Water Colour & Visual Clarity - Ref. 4Sight ecology report and Condition 52 of Wharves 6 & 7 redevelopment consents decision
- Maintenance Dredging Sediment Quality Monitoring Programme - Ref. 4Sight ecology report and Conditions 53-58 of Wharves 6 & 7 redevelopment consents decision
- Coastal Processes Effects Monitoring – Ref. MetOceans capital dredging report.

Outer Port Capital Dredging Disposal - Coastal Permit Application (CP 6) & Outer Port Maintenance Dredging Disposal - Coastal Permit Application (CP 8).

- Marine Pest Management Plan -- Ref. 4Sight ecology report and Condition 10 of Wharves 6 & 7 redevelopment consents
- Area of Disposal and Spread of Dredged Material - Ref. MetOceans dredging reports and Conditions 61 & 62 of Wharves 6 & 7 redevelopment consents decision
- Management of Operations to Limit Effects on Water Colour and Visual Clarity – Ref. 4Sight ecology report and Condition 63 of Wharves 6 & 7 redevelopment consents decision
- Offshore Spoil Disposal Ground and Control Area Surveys and Monitoring – Ref. MetOceans dredging reports Condition 64 of Wharves 6 & 7 redevelopment consents decision
- Offshore Spoil Disposal Ground Benthic Ecology Monitoring Programme -Ref. 4Sight ecology report and Condition 65 of Wharves 6 & 7 redevelopment consents decision
- Offshore Spoil Disposal Ground Coastal Processes Investigations and Monitoring Programme- Ref. MetOceans dredging reports and Condition 66 of Wharves 6 & 7 redevelopment consents decision

Port Occupation Area - Coastal Permit Application (CP 9).

No matters identified in AEE or expert reports. No conditions are attached to the current coastal permit.

20 OTHER RELEVANT ACTS

20.1 Marine & Coastal Area (Takutai Moana) Act and Ngā Rohe Moana o Ngā Hapū o Ngati Porou Act 2019

20.1.1 General Overview

The Marine and Coastal Area Act (MACA) was introduced in 2011 and established a 'sui generis' property class for the marine and coastal area, which is vested in no one. Section 4 of the Act records its purpose was to repeal the former Foreshore and Seabed Act 2004 and to:

"(a) establish a durable scheme to ensure the protection of the legitimate interests of all New Zealanders in the marine and coastal area of New Zealand; and

(b) recognise the mana tuku iho exercised in the marine and coastal area by iwi, hapū, and whānau as tangata whenua; and

(c) provide for the exercise of customary interests in the common marine and coastal area; and

(d) acknowledge the Treaty of Waitangi (te Tiriti o Waitangi)."

In 2019, the Ngā Rohe Moana o Ngā Hapū o Ngati Porou Act 2019 was enacted to contribute to the legal expression, protection, and recognition of the continued exercise of mana by ngā hapū o Ngati Porou in relation to ngā rohe moana o ngā hapū o Ngati Porou. The Act replaced MACA in the common marine and coastal area for Ngā Hapū o Ngati Porou. Many of the components of the Ngā Rohe Moana o Ngā Hapū o Ngati Porou Act 2019 are similar to the powers and mechanisms under MACA, including aspects related to Customary Marine Title application creates a variety of rights, powers and mechanisms for Ngā Hapū o Ngati Porou in relation to ngā rohe moana. Many of those rights are triggered once a 'customary marine title area' or a 'customary marine activity' has been recognised.

As previously identified, Eastland Port has notified and sought the views of those groups who have made an application for recognition of Customary Marine Title applying to the location of the Port and/or OSDG, in accordance with Section 62 Part 3 of the MACA.

In addition section 16 of Ngā Rohe Moana o Ngā Hapū o Ngati Porou Act 2019 places notification obligations on Council in relation to relevant Ngati Porou hapū where an application is publicly notified and is for an activity that is within, adjacent to, or directly affecting ngā rohe moana o ngā hapū o Ngati Porou.

20.1.2 Customary Marine Title Planning Document and Environmental Covenant

Clause 3(c) of Schedule 4 requires that if the activity is to occur in an area within the scope of a planning document prepared by a customary marine title group under section 85 of the Marine and Coastal Area (Takutai Moana) Act 2011, an assessment of the activity against any resource management matters set out in that planning document (for the purposes of section 104(2B)).

Neither Eastland Port nor 4Sight are aware of any planning documents prepared under section 85.

Section 19 of the Ngā Rohe Moana o Ngā Hapū o Ngati Porou Act 2019 also provides for the creation of an 'environmental covenant' which is relevant to district and regional planning documents under the RMA. Neither Eastland Port nor 4Sight are aware of any such covenant prepared under the Ngā Rohe Moana o Ngā Hapū o Ngati Porou Act 2019 and this has also been confirmed by the Council.

21 PART 2 RMA

Section 5

Section 5 sets out the purpose of the RMA, which is to:

> *"…promote the sustainable management of natural and physical resources…in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while:*
>
> *(a) sustaining the potential of natural and physical resources to meet the reasonably foreseeable needs of future generations; and*
>
> *(b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
>
> *(c) avoiding, remedying, or mitigating any adverse effects of activities on the environment..."*

The Proposal is consistent with the purpose of the Act. It will result in much more efficient operation of the port and provide for regional economic, social and cultural wellbeing, and improved health and safety working conditions for port workers and customers. At the same time, it will sustain both the natural and physical resources, including the life supporting capacity of the seabed, coastal water, soils and ecological communities, whilst avoiding, remedying or mitigating the adverse effects of some parts of the project on these same resources.

Section 6

Section 6 lists eight matters of national importance that are to be recognised and provided for in relation to the Act's purpose. Six are most relevant to the Proposal. They are: -

(a) *The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use and development;*

(b) The protection of outstanding natural features and landscapes from inappropriate subdivision, use and development;

(d) The maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers;

(e) The relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga;

(f) The protection of historic heritage from inappropriate subdivision, use and development;

(h) The management of significant risks from natural hazards.

The following assessment is provided of the six relevant matters listed above:

- Clause (a). The port area has very low natural character values, as set out in the 4Sight ecology and landscape reports. The Twin Berths development is an 'appropriate development' in this highly modified part of the coastal environment. As outlined in the 4Sight ecology report the Outer Breakwater upgrade and Wharf 8 extension will also affect natural elements and processes as small areas of benthic habitat will be covered/lost and there will be some associated effects on tidal flows, sedimentation and other natural processes. However, these adverse effects will be small scale and, with new habitats created, are not assessed as being 'inappropriate.' The Outer Port reclamation will have the greatest effect on natural elements and to a much lesser extent natural processes. Although an area of approximately 0.89ha will be covered/lost the adverse effects on natural elements/processes will not be 'inappropriate'. The 4Sight ecology reports finds the ecological effects to be 'low' taking all species and habitat values into account. This includes the positive elements that should accrue to crayfish and other marine life associated with the new reclamation revetment, and also the opportunities that will be created here for improved Kororā habitat.
- Clause (b). The Outstanding Landscape Unit notations applying to the Tuamotu Island and Young Nicks Head – Waipaoa River mouth areas were outlined earlier in this AEE. They are assessed in relation to the Proposal in the 4Sight landscape report, which finds that both construction of the new port facilities, and their operation, will be 'appropriate.' The Port is not located within any areas of identified outstanding natural features or landscapes, as identified by the 4Sight Landscape assessment.

- Clause (d). The public generally do not have access to and along the CMA part of the port affected by the Proposal. This is expected to continue and as such there will be no reduction in public access. As outlined earlier, Eastland Port have considered the possibility of enhanced public access from the Kaiti Beach area around the edge of Southern logyard to the heritage boat harbour, but it is not feasible because of Kororā use of the seawall.
- Clause (e). Eastland Port have undertaken and continue to undertake meaningful engagement with iwi, hapū and whanau with customary rights and other interests in Tūranganui-a-Kiwa and address related concerns in relation to this part of the RMA. The engagement has been primarily through the collective Te Tai Uru, but also on an individual iwi, hapū or whanau basis. The engagement has been directed at recognising and understanding the cultural interests that tangata whenua have with the area, including the heritage boat harbour and other cultural sites and taonga in the CMA and on land.
- Clause (f). The heritage boat harbour is the only known heritage site possibly affected by the project. Appropriate effects avoidance/mitigation measures, notably the 5m separation from the Outer Port reclamation, and control/monitoring of sediment discharges, have been incorporated into the design, construction and operations of the reclamation to ensure the boat harbour is protected.
- Clause (h). The Worley engineering reports and appended development plans address the allowances for sea level rise and other significant natural hazard risks.

Section 7

Section 7 lists further matters that all parties are required to 'have regard to' in relation to resource consent applications. Most of the matters listed in Section 7 are relevant to the Proposal, these being:

(a) Kaitiakitanga;

(b) The efficient use and development of natural and physical resources;

(c) The maintenance and enhancement of amenity values;

(d) Intrinsic values of ecosystems;

(f) Maintenance and enhancement of the quality of the environment;

(i) The effects of climate change;

Clause (e) has been repealed, whilst Clauses (ba), (g) and (j) relating to energy use, finite resources and renewable energy are of limited relevance to the project.

- Clause (a). The term kaitiakitanga is defined in s2 RMA as "*the exercise of guardianship by the tangata whenua of an area in accordance with tikanga Māori in relation to natural and physical resources; and includes the ethic of stewardship*". The Proposal has been developed while recognising the cultural, heritage, ecological and landscape/natural character values of the port and surrounding area. Kaitiakitanga inherently rests with the iwi/Hapū/whanau identified earlier in this report. It is expected to be exercised on an ongoing basis through both Te Tai Uru and individual organisation relationships/protocols with Eastland Port during both construction and operation of the additional Twin Berth port facilities. These include agreed conditions and provisions for ongoing kaitiaki role in monitoring the effects of the project on cultural/heritage and wider environmental values.
- Clause (b). The Proposal builds on, and continues to make efficient use of, established port facilities such as the PNC, breakwater, VTB, wharves and cargo/logyard storage areas. The proposed Outer Port reclamation is also immediately adjacent to these facilities in a particularly efficient location.
- Clauses (c). Amenity values are defined in the RMA as "*those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes*." Although the port has limited amenity values they will be maintained and enhanced through the cultural, ecological, landscape and other initiatives built into the project.
- Clause (d). The relevant 'intrinsic values' of the affected ecosystems are described in Sections 3-5 of the 4Sight ecology report. The effects on those values are found in the report, to be 'low to 'very low'. The report has given 'appropriate regard' to the 'intrinsic values' in relation to in the design of the project and operation of the extended port facilities.
- Clause (f). The 'quality of the environment' will also be maintained and enhanced through the project design, operational and monitoring initiatives outlined earlier in this AEE and appended expert reports.

- Clause (i). The potential effects of climate change have been recognised in the Outer Port extension components of the project, notably in the design of the outer breakwater upgrade, Wharf 8 and proposed reclamation accounting for sea level rise, as set out in the Worley engineering report.

Section 8

Section 8 requires all persons to take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi). This is being done in terms of the Eastland Port process of establishing and funding Te Tai Uru and engaging with individual iwi, hapū and whanau. Eastland Port has approached the Proposal on the basis of active engagement with iwi, hapū, and whanau, recognising the cultural values associated with parts of the port, the adjacent Kaiti Beach – Turanganui River areas and wider Tūranganui-a-Kiwa.

22 SUMMARY

The Eastland Port Proposal at the Port of Gisborne requires coastal permits, land use consents and discharge permits (to land and groundwater) under the RMA, the Resource Management (Marine Pollution) Regulations, the National Environmental Standard on Soil Contamination and the Tairāwhiti Resource Management Plan rules. The development activities that require consent are fully described in this AEE with reference to the appended expert and the relevant statutory provisions.

Applying the bundling principle, the application requires resource consent for a discretionary activity under the TRMP. The application requires discretionary activity consent.

This AEE and the appended expert reports have fully assessed the environmental effects of the project. They outline the proposed consent terms and conditions upon which the applications are being made by Eastland Port. The reports identify effects avoidance and mitigation measures that have been built into the project, along with proposed monitoring measures, to ensure that the effects under the RMA will generally be of a 'minor' nature. Draft consent conditions are to be prepared during the initial Council processing of the applications which will show how the details in the AEE are to be given effect during the initial construction phase and then with ongoing operation of the completed Twin Berth port facilities.

Eastland Port is requesting the applications be publicly notified. This is primarily because of the Council/Crown statutory acknowledgements in place with Ngati Porou, Rongowhakaata and Ngai Tamanuhiri, along with the notification obligations on the Council under the Ngati Porou Act. There is also significant public interest in the project.

Engagement with the Port Community Liaison Group, Te Tai Uru, iwi, hapū and whanau with recorded interests in the port and wider bay has been initiated and will be further progressed during the Council consent processing phase. Several conservation, fisheries, heritage and recreational organisations have also been engaged and this will also continue.

The AEE finds that the applications meet the requirements under section 104, 105 and 107. It also finds that they are consistent with wider provisions in the RMA, the Resource Management (Marine Pollution) Regulations, NZ Coastal Policy Statement and the Tairāwhiti Resource Management Plan. Adverse effects are appropriately avoided remedied or mitigated, the consents sought are consistent with the TRMP and should be granted.