ASSESSMENT OF RESOURCE CONSENT APPLICATION S.42A OFFICER'S REPORT

Independent Hearing Commissioners

Date of Report: 31 July 2018

Date of hearing commencement: 21 August 2018

Applicant:	Port of Napier Limited
Activity Type:	Discretionary (when bundled)
Notification Type:	Publicly Notified (requested by applicant)
Application Numbers and Activities:	See Table 1 (below)

Table 1: Consents Sought by the Applicant

Consent No's	Purpose	Property Address
CL180008C	To construct a new wharf (Wharf 6) and undertake associated activities.	Port of Napier, Breakwater Road, Napier & various locations within the Coastal Marine Area (CMA)
CL180009E	To undertake Stage 1 capital dredging beneath the proposed new wharf, in the inner port area, swinging basin and part of the Deep Water Channel.	
CL180010E	To undertake Stages 2 to 5 capital dredging within the inner port area, swinging basin, in and near the existing three channels and to form a new channel.	
CL180011E	To undertake maintenance dredging within the areas for which capital dredging permits are sought (Stages 1 to 5).	
CD180012W	To dispose of dredged material from capital and maintenance dredging within an offshore area shown in the application.	
CL180013O	To occupy the common marine and coastal area for existing Port activities (replacing the existing coastal permits held by Napier Port to occupy an area for port purposes), the proposed new wharf, the adjacent berth pocket including the areas on both sides of the dolphins, and the new swinging basin, as shown in the plan attached to the application.	

1. REPORT STATUS, AUTHOR AND FORMAT

1. This report is a section 42A report prepared under the Resource Management Act 1991 (RMA). It provides an independent assessment and recommendations on the applications made by Port of Napier. This section allows a Council officer to provide a report to the decision-maker on a resource consent made to the Council, and allows the decision-maker to consider the report at the hearing. Section 41(4) of the RMA allows the decision-maker to request and receive from any person who makes a report under Section 42A "any information or advice that is relevant and reasonably necessary to determine the application".

2. This report does not represent any decision on the application and only provides the professional assessment and opinions of the report author. This report will be considered by the Independent Commissioners in conjunction with the consent application and all other technical evidence and submissions which have been received to date and any further material that may be presented at the hearing. The report and recommendations do not have any greater weight than any other material or submissions that will be considered by the Commissioners.

3. This report has been prepared by Reece O'Leary who works as a Principal Consents Planner at Hawke's Bay Regional Council. I hold a Master of Resource and Environmental Planning and a Bachelor of Science (majoring in Geography) from Massey University. I have experience in processing discharge permits to discharge contaminants to land and into water from industrial, rural and residential activities, water permits, and land use consents for activities in the beds of rivers and over aquifers. I have experience in regard to processing resource consents for activities in the coastal environment including coastal discharge permits and coastal occupation permits.

4. In preparing this report I have referred to and have been guided by the technical advice from the following experts:

   Dr Shane Kelly – Dr Kelly is a technical expert with respect to marine ecology and is an independent consultant and Director of Coast and Catchment Limited. Dr Kelly has significant experience working on research and resource management projects in coastal and marine ecology. Dr Kelly completed his PhD on marine reserves and crayfish ecology at the University of Auckland, and has authored or co-authored 10 papers published in scientific journals on crayfish ecology and management, plus multiple reports on crayfish related matters.

   Richard Reinen-Hamill – Mr Reinen-Hamill has more than 28 years international experience in coastal processes, is a Fellow of Engineering New Zealand and a director of Tonkin and Taylor Limited.

Richard has played a major role in a number of recent dredging projects including the Refining NZ Crude shipping project, Centreport dredging project, Westgate Transport Ltd dredging and spoil disposal consent and the Port of Tauranga dredging and spoil disposal consent process. Richard understands the Hawke's Bay coastal environment very well having carried out numerous studies and investigations within the Hawke's Bay region primarily for the Hawke's Bay Regional Council since 1997. This has included detailed analysis of coastal processes and shoreline evolution as part of the development of coastal erosion and inundation hazard risk zones along the entire region and the detailed hazard and risk assessment recently completed for the shoreline from Tangoio to Clifton. Richard is currently the Sector Director – Natural Hazard Resilience at Tonkin and Taylor.

Dr Terry Hume – Dr Hume has more than 38 years' experience as a geologist/coastal oceanographer in interdisciplinary environmental research and consulting for government departments, local authorities and private companies. Dr Hume is the Director of Hume Consulting Limited. He has expert knowledge as a marine geologist, coastal geomorphologist and coastal oceanographer. Dr Hume has significant experience in applying and interpreting numerical models to inform the understanding of coastal processes. In relation to his role at NIWA as a Principal Scientist and Project Director, Dr Hume has experience undertaking technical reviews and evaluations of work by other specialists where models have been used.

5. This planning report is presented as follows:

6. The series of appendices that complete this report are as follows:

Appendix 1: Draft Conditions

Appendix 2: Further Information Sought and Answers Provided (includes s.92)

Appendix 3: Joint Witness Statement

Appendix 4: Technical Memorandum's and Evidence

Summary of Approach to Recommendation

7. The proposal is technically complex. Submissions received regarding the proposal showed a strong difference in views about the proposed disposal location with some submitters wanting assurance that the Port would continue to nourish Westshore Beach and others wanting the dredged material deposited much further offshore than what is proposed. Submissions also highlighted a number of issues that required further information and clarification to be sought from the applicant. The RMA did not allow the 'clock' to be 'stopped' while the applicant responded to some of these requests for further information and clarification[1]. Therefore, at the time this report was being compiled in time for circulation[2], there was still uncertainty in regard to some technical matters. These matters are explained in detail by the evidence and advice of Council experts, attached to this report.

8. Hearing Chair, Mr Bill Wasley directed that expert witnesses caucus prior to the hearing to try to resolve any differences of opinion in their area of expertise prior to this section 42A report being circulated.

9. Caucusing between coastal experts took place on Friday 20 July in Auckland[3] and via video link[4] and the joint witness statement resulting from this caucusing session is attached to this report as Appendix 3. Council experts finalised their statements of evidence following caucusing. Therefore, the respective statements of evidence prepared by each of them represents their views on the proposal following caucusing. The applicant's Marine Ecologist was not available to caucus with Council's technical expert in that field, Dr Shane Kelly. Therefore, as anticipated by the Chair, caucusing by expert witnesses during the hearing may be required in respect of any particular issue that is still outstanding[5].

10. It is the opinion and recommendation of the report writer that the applications can be granted subject to further details in regard to the matters addressed during caucusing and the resolution of the

[1] Section 88C(2)
[2] 15 days prior to the commencement of the hearing
[3] Richard Reinen-Hamill, Shane Kelly, Terry Hume and Martin Single
[4] Chris Adamantidis, Benjamin Williams and Peter Cowell
[5] Item 9, Direction of Commissioner Hearing Panel Number 1.

outstanding issues presented in the evidence of Council's technical experts attached to this report as Appendix 4 and summarised by this report in various sections. This recommendation is subject to the receipt of further information from the applicant on the potential effects relating to the matters outlined below;

1) The potential effects on the finfish fishery, particularly on the flatfish fishery supported by Hawke Bay, as a result of dredged material being disposed of at the proposed offshore disposal site. Dr Kelly has identified this matter as an issue of concern. A related matter that also needs to be addressed is that relating to the ecological data that was used to determine the ecological values and condition of the dredging and disposal areas.

2) The evidence of Mr Reinen-Hamill notes that there appear to be some anomalies in the sediment transport derived from wind driven currents, with westerly winds showing strong westerly transport. Mr Reinen-Hamill understands that this will be reviewed and explained in evidence by the Port coastal experts. This is a matter that needs to be resolved in the applicant's evidence and finalised at the hearing. Finalising this issue will address the concerns of a number of submitters who among others, need confidence in the scientific evidence presented.

3) The final matter that needs to be addressed in the evidence supplied by the applicant and finalised at the hearing is the intended pathway to mitigate the effects that the proposed dredging of the channel will have on the sediment supply to the eroding Westshore Beach. However, there is a lack of detail and analysis of the nearshore disposal effect on coastal process and marine ecology included in the application as it is focussed on a single offshore disposal location around the 20 m depth contour. If nourishment of Westshore Beach is required to mitigate an effect in relation to the activities proposed, then in my view this mitigation should be managed through a condition of consent requiring nourishment. Alternatively, the matter could be addressed through a Memorandum of Understanding (or similar), although this would provide less certainty that the mitigation will occur than if a consent condition was imposed. If the commissioners conclude that nourishment is necessary mitigation for the proposed activities effects (dredging and deepening of the channel), then I consider a consent condition requiring suitable dredged material to be used for beach nourishment is the more appropriate approach.

11. The applicant has provided a suite of draft conditions in relation to each of the consents sought. The applicant has stated that they expect these may change subject to this consenting process.

12. Draft conditions have been prepared and these largely adopt the conditions proposed by the applicant with some modification as described in this report and advised by the technical reports which have helped inform this report. These draft conditions are provided as Appendix 1 and may be refined

through the hearing process and by the commissioners when formulating their decision, should the consents be granted.

2. DETAILS OF THE PROPOSAL

13. Port of Napier (the applicant) proposes to construct a new wharf (wharf 6) to meet its future berthage needs for larger vessels, and to undertake dredging to provide a safe and navigable approach channel for these larger vessels.

14. Wharf 6 is proposed to be located alongside the northern face of the existing container terminal and is proposed to be 350 metres in length and 34 metres wide. The proposed location of wharf 6 is within the existing Port Management Area and will take advantage of the sheltered area that is provided by the existing breakwater.

15. The dredging applications involve five stages of capital dredging (dredging that lowers the sea bed to a greater depth than previous dredging) and subsequent maintenance dredging (dredging that removes any material that has started to fill in the area that has already been capital dredged). The capital dredging work will deepen the existing swinging basin and harbour entrance, and progressively extend a larger channel out from the Port, to a final depth of 14.5m. This will be done in five stages (campaigns).

16. The first stage of capital dredging will provide full depth to 14.5m under wharf 6 and an adjacent "berth pocket". It will also include deepening of the swinging basin, parts of the inner harbour area and the first part of the area of the new channel closest to the Port to a depth of 12.5m. This will involve approximately 1.14 million cubic metres of dredged material. Stages 2 to 5 will involve extending the new channel and increasing its depth by 0.5m each campaign. Each of the campaigns 2 to 5 involve a similar volume of material; the overall total being approximately 3.2 million cubic metres.

17. The applicant proposes to use both a backhoe dredge and a trailing suction hopper dredge with stage 1 of the dredging expected to take approximately 50 weeks and each of the subsequent four stages expected to take eight or nine weeks.

18. The applicant has applied for a new coastal permit for the deposition and disposal of the dredged material some 4km to 6km immediately to the east of the Port in water of 20 to 23m depth. The proposed disposal area is approximately 342 hectares in area and is approximately 3.3 kilometres south-east of Pania Reef. As applied for, the applicant proposes to deposit and dispose of all dredged material, both capital and maintenance in the newly proposed disposal site. It is noted that the applicant holds an existing coastal permit to deposit dredged material near Westshore Beach.

19. The applicant is also seeking a new coastal permit to authorise its existing and proposed occupation of the coastal marine area. Specifically, the applicant seeks occupation consent for existing Port activities (replacing the existing coastal permits held by Napier Port to occupy an area for Port purposes), the proposed new wharf, the adjacent berth pocket including the areas on both sides of the dolphins, and the new swinging basin.

Figure 1. Location and Layout of Proposed Wharf 6 (adjacent to the existing Northern Container Terminal)

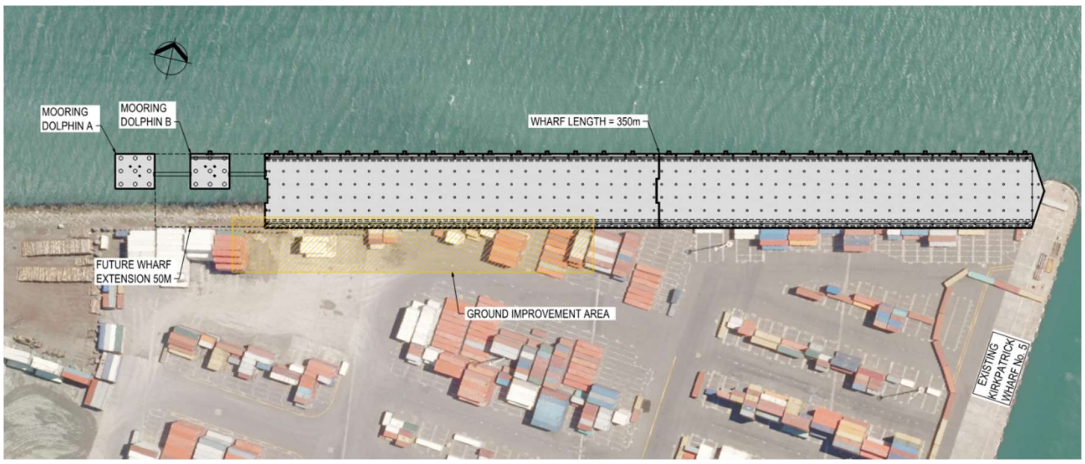


Figure 2. Location of Proposed New Wharf and Extent of Dredging

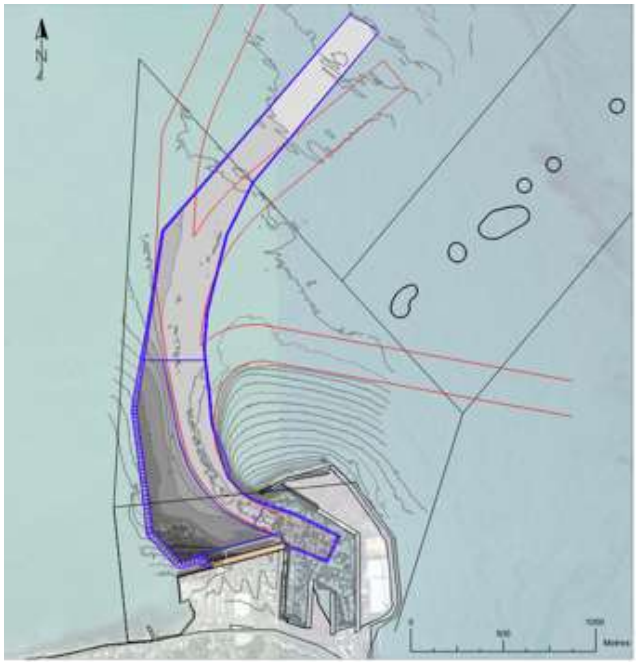
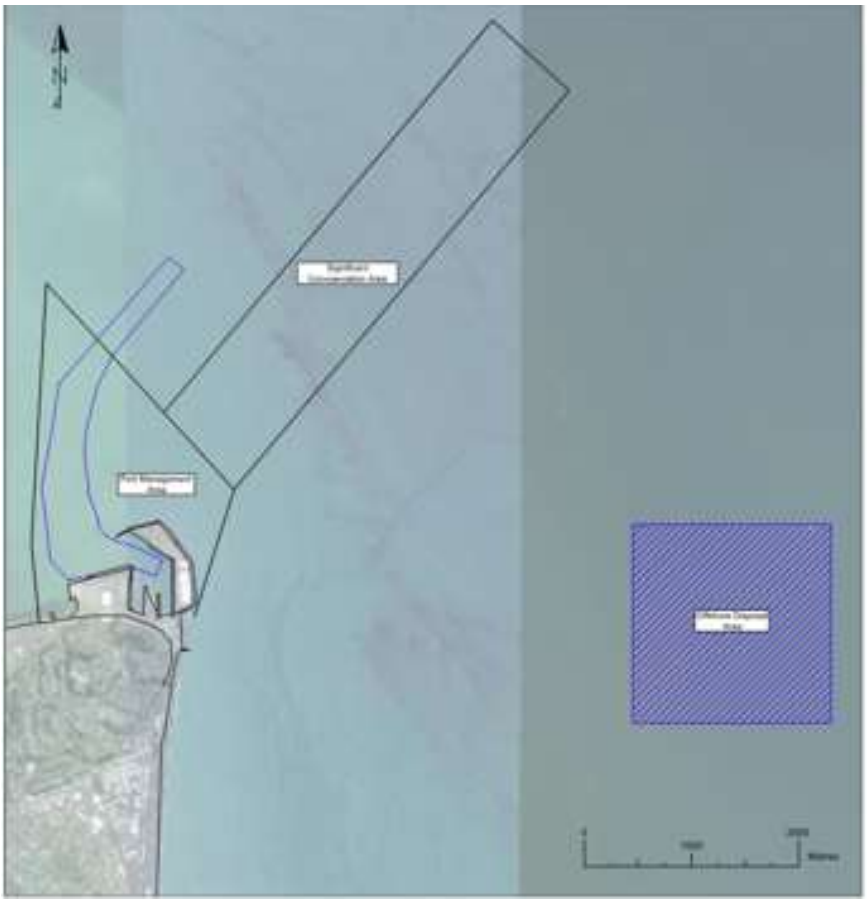


Figure 3. Location of Proposed Disposal Area (offshore disposal site)



3. CLASSIFICATION OF THE ACTIVITIES, EXISTING COASTAL PERMITS & NEW PERMITS SOUGHT

Relevant Rules and Provisions

20. The proposed activities will be located and/or undertaken below MHWS, and it is therefore located within the Coastal Marine Area (CMA) and therefore the provisions of the Hawke's Bay Regional Coastal Environment Plan (RCEP) are relevant to the proposal. The applicant engaged with Council during the pre-application stage of the consent process to discuss and determine which RCEP rules related to their proposal. Section 6.2 of the application discusses the RCEP in general and specifically the rules relevant to the proposed activities[6]. Table 2 below outlines the rules of the RCEP that are relevant to the proposal

[6] Napier Port AEE 'Proposed Wharf and Dredging Project', Volume 1, Pages 71 -76

Table 2: Relevant Rules in the RCEP[7]

Activity	Plan Rule	Status	Rationale/Principal Reason
Reclamation in the Coastal Marine Area			
Reclamation of the seabed not regulated by, or not complying with other rules.	Rule 111	Discretionary	The project involves the very minor reclamation[8] of a small strip of coastal marine area beyond the existing revetment beneath the wharf deck and piles (this is all below MHWS so does not create new land in the adjacent district).
Structures in the Coastal Marine Area			
Structures not regulated by, or not complying with, other rules.	Rule 117	Discretionary	The project involves a new No.6 Wharf structure and associated mooring dolphins to the north which are not regulated by other rules.
Disturbances, Depositions and Extractions in Coastal Marine Area			
Disturbances of the foreshore or seabed not regulated by, or not complying with other rules.	Rule 130	Discretionary	This rule will apply to the construction of No.6 Wharf and associated mooring dolphins, including piling and provision of erosion protection, and incidental associated activities.
Maintenance dredging within the Fairway, Swinging Basin and Berths in the Port Management Area.	Rule 139	Permitted	This rule applies to a component of the maintenance dredging where it can be distinguished from the capital dredging programme.
Maintenance dredging within the Port Management Area.	Rule 140	Controlled (conditions on area and volume apply)	Some of the necessary maintenance dredging within the Port Management Area is outside the area where it is a permitted activity under Rule 139.
Disturbances within specified Significant Conservation Areas	Rule 143	Prohibited	Consent cannot be sought for any activity involving disturbance (dredging or disposal) within 700m of the area delineated on the plan maps as the Pania Reef SCA (SCA 13).

[7] AEE, Volume 1, Table 6-2, Pages 73 - 74
[8] See definition of reclamation, Part I, RCEP.

Removal of sand, shell, gravel or other natural material not regulated by, or not complying with, other rules.	Rule 144	Discretionary	This rule captures all other activities associated with the disturbance of the foreshore and seabed, including all capital dredging.
Deposition of substances arising from maintenance dredging of the Fairway, Swinging Basin and Berths in the Port Management Area.	Rule 150	Controlled (conditions on volumes and deposition areas)	Deposition of dredged material from maintenance dredging of some areas into specified areas.
Deposition of more than 50,000m^3 per year.	Rule 151	Discretionary	Covers disposal of dredged material.
Discharge of Contaminants			
Discharges not regulated by, or not complying with other rules.	Rule 160	Discretionary	Covers disposal of dredged material, including turbid water associated with such activities (except for activities covered by Rule 139 – permitted maintenance dredging).
Occupation of Space in Coastal Marine Area			
Occupation of CMA not regulated by, or not complying with other rules.	Rule 178	Discretionary	This rule applies because the Port is seeking to renew its existing occupation permits, and at the same time obtain a permit for the occupation of space in the coastal marine area by the new No.6 Wharf, mooring dolphins, and the revetment, and the new berth pocket and swinging basin.

21. The applicant stated in their application that noise emissions within the Operation Port Area, and noise from dredging activities will meet the permitted activity requirements set out by Rules 176 and 177. Furthermore, the storage of hazardous substances within the Port Management Area is a permitted activity under Rule 172.[9]

22. Stormwater from the proposed wharf will discharge via an existing stormwater network to the CMA and/or onto the gravel beach immediately adjacent to the CMA. The applicant is aware that they will

[9] AEE, Volume 1, Section 6.2.3, pg. 74

need to vary their existing stormwater consent (CD040033Wa) to include the new wharf catchment and has stated that this would be done subject to the construction of wharf 6.[10]

Existing Coastal Permits

23. The applicant currently holds seven existing coastal permits that they believe are potentially relevant to the proposal. These are set out in Table 3 below.

Table 3: Existing 'current' Coastal Permits[11]

Existing Consent No.	Description of Activity/Consents Purpose	Expires
CL110542E	To undertake capital dredging to excavate material from the seabed from within the Josco Channel, Fairway Berths and Inner Swinging Basin.	31 May 2019
CL120004E	To undertake capital dredging of up to 50,000m^3 of seabed material to form an outer swinging basin.	31 May 2019
CL120172E	To undertake maintenance dredging of a 13.35 hectare area of seabed within the Port Management Area.	31 May 2032
CL970159D	To deposit up to 350,000m^3 of dredge spoil over any 12 month period at "Ia" and "R" disposal areas.[12]	31 May 2033
CD040033Wa	To discharge stormwater from Port of Napier and surrounding area in the coastal marine area and/or gravel beach immediately adjacent to the coastal marine area.	31 May 2024
CL940231O	To occupy exclusively the inner harbour area and a 20 metre by 240 metre (4,800m^2) strip of the coastal marine area adjacent to the edge of the land owned and occupied by the Port, as defined on plans, including areas occupied by navigational aids, for the undertaking of port related commercial activities.	30 September 2026
CL030374O	To occupy exclusively a 20 metre by 240 metre (4800m^2) strip of coastal marine area on the seaward side of the breakwater to undertake port activities.	30 September 2026

[10] AEE, Volume 1, Section 6.2.3, pg. 74
[11] AEE, Volume 1, Table 6-3, Pages 74 - 75
[12] These are the existing "inshore" deposition areas located near Westshore Beach

24. The applicant has provided a discussion on these existing coastal permits in their application for this project. I am mindful of section 42A (1A)[13] but believe the information below that was included in the application is relevant for consideration as part of the decision making process for the new consents sought by the applicant. The applicant stated the following in relation to the existing coastal permits set out in the table above:

Capital Dredging Coastal Permits (CL110542E and CL120004E)

These two existing coastal permits will be surrendered if consent is granted for the project, provided that the new coastal permits and their conditions are favourable for the capital dredging regime sought by Napier Port.

As previous mapping, reporting and bathymetric surveys carried out as part of these coastal permits have been undertaken effectively, similarly worded draft conditions have been suggested and are included in section 26 of this report.

Maintenance Dredging Coastal Permit (CL120172E)

This existing coastal permit will be surrendered if consent is granted for the project, provided that the new coastal permits and conditions are favourable for the operational maintenance regime sought by Napier Port.

As previous mapping, reporting and bathymetric surveys carried out as part of these coastal permits have been undertaken effectively, similarly worded draft conditions have been suggested and are included further under section 26 of this report.

Deposition Coastal Permit (CL970159D)

This existing coastal permit may be surrendered if consent is granted for the project, provided that the new coastal permits and conditions are favourable for the deposition regime required by Napier Port. Alternatively the permit (or parts of it) may be retained for the deposition of some dredged material in the future.

As previous mapping, site specific locations for dredging and deposition areas, macrobenthos and bathymetric surveys, adaptation to methodology and reporting, carried out as part of this coastal permit have been undertaken effectively, similarly worded draft conditions have been suggested and included in section 26 of this report for the proposed new disposal area.

[13] RMA (1991) Section 42A (1A) The report does not need to repeat information included in the applicant's application under section 88(2).

Stormwater Discharge Permit (CD040033Wa)

This existing discharge permit will be retained if consent is granted for the port development.

Once the new wharf is constructed, stormwater from the wharf deck and pavement will discharge through existing stormwater discharge points covered by the existing discharge permit. It is proposed to then seek to vary this existing stormwater discharge permit to include the new wharf catchment into an updated Plan attached to consent CD040033Wa.

Occupation of the Coastal Marine Area (CL940231O & CL030374O)

Port of Napier Limited holds a RMA section 384A permit (CL940231O) to occupy an area within the coastal marine area to enable the company to manage and operate the port-related commercial undertaking of the Napier Port. This permit includes the inner swinging basin and an area of a width of 20m beyond the edge of the existing port land, around the full port perimeter, as well as the area occupied by navigational aids. The permit conveys exclusive occupation rights and runs to September 2026. A further occupation permit (CL030374O) is held relating to the seaward site of the revetment, which has a matching duration[14].

These permits, under section 384A and section 12 of the RMA, will be surrendered if new coastal permits, and any conditions, are appropriate for the activities for which the occupation permits are sought, including operational, navigational and maintenance port-related purposes.

25. The applicant's statement (above) in relation to the deposition coastal permit (CL970159D) is of particular relevance to this consent application and decision making process. Although the matter of beach nourishment is discussed in detail later in the report and in the evidence attached to this s.42A report as appendices, it can be summarized as follows.

26. The applicant stated in their application and AEE that CL970159D may be surrendered if consent is granted for the project, provided that the new coastal permits and conditions are favourable for the deposition regime required by Napier Port. Alternatively the permit (or parts of it) may be retained for the deposition of some dredged material in the future.

27. The potential for the applicant to surrender CL970159D relates to a principal concern by a number of the submitters in opposition to this resource consent. There are a number of Westshore residents who

[14] This is a 20m x 240m strip, Consent No. CL030374O.

are concerned about the future of Westshore Beach and the risk of coastal erosion. These submitters believe that the dredged material should be used to nourish Westshore Beach and believe that the deposition of dredged material that has occurred in the past under the authorization of CL970159D has been of benefit[15] to the protection of Westshore Beach from coastal erosion.

28. Since lodging this application with Council, the applicant has advised Council that it will not surrender the existing consent (CL970159D)[16]. In addition to this, the applicant has advised that it is willing to make suitable material from its capital and maintenance dredging consents available for the purposes of beach nourishment or other coastal protection in the vicinity of Westshore[17]. The applicant is willing to enter into an agreement with another party to formalize its offer to make this material available. However, the party wishing to enter into the agreement with the applicant and subsequently wanting to deposit the material, would need to obtain a coastal permit to do so. The concept of a Memorandum of Understanding (MOU) or a Statement of Intent (SOI) was discussed at pre-hearing number 1[18]. In my view, if beach nourishment is required to mitigate an effect relating to the activities for which consents are sought by the applicant, nourishment is best dealt with as a condition of consent. This matter is addressed in detail later in this report and by the evidence of Council experts.

New Coastal Permits Sought and Activity Status

29. The new coastal permits sought and as were publicly notified on 29 March 2018 are set out in table 4 below.

Table 4: New Consents Sought and Activity Status

Consent No's	Purpose	Activity Status (Overall)
CL180008C	To construct a new wharf (Wharf 6) and undertake associated activities.	Discretionary
CL180009E	To undertake Stage 1 capital dredging beneath the proposed new wharf, in the inner port area, swinging basin and part of the Deep Water Channel.	Discretionary

[15] Submission number 34, Richard Karn
[16] Email from Michel de Vos, Subject: Question RE: statement on page 97 of application (volume 1). Email dated Thursday 5 July 2018 at 1:37pm.
[17] Draft Memorandum of Understanding / Statement of Intent. Email from Michel de Vos. Email dated Thursday 5 July 2018 at 3:55 pm.
[18] See the Report of Chairperson Regarding Pre-Hearing Meeting, Report prepared by Facilitator Martin Williams for pre-hearing number 1.

CL180010E	To undertake Stages 2 to 5 capital dredging within the inner port area, swinging basin, in and near the existing three channels and to form a new channel.	Discretionary
CL180011E	To undertake maintenance dredging within the areas for which capital dredging permits are sought (Stages 1 to 5).	Discretionary
CD180012W	To dispose of dredged material from capital and maintenance dredging within an offshore area shown in the application.	Discretionary
CL180013O	To occupy the common marine and coastal area for existing Port activities (replacing the existing coastal permits held by Napier Port to occupy an area for port purposes), the proposed new wharf, the adjacent berth pocket including the areas on both sides of the dolphins, and the new swinging basin, as shown in the plan attached to the application.	Discretionary

30. As detailed earlier in this report in Table 2, there are some components of the proposed activities that are permitted by the RCEP, some that are controlled activities and others that have a discretionary activity status. Maintenance dredging in specific parts of the Port Management Area can be undertaken as a permitted activity under Rule 139 when this activity can be distinguished from capital dredging. Maintenance dredging in other parts of the Port Management Area is a controlled activity under Rule 140. The current proposal includes dredging outside the Port Management Area as well as capital dredging, and accordingly triggers discretionary activity Rule 130. Deposition of maintenance dredging material sourced from certain areas[19] into specified areas[20] is a controlled activity under Rule 150. The proposal includes deposition of material sourced from outside those source areas and to areas outside those deposition areas, and accordingly triggers discretionary activity Rule 151. The activities are intrinsically linked, and relate to the construction of wharf 6 and dredging (capital and maintenance) to provide a safe and navigable approach channel for larger vessels. A 'holistic' approach is considered appropriate in this instance, and the activities requiring consent are assessed together as a discretionary activity bundle.

31. Section 104B of the Act states that Council may grant or refuse the application and if it grants the application, the Council may impose conditions under section 108. Furthermore, sections 105 and 107 apply to this application.

[19] The Fairway, swinging basin and berths in the Port Management Area
[20] Dredge Disposal Area 1 and Dredge Disposal Area 2, RCEP

4. BACKGROUND AND PHYSICAL ENVIRONMENT

Background

32. Napier Port is located on the south-western edge of Hawke Bay adjacent to Napier City. It is not afforded the protection of a natural embayment so it is characterised by a substantial breakwater and is the North Island's only breakwater based port. Napier Port is the primary export and import hub for the Hawke's Bay region and also services other areas further afield and beyond the Hawke's Bay region. Napier Port is the fourth largest container terminal in New Zealand.[21]

33. Napier Port is owned and operated as a fully autonomous subsidiary of Hawke's Bay Regional Investment Company (HBRIC), which has a 100% shareholding. In turn the Hawke's Bay Regional Council (HBRC) beneficially owns 100% of the shares in Napier Port through HBRIC Ltd. At the time of lodgement, the applicant requested that independent commissioners be appointed to make the decision on these consent applications to avoid any issues regarding conflicts of interest. This approach has been taken.

34. Napier Port comprises a significant reclaimed land area of approximately 52 hectares[22] and has progressively been developed since the late 19th century to accommodate increased throughput. The Port covers a total area (coastal water and land) of approximately 74 hectares.

35. The applicant has detailed the historical context of port activities in Napier in section 1.3.2 of its application and AEE. In this historical account the applicant recognises the Tangata Whenua of Hawke's Bay and their strong traditional and cultural relationships with the coastal environment. Furthermore, the applicant recognises the important kaitiaki role that is played by tangata whenua and their guardianship of their coastal resources and responsibility to ensure that the mauri (life force) of these resources is safeguarded.

36. The historical context is summarised briefly below for context:[23]

- Captain James Cook described the site that was to eventually become the Napier Port as a prominent 'bluff head' with a sand or stone beach on each side. Between these beaches and the mainland is a pretty large lake of salt water.

- The large lake of salt water being the Ahuriri Lagoon saw the development of early port activity including dredging and reclamation within the Ahuriri Lagoon, the Inner Harbour and the Iron Pot.

[21] AEE, Volume 1, Section 1.3, pg. 25
[22] AEE, Volume 1, Section 1.3, pg. 25
[23] AEE, Volume 1, Section 1.3.2, pg. 25 & 26

- Increased development pressure and natural limitations led to the decision by the newly formed Napier Harbour Board to investigate the merits of a new harbour. From 1887 – 1890 the construction of the Port's breakwater took place. The typical breakwater design headed northwards before arching westward more or less parallel to Bluff Hill, creating a large area of coastal water which was sheltered from the high ocean waves.

- The 1931 Napier Earthquake resulted in significant changes to the land and coastal environment, with the bed of the inner harbour rising more than two metres, thereby removing its ability to act as a viable port. This natural disaster resulted in the development of the new Napier Port.

- In 1978-79, the Hawke's Bay Harbour Board carried out a major dredging operation to widen and deepen the entrance channel into the Port. This channel was initially formed in 1973 to a clear overall depth of 12m. The north end alignment of the channel (dredged to a depth of 12m in 1976) had a north-easterly orientation to provide the shortest distance to the natural 12m isobath.

- As ship size increased and with a need for improved navigational safety, pilots preferred to approach the entrance channel from a northerly direction. Before this, the main approach channel to the Port was to the south of Pania Reef on the line of the Westshore beacons. The southern channel between Pania Reef and the Breakwater was surveyed and buoyed in 2003.

- In 2012, limited capital dredging was undertaken to provide a clear overall depth of 12m for the full width of the 200m wide shipping lane as required by international and national standards to allow safe navigation in extreme weather conditions. Further capital dredging took place in 2015 to provide a clear overall depth of 12.4m, the current depth.

37. To obtain greater economies of scale, international shipping lines have greatly expanded the size of vessels in recent decades and in the process has placed pressure on ports to handle ever larger and more complex vessels with increasing speed, lower cost and continually improving systems.

38. As with other ports, the growth of the container trade has led to a need for highly efficient handling processes and the use of off-site facilities for container storage. Significant growth has also occurred in bulk trades which do not rely on containers, including log and pulp handling. A further growth area has been in passenger liners, meeting the demand for safe and unique holiday opportunities in the South Pacific.

The Physical Environment

39. The geographical setting is described in detail by the applicant in section 7 of the application and AEE[24].

40. In summary, Napier Port is adjacent to Bluff Hill which is characterised largely by residential land use. Nearby Ahuriri is a mix of residential, light industrial and suburban commercial land use. The applicant has stated that the surrounding areas have developed in parallel with the growth of the Port over the past 150 years.

41. The majority of the Port buildings are located toward the Breakwater Road frontage, with open hardstand on the seaward side. The breakwater extends out along the eastern edge of the Port to Hawke Bay and wraps around to the north.

42. The eastern part of the Port is used primarily for the marshalling of logs and processed timber products loaded along Cassidy Quay (Wharf No. 1) and Higgins Wharf (No. 2). The majority of the land area on the western side of the Port is occupied with container handling, although there is currently a further log assembly area in the northern section of the western part of the Port. The inner sheltered waters of the Port incorporate Geddis Wharf (No. 3) and Herrick Wharf (No. 4). Kirkpatrick Wharf (No. 5) forms the eastern edge of the main container terminal hardstand and marshalling area.

Figure 4. Napier Port, Location and Geographic Setting[25]

[24] AEE, Volume 1, Section 7, pages 79 - 84
[25] AEE, Volume 1, Figure 7-1, pg. 80

43. Sea access for vessels entering the Port is via three defined channels being the Deep Water Channel, Josco Channel and the South Channel. The South Channel approaches the Port from the east passing between the south end of Pania Reef and the breakwater; the Josco Channel approaches north of but parallel to Pania Reef; and the Deep Water Channel approaches from further north before merging with the Josco Channel.

44. The applicant has provided a concise description of the coast in the vicinity of Napier Port in section 7.4 of the application and AEE. Once again, I am mindful of section 42A (1A)[26] but believe the information included below, direct from the application, is an accurate and concise description of the coastal environment that Napier Port is situated within:

The coast in the vicinity of the Port forms the western edge of Hawke Bay. While the coastal edge at the Port has been constructed over the years, north and south there has less modification.

To the south of the Port, the coast comprises a broad north-east curve of steep gravel and sand barrier beach as far south as Cape Kidnappers. This beach is punctuated by river mouths at Clive some 2km south of the Napier urban area and 6km from the Port, being the mouths of the Tutaekuri, Ngaruroro and Clive Rivers (which reach the sea through a single estuarine mouth) and the Tukituki River some 2km further to the south. The southern end of the barrier beach is effectively at the cliffs at Cape Kidnappers, some 10km further to the south and east.

East and north of the Port the coast is more complex. A small sandy beach has formed here (referred to as Port Beach), aided by construction of a small breakwater to the west. Along Hardinge Road, as far as the edge of the Ahuriri channel at Perfume Point, there is either an absence of beach, or a mixed sand and gravel beach with a narrow steep north-facing form backed by some exposed rock in situ and a range of artificial armouring. Perfume Point also comprises a breakwater and both sides of the Ahuriri channel are armoured with rock or sea walls.

The Ahuriri mouth comprises a complex area known as the Inner Harbour with a number of mooring areas, marinas and slipways. Inland of this area is the extensive Pandora Estuary, Main Outfall Channel and associated wetlands. West of the Ahuriri mouth consent has recently been given for a new coastal protection structure involving a rock revetment, beach armouring and support structure along a short section of coast behind Whakarire Avenue. This has not yet been constructed, but is part of the existing environment in RMA terms.

The coastline west and north of the Ahuriri mouth is a similar sweeping curved barrier beach form facing to the east but on a slightly different angle to the coast south of Napier City.

The Esk River discharges into Hawke Bay some 8km north of the Port, and the Tangoio River and Pakuratahi Stream discharge from a shared mouth approximately 5km further north. Beyond the settlement of Tangoio the coastline comprises cliffs and small embayments.

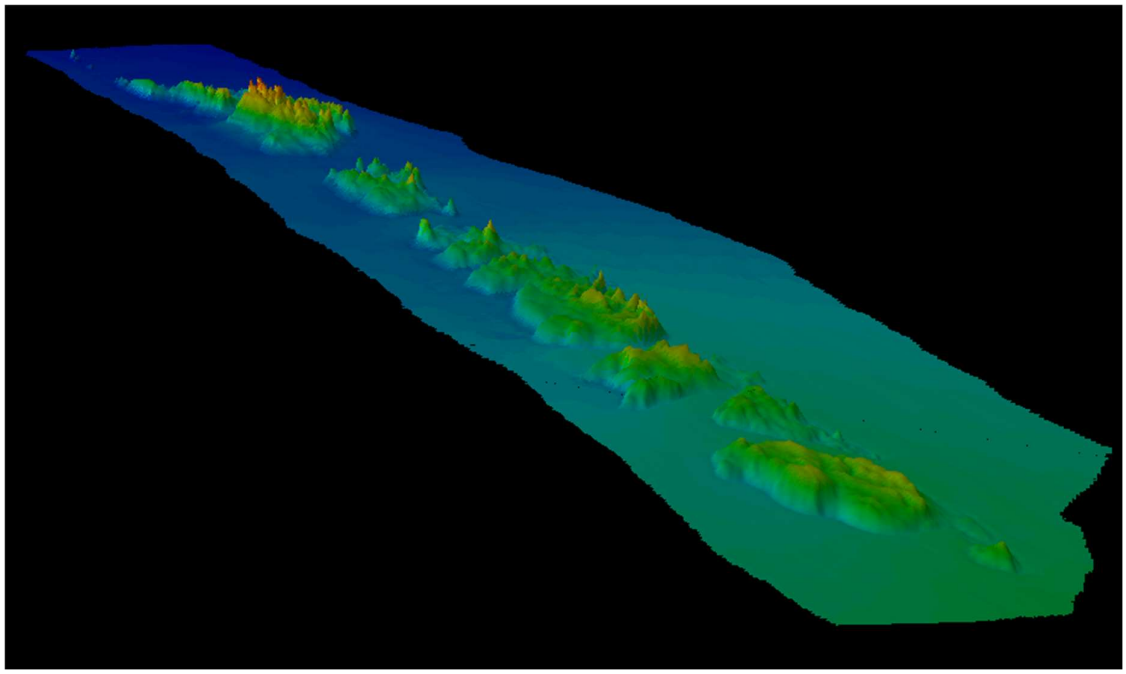
[26] RMA (1991) Section 42A (1A) The report does not need to repeat information included in the applicant's application under section 88(2).

The 1931 earthquake raised the land in the vicinity of Napier, modifying the lagoon areas in the vicinity of Bluff Hill, Westshore and Pandora and affecting the existing barrier beach both north and south. The raising of the land also modified the river mouths and the delivery of sediment from inland to the sea.

45. Napier Port occupies a portion of the Coastal Marine Area (CMA). The landward boundary of the CMA is generally[27] the line of mean high water springs and the seaward boundary is the outer limits of the territorial sea[28].

46. Of notable interest and in the vicinity of the Port, described as a subsurface continuation of the hard strata forming Bluff Hill, Pania Reef is a major seabed feature and is a Significant Conservation Area (SCA). Pania Reef's formal status as a Mataitai means that commercial fishing is prohibited. Pania Reef has been mapped as part of Napier Port's project investigations, and the location and shape of the reef is shown below by Figure 5 (not to scale). The south-west extent of reef is shown as the lower part of the image, and the north-east at the upper part of the image. Town Reef is a shorter and more southern reef, close to the beach south of the Port.[29]

Figure 5. Three Dimensional Image of Pania Reef[30]



[27] Except that where that line crosses a river, the landward boundary at that point shall be whichever is the lesser of: (i) one kilometre upstream from the mouth of the river; or (ii) the point upstream that is calculated by multiplying the width of the river mouth by 5, (RCEP, Glossary).
[28] Defined by s.3 of the Territorial Sea and Exclusive Economic Zone Act 1977, (RCEP, Glossary).
[29] AEE, Volume 1, Section 7.5, pg. 82.
[30] AEE, Volume 1, Figure 7-2, pg. 82

47. Napier's climate and weather is important to consider and is a key fundamental of the environmental context, as is the circulation pattern within Hawke Bay. Wind speed and direction has some influences on local wave direction and currents, and the turbidity of sea water in Hawke Bay is heavily influenced by weather and rainfall events in the inland catchments which directly effects water turbidity.

48. Section 7.6 of the application and AEE discusses climate and weather and section 7.7 discusses sea swell, waves and current conditions within Hawke Bay. Furthermore, the specialist report prepared by Worley Parsons Group, Advisian (Appendix D of the application and AEE) discusses oceanography (wave climate, wind, currents and water levels) in section 2.2[31].

49. Wind speed data was used to calibrate the model that was used to report the findings outlined by Appendix D and Appendix F[32]. A number of submitters and in particular, Richard Karn[33] questioned the modelling work and the finding reported by Advisian in relation to currents and coastal processes that are influenced by wind. The wind speed and in particular, the wind speed units (metres per second vs. knots) were questioned early on in the processing of the consents. Subsequently, an erratum was provided to Council with the response to the section 92 request[34]. The erratum explained that figures 2-3, 2-4, 2-5, give wind speed in m/s but in fact show the 1-minute wind speed in knots. This was however not carried through to the modelling undertaken by Advisian and reported in Appendix D and F. The applicant explained that the wind speeds were converted to m/s prior to use as a boundary condition within the modelling[35].

50. Upon receipt of the erratum relating to wind speed discussed above, submitter Richard Karn continued to question the coastal processes findings reported by Advisian and in particular the wind speed data that influences the modelling. The applicant invited Richard Karn to discuss his concerns with them at the Napier Port offices on Thursday 28 June. I attended the meeting as the reporting officer and also in attendance was Michel de Vos (Napier Port), Grant Russell (Stantec) and Sylvia Allan (Allan Planning and Research Ltd). The outcome of that meeting was that Advisian would need to respond to the concerns of Mr Karn and explain the use of wind speed and general wind factors in the modelling used to report the findings in Appendix D and F.

51. Richard Reinen-Hamill (Coastal Engineer, Tonkin + Taylor) explains that clarity is required regarding the wind factors used in the Advisian modelling because the findings of the work undertaken by

[31] Appendix D, Napier Port Proposed Wharf and Dredging Project – Coastal Process Study Studies, Worley Parsons Group, Advisian. Dated 21/06/17, Pages 5 – 9.
[32] Appendix F, Napier Port Proposed Wharf and Dredging Project – Post-Disposal Fate of Dredged Sediments, Worley Parsons Group, Advisian. Dated 19/05/17
[33] Submission number 34.
[34] s.92 response from applicant dated 19 March 2018
[35] Erratum provided with s.92 response from applicant dated 19 March 2018

Advisian contribute significantly to the overall understanding of the potential effects of the applicants proposal.

52. Bill Wasley (Independent Commissioner and Hearing Chair) instructed that expert's caucus prior to the hearing[36] in his direction sent to Council on 5 July 2018. The issue of wind speed and its influence on the coastal processes findings in general has been addressed by the evidence of the respective coastal experts and through the process of caucusing. As stated in the evidence of Mr Reinen-Hamill, while there have been some errors of detail in the reports provided, particularly with regard to the incorrect units applied to windspeed, these errors do not appear to have been carried through to the hydrodynamic models and the models calibrate reasonably well to the field measurements carried out. There appear to be some anomalies in the sediment transport derived from wind driven currents, with westerly winds showing strong westerly transport. I understand that this will be reviewed and explained in evidence by the Port coastal experts[37]. With this in mind, it is anticipated that following the circulation of the applicant's evidence 10 days prior to the hearing and following further discussion at the hearing, the issue of windspeed and how it informed the modelling will be suitably addressed.

5. SITE VISIT

53. An initial site visit was undertaken by the reporting officer and HBRC Consents Manager, Malcolm Miller prior to the applications being lodged. A subsequent inspection of the site was undertaken by the reporting officer on 19 July 2018. Points to note from this second site visit are summarised below:

- The site visit was undertaken via boat and I was guided by Mr Michel de Vos from Napier Port.
- Via a chartered vessel provided by the applicant we viewed the location of the proposed dredge disposal area, Pania Reef, the swinging basin and general area where five stages of capital dredging is proposed to be undertaken and we entered the inner Port area.
- Mr de Vos pointed out the proposed Wharf 6 location and the existing revetment in this area of the Port was noted and photographed.
- Wharf 5 (existing container wharf) was viewed.
- Mr de Vos pointed out the turbidity buoy that was currently being used to monitor turbidity near Pania Reef.

54. The independent commissioners appointed to manage the hearing and decision making process are undertaking a similar site visit on Monday 20 August at 1pm.

[36] Direction of Hearing Commissioner (No. 1) dated 05 July 2018.
[37] Statement of Evidence, Richard Reinen-Hamill

6. SUBMISSIONS

55. 43 submissions were received in total. Of these **43** submissions, **1** submission was neutral, **12** were in support of the proposal and **30** were in opposition to the overall proposal or, specific parts of the proposal. Two of the submissions were received by Council after the submission period had closed, these were the submissions received from Rangi Vallance on behalf of the Freedom Divers HB Spearfishing Club and the Maungaharuru-Tangitu Trust. The applicant has no issue with these two late submissions being received and considered. A decision requested of the commissioners is that they waive compliance with the time limit for lodging submissions s97(2) for these two submissions pursuant to s37(1)(b).

Submissions in Support

56. A number of the submissions in support of the proposal were conditional. Some submissions in support stated that they were supportive of the project in general but were unhappy with a part of the proposal. The disposal of the dredged material was the aspect of the proposal that a number of supportive submitters wished to influence and sought a specific decision from Council by way of a condition. Some believed the dredged material should be used for beach nourishment at Westshore and therefore, it was suggested that Council condition the applicant to place suitable dredged material near Westshore Beach[38]. The submission received from Maungaharuru-Tangitu Trust (MTT) was supportive of the proposal (in part). MTT sought the requirement for dredged material to be dumped further out to sea (10 km or 20 km). MTT also sought the requirement for maintenance dredging to be dumped at the new agreed site be it 5km, 10km or 20 km[39] (out to sea).

Submissions in Opposition

57. The submissions that were received in opposition raised a number of concerns regarding the application. As a brief summary, submissions related to a number of potential effects on or, relating to; noise, fisheries, traffic management, surf breaks, coastal erosion, cultural values and benthic ecology.

58. There is a distinct divide in the views of submitters regarding the best location for the disposal of dredged material. Submitters that have concerns for the future of Westshore beach believe that all 'suitable' dredged material should be deposited near Westshore Beach to nourish the eroding coastline. As detailed earlier in this report, the applicant has an existing authorisation (CL970159D) enabling them to deposit dredged material near Westshore Beach. However, some submitters would like the material deposited closer to the shoreline than what the existing consent allows.

[38] Submission number 24, Lauren Hart and Submission number 34, Richard Karn specifically and a number of other submitters more generally.
[39] Submission number 42 received from Shayne Walker on behalf of Maungaharuru-Tangitu Trust

59. In contrast, some submitters believe the dredged material should be disposed of further out to sea, beyond the proposed disposal site shown by Figure 3 earlier in this report. These submitters are concerned that disposing the material at the proposed location could have an effect on the fishery and nearby reef habitats such as Pania Reef and Town Reef. Hawke Bay provides an important environment for recreational fishing, diving and the gathering of kaimoana. There are also a number of commercial activities supported by the coastal environment. A number of submitters believe that the dredged material should be disposed of in deeper water to ensure that the fishery and wider marine environment is not compromised by the applicant's proposal.

Neutral Submission

60. There was one neutral submission received from New Zealand Transport Agency (NZTA), who are interested in ongoing engagement and involvement regarding the proposed Traffic Management Plan (TMP).

61. In conclusion, the complete submission provided to Council and the applicant in relation to the consents sought should be referenced[40] for a complete understanding of the concerns raised by submitters. Furthermore, the applicant has advised Council that their team of experts have prepared a written response addressing the concerns of all submitters. This document will be circulated to all parties with the applicant's evidence 10 days prior to the hearing commencing. Concerns raised by submitters are also addressed by this s.42A report and by the evidence provided by Dr Shane Kelly, Dr Terry Hume and Mr Richard Reinen-Hamill. The evidence from these three experts is attached to this s.42A report for the perusal of all parties 15 days prior to the commencement of the hearing.

Pre-Hearing Meetings

62. Two pre-hearing meetings were held at HBRC in relation to the applications lodged. Submitters who indicated in their submission that they would like to attend a pre-hearing meeting were invited to elaborate on their submission and ask any questions of the applicant and Council that they had in relation to the proposal and the consent process.

63. The pre-hearing meetings were facilitated by Mr Martin Williams, a local resource management lawyer and certified commissioner. Mr Williams prepared a report for each respective meeting, these reports was circulated to all parties and were also made available on the HBRC website.

[40] These were made available to all submitters via the HBRC Website and were circulated via 'dropbox' link

7. ENVIRONMENTAL EFFECTS

64. The applicant commissioned a number of specialist studies to assist the development of their AEE. The applicant also carried out data collection and a number of preliminary investigations to inform the project (e.g. investigations regarding dredge material volumes and assessments of dredge sediments)[41]. The table below sets out the list of specialist studies and reports that make up volume 3 of the resource consent application.

Table 5: Specialists Reports Contributing to AEE – Volume 3 of Application[42]

Vol 3 Appendix No.	Subject and Report Title	Main Author/Date
A	Napier Port 6 Wharf – Preliminary Design Report	Beca, July 2016
B	6 Wharf Development – Geotechnical Factual Report	Beca, October 2016
C	6 Wharf Development: 3D Geological Model and Dredge Volumes	Beca, May 2017
D	Napier Port Proposed Wharf and Dredging Project – Coastal Process Studies	Advisian, June 2017
E	Napier Port Proposed Wharf and Dredging Project – Dredge Plume Modelling	Advisian, June 2017
F	Napier Port Proposed Wharf and Dredging Project – Post-Disposal Fate of Dredged Sediments	Advisian, May 2017
G	Port of Napier proposed Wharf and Dredging Project: Physical Coastal Environment	Shore Processes and Management Ltd, May 2017
H	Assessment of Effects on Benthic Ecology and Fisheries Resources from Proposal Dredging and Spoil Disposal, Napier Port (Report No. 2895)	Cawthron, November 2017
I	Assessment of Effects on Marine Mammals from Proposed Dredging and Spoil Disposal for the Port of Napier (Report No. 2907)	Cawthron, August 2017
J	Port of Napier – Wharf No. 6 Assessment of Construction Noise Effects	Marshall Day Acoustics, April 2017
K	Port of Napier – Wharf No. 6 Future Port Noise Maps (2026)	Marshall Day Acoustics, September 2017
L	Potential Effects on Birds of a Proposed New Wharf and Dredging Project at the Port of Napier	Wildlands, June 2017
M	Traffic Impact Assessment	Wanty Traffic Consultants/ Stantec, May 2017
N	Proposed Wharf and Dredging Project – Landscape and Visual Assessment	Boffa Miskell, July 2017

[41] AEE, Volume 1, Section 7.9, pages 85 & 86
[42] AEE, Volume 1, Table 7-1, pg. 85

Vol 3 Appendix No.	Subject and Report Title	Main Author/Date
O	Hawke's Bay Economic Impacts of Port of Napier Operations	Economic Solutions Ltd, May 2017
P	Proposed Wharf and Dredging Project – Consultation Report	Napier Port, November 2017
Q	Proposed Wharf and Dredging Project – Cultural Impact Assessment	Laurie O'Reilly (Ngati Parau), November 2017

65. The assessment of effects on the environment provided by the applicant in relation to the applications is comprehensive and is supported by an extensive amount of supporting documentation making up volume 3 of the full application for resource consents. The applicant has collated the findings from these supplementary documents into volume 1 of the application to inform the AEE. Council had technical experts review a number of the reports above to inform the recommendation set out by this report. However, in some cases the reports were not further reviewed and therefore the conclusions of the report author and assessment of the effects undertaken by the applicant has been adopted or alternative commentary is provided by the reporting officer in relation to the potential effects of the proposed activities.

66. Council experts identified some areas of the application where further information was required to suitably inform them and to assist their review of the projects potential effects. The further information sought throughout processing, including the section 92 request, and the response to these questions from the applicant are attached to this report as Appendix 2.

67. The applicant has identified a number of circumstances where mitigation is required and has subsequently been worked into the project design or is offered through a set of suggested conditions. The applicant accepts that there are a wide range of components of the environment which could potentially be impacted in either a short term or long term (permanently) by certain elements of the project[43]. Equally the applicant has undertaken and/or proposes mechanisms to avoid, remedy or mitigate these potential effects which is consistent with the framework provided by the RMA.

68. For the purpose of this report, the assessment of effects is presented under the following topics being:
    - Effects on Cultural Values
    - Effects on Coastal Processes
    - Effects on Water Quality

[43] AEE, Volume 1, Section 7.1, pg. 86

- Effects on Benthic Ecology, Fisheries and Marine Mammals
- Effects on Birds
- Construction Effects
- Effects on Access and Recreation
- Effects on Natural Character and Landscapes
- Effects on Marine Archaeology
- Effects of Occupation
- Positive Effects

Effects on Cultural Values

69. The protection of Maori and their culture and traditions is recognised under the RMA as a matter of national importance as is the protection of protected customary rights.

70. The applicant has recognised the need to recognise and provide for these matters and has provided evidence of a genuine attempt to do this throughout each stage of the project.

71. The applicant has consulted with mana whenua hapū to understand the history and importance of the coastal environment to Māori. Within the coastal environment, and within a hapū/iwi context, Hawke Bay contains taonga of significant cultural value to local Māori, particularly Pania Reef and Moremore Reserve at Tangoio[44]. Evidence of iwi and hapu consultation has been provided by the applicant attached to the application and AEE as Appendix P.

72. The applicant has stated that for this project, cultural setting lies with Ngati Kahungunu Incorporated having mana whenua. Specific hapū identified as mana whenua for the Port area by Ngati Kahungunu Incorporated are Ngati Pārau, Mana Ahuriri, Te Taiwhenua o Whanganui a Orotu and Maungaharuru-Tangitū Trust.[45]

73. The applicant sought the views of respective 'CMT and PCR applicants' under the Marine and Coastal Area (Takutai Moana) Act 2011. Furthermore, Council directly notified these parties of the applications at the time of public notification.

74. The applicant commissioned Mr Laurie O'Reilly to prepare a cultural impact assessment (CIA) on behalf of the four hapū identified above. The CIA is attached to the application and AEE as Appendix Q.

[44] AEE, Volume 1, Section 17.1, pg. 169
[45] AEE, Volume 1, Section 17.1, pg. 169

75. The CIA provided is comprehensive and it describes the relevant planning framework and the aims and objectives of the document. The CIA offers a technical appraisal of Maori cultural values regarding the area and its resources. The report identifies the potential impact of the proposed activities on Maori values and Mauri[46].

76. In assessing the potential cultural effects, I rely on the information presented in the CIA, the effort made by the applicant in its consultation and the mechanisms proposed by the applicant and recommended through draft conditions of consent to avoid, remedy or mitigate potential effects including those on Maori cultural values.

77. I am not an expert in tikanga Maori or in Maori culture and values and although I have made an effort to better understand the values of mana whenua[47], I respect that it is for those who hold mana whenua and mana moana to identify and express these matters. Therefore, as opposed to paraphrasing the main body of contents within the CIA authored by Mr O'Reilly, I encourage the hearing commissioners and other parties to these consent applications to familiarise themselves with the contents of the document and the important values it details.

78. The CIA does make two recommendations, one of these is to use the proposed offshore disposal site to ensure that Pania Reef is protected from additional sedimentation and the other recommendation is that mana whenua hapu be included in the assurance monitoring programme proposed by the applicant. In addition, a condition in relation to cultural monitoring and information sharing is recommended by the CIA. I recommend that if the consents are granted, these conditions (assurance monitoring and cultural monitoring) be included to ensure that effects on Maori cultural values and mauri can be avoided, remedied or mitigated.

79. The potential for positive effects in relation to an overall increase in awareness of effects on cultural values is included later in this report in the section that addresses other potential positive effects.

Effects on Coastal Processes

80. The applicant proposes to progressively modify the shape of the sea bed in the vicinity of the Port by undertaking capital dredging over five stages. The end state of the process is that the Port will have an operational channel, swinging basin and wharf area available at a depth of -14.5m below CD.

[46] Mauri can be described as a "generic life force" - everything has a mauri including water and the forest. Mauri is the essence that has been passed from Ranginui (Sky father) and Papatuanuku (Earth mother) to their children Tane Mahuta (God of the forests), Tangaroa (God of the oceans), ma (and others), including the members of the hapū, and down to all living things through whakapapa. Mauri also establishes the inter-relatedness of all living things – the hau. The linkages between all living things within the ecosystem are based on the whakapapa or genealogies of creation. This establishes the basis for the holistic view of the environment and our ecosystem.
[47] Ngati Parau sites of significance tour 21/03/2018 guided by Pat Parsons and Mat Mullany

81. The total area subject to dredging is approximately 117 hectares, some of this has been dredged previously. However, the project results in the dredging of approximately 60 hectares of sea bed that has not been dredged in the past.

82. Disposal of the dredged material will raise the sea bed by approximately 1 metre over an area of approximately 340 hectares.

83. Hawke Bay and the coastal environment in the vicinity of the Port has been the subject of a number of specialist reports over a number of years. The coastal environment near the Port is still adapting to the land elevation that took place as a result of the 1931 earthquake.

84. The applicant has stated that the implications of the changed shape of the sea bed at both the dredged and disposal areas have been extensively investigated as part of the project. The key background reports provided by the applicant, covering the effects on coastal processes are two reports by Advisian relating to coastal processes and disposal of dredged material, and an interpretive coastal process study by Shore Processes and Management Limited. These are provided as Appendix D, F and G in Volume 3 of the application and AEE documentation provided.

85. Given the nature of the proposed activities and the potential for effects on coastal processes, council sought the advice and expertise of Dr Terry Hume and Mr Richard Reinen-Hamill to review the application documents in relation to potential effects on coastal processes and provide technical advice in relation to the various consents sought by the applicant.

86. The technical advice memorandums and statements of evidence provided by these two experts are attached to this report with the other evidence and documentation provided by council's technical experts. These documents make up Appendix 4 of this report.

87. Dr Hume and Mr Reinen-Hamill will be available at the hearing to respond to questions and elaborate on the evidence they have provided following their assessment of the potential effects on coastal processes.

88. As directed by the hearing Chair, the coastal experts representing various parties in this resource consent process have prepared a joint statement of evidence that outlines the various matters agreed upon in relation to the proposal and it also sets out one matter that is yet to be resolved. This joint witness statement is attached to this report as Appendix 3. With this in mind and given the applicant would have had the opportunity to address the matters outlined in the evidence of these respective

experts[48] before circulating their evidence[49], this report does not seek to repeat the evidence provided on this matter. The issues of concern raised by Mr Reinen-Hamill and Dr Hume will need to be addressed in the evidence provided by the applicant, or consensus would need to be reached regarding these matters during the course of the hearing, to provide the commissioners with the necessary information to make a decision. Alternatively, the commissioners would need to determine the outstanding issues based around competing evidence and position statements.

89. As stated in the evidence of Mr Reinen-Hamill and supported by the evidence of Dr Hume, the potential benefit and durability of fine sand placed in the existing nearshore location is the main area of disagreement with the coastal experts.[50]

90. The applicant has not applied for a consent to deposit the dredged material in the nearshore area by Westshore Beach. However, as previously stated, the applicant holds a current resource consent that authorises the disposal of a portion[51] of dredged material within the existing consented disposal areas authorised by CL970159D. The proposal to deposit material in the offshore site applied for has raised concerns for submitters and a number of submitters would prefer to see suitable material for beach nourishment used to offset the erosion issue at Westshore Beach.

91. Mr Reinen-Hamill states that the dredged channel will provide greater trapping efficiency due to its increased size and depth. The applicant's modelling suggests that this channel will infill both from the seabed between Westshore and the channel as well as from sediment transported from the east and this will on balance result in an increased loss of sediment from the subtidal area of seabed off Westshore. Insufficient detail has been provided by the applicant to provide a proportion of the possible sedimentation volumes, but they are expected to be larger than presently occurs, but in the same order[52]. This statement is supported by the evidence of Dr Hume.

92. Given the potential for the dredged channel to provide greater trapping efficiency due to its increased size and depth, it would seem sensible to mitigate this effect. It would be an appropriate use of a resource (dredged material) if 'suitable material' was utilised for the nourishment of Westshore Beach. This can be achieved by disposing of the suitable material within the existing consented disposal site of "R" Extended or by further consents if necessary to optimise the area of discharge.

[48] Made available on HBRC website 15 days prior to the commencement of the hearing as per the direction of the hearing chair and the RMA.
[49] Made available on HBRC website 10 days prior to the commencement of the hearing as per the direction of the hearing chair and the RMA.
[50] See the Joint Statement of Evidence attached as Appendix 3
[51] CL970159D has a maximum volume limit of 350,000 m^3 and other conditioned limitations
[52] Statement of Evidence, Richard Reinen-Hamill

93. I have taken the approach of including a condition requiring beach nourishment on the dredging consents that are sought. This would require any 'suitable material' made available by dredging to be utilised for beach nourishment.

94. This beach nourishment will need to be carried out in a manner that does not compromise the receiving environment or exacerbate any effects on the fishery or nearby reef systems. The management of this beach nourishment should be addressed by the management plans required in relation to dredge disposal and water quality. The applicant has included provision for these management plans in the draft conditions of consent contained within the application and AEE. I support the adoption of the conditions offered and have included these in the draft suite of conditions attached to this report as Appendix 1, with recommended modifications to address beach nourishment at Westshore.

95. There are other matters to consider in relation to the effects on coastal processes. These include potential effects on surfing amenity, effects on waves and currents operating within Hawke Bay. These matters are addressed by the evidence of Mr Reinen-Hamill and Dr Hume who conclude that the potential effects in relation to these matters are minor at worst and do not present a barrier to the granting of the resource consents.

96. The advice provided by Mr Reinen-Hamill and Dr Hume regarding consent conditions have been included in the recommended (draft) consent conditions.

Effects on Water Quality

97. Section 2 (interpretation) of the RMA defines contaminants as any substance (including liquids, gases, solids, odorous compounds and organisms) energy or heat that on its own or in combination with the same or other substances, energy or heat, when discharged into water, changes or is likely to change the physical, chemical or biological condition of water. This is a broad definition in relation to any activity that involves excavation and deposition of sea bed material.[53]

98. The project has the potential to have effects on water quality. These potential effects have been assessed by the applicant. The key background reports provided by the applicant covering this aspect are two reports by Beca which include the results of geotechnical investigations of the sea bed below the wharf and other areas to be dredged, three reports by Advisian relating to the physical nature of the coastal environment and coastal processes, a coastal process review report by Shore Processes and Management Ltd, and a report by the Cawthron Institute investigating the ecological effects of

[53] AEE, Volume 1, Section 9, pg. 98

the project. These are provided as Appendices B to H in Volume 3 of the application and AEE documentation[54].

99. The potential effects on water quality have been reviewed by Dr Kelly and the outcome of this review is documented by the evidence of Dr Kelly attached to this report as Appendix 4. Dr Kelly has also reviewed the draft Water Quality Management Plan provided by the applicant (Appendix R). The applicant proposed a consent condition requiring a Water Quality Management Plan (WQMP). The draft provided as Appendix R indicates the approach and general method proposed. The applicant has indicated that the WQMP would likely be further refined in consultation with Council. Dr Kelly will be engaged by Council to review any subsequent WQMP that is developed to ensure the proposed approach and methodology is appropriate.

100. Port dredging activities have the potential to excavate or disturb sediments containing contaminants carried in stormwater runoff, other point source discharges and contaminants that have accumulated in the inner-port area from port activities and cargo spills.

101. Samples from the area to be dredged were collected in December 2015 Contaminant concentrations were found to be very low in all samples analysed. All trace metals were at concentrations well below the accepted Interim Sediment Quality Guidelines (ANZECC 2000), low guideline values[55], usually at least by an order of magnitude. Semi-volatile organic compounds (SVOCs) and organotin compounds were all below detection levels[56]. This analysis was consistent with earlier investigations of surface sediments in the same general area undertaken in 2004 by Cawthron Institute.[57] Based on this assessment, I agree with the applicant that there is minimal contaminant risk associated with the proposed dredging and disposal. The current dredge disposal consent held by the applicant has a condition to ensure that there is no statistically significant toxicity to marine life from the dredged sediment. Dr Kelly advised that he does not believe that a similar toxicity testing condition to that required by CL970159D is justified in future because past monitoring has never detected a problem[58]. However, Dr Kelly has recommended that the required WQMP includes provision for sediment contaminant and texture monitoring. This recommendation is specified by the evidence of Dr Kelly attached as Appendix 4 and I have included this requirement in the recommended (draft) conditions of consent).

[54] AEE, Volume 1, Section 9, pg. 98
[55] The ANZECC 15Q Guidelines, Low Values, indicate the lowest level at which biological effects are *possible*. This compares with the High Values, at which a *probable* biological effect will occur.
[56] These are all very low compared with sediments tested at other New Zealand and international ports. See Cawthron Report, Appendix H, Volume 3.
[57] AEE, Volume 1, Section 9, pg. 99
[58] Email received from Dr Shane Kelly 30/07/2018

102. Another aspect of the activity that has the potential to affect water quality is the potential for dredging and disposal activities to have turbidity effects by increasing suspended sediments in sea water.

103. The nature of the receiving environment is an important factor to consider when considering the potential effects of the proposal on water quality. The applicant has undertaken sampling and deployment of turbidity monitoring devices to gain a better understanding of the existing environment.

104. The total sediment contribution to the near-shore zone of Hawke Bay from the Esk, Ngaruroro, Tutaekuri and Tukituki rivers is estimated to be in the vicinity of 2.7 million tonnes/year. It has also been reported that turbidity produced by the three rivers to the South of Napier can extend northwards towards the Port area. These three rivers deliver a combined silt loading far greater than the Esk River alone. However, waves are acknowledged to be the dominant mechanism by which fine bed sediment may be entrained and retained in suspension; particularly waves of one metre and greater which occur more than 240 days each year in Hawke Bay. The Cawthron report notes that it is most likely that many of the high turbidity events occurring naturally in the area of Pania and Town Reefs arise principally from wave-induced re-suspension of benthic sediments, and that it would be reasonable to expect a measure of similarity between background suspended particulates and those generated by dredging and spoil disposal operations in the local area.[59]

105. Suspended sediment data compiled by Cawthron from analysis of Pania Reef water samples in 2006 recorded median TSS values at the southern end of the Reef at 15mg/L at the seabed and 9mg/L at the surface. Maximum values were 54mg/L and 41mg/L, respectively. This TSS data was collected only during conditions conducive to small boat operations, so may represent the lower end of the natural range of values. In addition to this, Turbidity monitoring buoys have now been installed in the vicinity of and on each side of Pania Reef. The applicant explained that based on their investigations and consultation, Pania Reef is considered to be the most sensitive environment from an ecological and cultural point of view[60].

106. Dr Kelly states in his evidence that overall he agrees with the applicant in relation to potential water quality effects. Specifically, Dr Kelly agrees that the results of sediment dispersal modelling indicate that project related increases in suspended sediment concentrations are unlikely to significantly exacerbate the adverse ecological effects of sediment on Pania, Town, and Rangitira Reef or the Western embayment.[61]

107. Dr Kelly has reviewed the Draft Water Quality Management Plan (WQMP) included with the application and AEE as Appendix R. Dr Kelly states in his evidence that he generally agrees with its

[59] AEE, Volume 1, Section 9, pg. 100
[60] AEE, Volume 1, Section 9, pg. 100
[61] Evidence by Dr Shane Kelly, attached as Appendix 4

content. However, he recommends the following additions be incorporated into any future WQMP that is developed:

- Sediment contaminant monitoring for the material being taken from inner port basin, and at the proposed disposal site. At a minimum, contaminants should include the heavy metals/metalloids arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc.

- Sediment texture at the disposal site, because it has a strong influence on benthic communities.

108. The applicant concluded that in the context of the RCEP, water quality considerations in the CMA are the subject of objectives and policies to maintain and enhance water quality and ensure that water quality remains fit for aquatic ecosystems and contact recreation in defined areas including the coastal strip 200m wide west and south of the defined Port Management Area[62], and elsewhere for aquatic ecosystem purposes. Regardless of which classification applies, in relation to the discharge components of the project, all standards and requirements relating to water quality are met.

109. Regardless of the actual effect on water quality anticipated, the applicant proposes ongoing monitoring of turbidity[63] and sampling of TSS to gain a more comprehensive knowledge of background turbidity and TSS around Pania Reef. Also proposed by the applicant are conditions which will be embedded within a Water Quality Management Plan, requiring responses depending on the intensity and persistence of turbidity events during dredging campaigns. The applicant's proposed condition requiring a WQMP to be certified by Council is considered to be an appropriate approach to water quality management and as part of the certification process it is likely that Council would have the WQMP reviewed by Dr Kelly or an alternative, suitably qualified individual.

110. A highly significant consideration in relation to quantifying the level of potential effects on water quality is that fine sediment is an ever-present natural feature of the receiving environment. Hence any risk posed to the receiving environment, including Pania Reef and Town Reef are from an increase in the presence of a natural phenomenon. There is no, or very little, likelihood that the proposed activity will introduce some new environmental irritant.

111. Having read the application, AEE, supporting documents provided by the applicant and Dr Kelly's evidence, I consider the effects on water quality can be appropriately managed by the proposed WQMP.

[62] This can be seen on the RCEP maps in Plan Set 3 in Volume 2.
[63] Measured in nephelometric turbidity units (NTU's)

Effects on Benthic Ecology, Fisheries and Marine Mammals

112. The potential effects on benthic ecology, fisheries and marine mammals is a key consideration in regard to the proposal and the consents sought be the applicant.

113. The key specialist report covering these aspects of the proposal are the reports by the Cawthron Institute which cover fisheries and benthic ecology. This report is Appendix H in Volume 3 of the application and AEE. There are two key specialist reports investigating the implications of the project in terms of marine mammals, these reports are by Cawthron Institute and by Marshall Day Acoustics. These are provided as Appendices I (Cawthron report) and J (Marshall Day Acoustics report), both of these reports are also in Volume 3 of the application and AEE.

114. Given the nature of the proposed activities and the potential for significant adverse effects on ecology, fisheries and marine mammals if the proposal was not managed appropriately, council sought the advice and expertise of Dr Shane Kelly to review the application documents in relation to potential effects on marine ecology.

115. The statement of evidence provided by Dr Kelly is attached to this report with the other evidence provided by council's technical experts. These documents make up Appendix 4 of this report.

116. Dr Kelly will be available at the hearing to respond to questions and elaborate on the evidence he has provided following his assessment of the potential effects on marine ecology. Dr Kelly is also available to caucus or prepare a joint witness statement with Ross Sneddon (Cawthron Institute) if instructed to by the commissioners throughout the duration of the hearing. With this in mind and given the applicant would have had the opportunity to address the matters outlined in Dr Kelly's evidence[64] before circulating their evidence[65], this report does not seek to repeat the evidence of Dr Kelly. The issues of concern raised by Dr Kelly will need to be addressed in the evidence provided by the applicant or consensus would need to be reached regarding these matters during the course of the hearing to provide the commissioners with the necessary information to make a decision.

117. In summary, the issues of concern raised by Dr Kelly include but are not limited to, the use of historical data for assessing the potential ecological effects on the proposed offshore disposal site and the importance of the offshore disposal site in relation to the overall fishery resource of Hawke Bay.

118. In regard to the historical ecological data that was used, following advice from Dr Kelly, further information was sought from the applicant on this matter via a section 92 request[66]. The applicant

[64] Made available on HBRC website 15 days prior to the commencement of the hearing as per the direction of the hearing chair and the RMA.
[65] Made available on HBRC website 10 days prior to the commencement of the hearing as per the direction of the hearing chair and the RMA.
[66] See Appendix 2

responded advising that they were comfortable with the ecological data used and that this in turn lead to a sound level of confidence in the assessment conclusions as a whole[67]. Dr Kelly disagrees with this response by the applicant and states that the lack of contemporary information makes it difficult to determine the significance of disposal impacts on benthic ecology in that area and more broadly[68].

119. In regard to the concerns raised by submitters and the concerns stated in the evidence of Dr Kelly regarding the importance of the proposed disposal area for the Hawke Bay fishery, the commissioners would need to have sufficient comfort in the conclusion reached by Sneddon et al (2017) who stated that the small size of the disposal site, limited and temporary nature of impacts on benthic macroinvertebrates, and fish mobility means that the disposal of dredge material is likely to have a minimal impact on the general populations of fish such as flatfish and gurnard[69]. Dr Kelly suggests that information provided by submitters may assist with an explanation of how important the offshore disposal is for local catches[70]. Further information from the applicant on this matter would be useful to assist the commissioners and to build comfort in the conclusion of Sneddon et al (2017) discussed above.

120. In regard to the potential effects on benthic ecology and fisheries, I rely on the guidance and expertise of Dr Kelly. Therefore, I consider that further information is required in relation to the matters outlined above before a definitive conclusion can be made in relation to the potential effects in these areas.

Effects on Birds

121. Hawke's Bay and more specifically, the area in the vicinity of Napier Port hosts a number of species of avifauna, as explained by the applicant[71] and Wildlands Consultants[72]. For context, the nearby Ahuriri estuary area is the most significant habitat of its type between Wellington and the Bay of Plenty and Hawke Bay is an important feeding ground for numerous sea birds[73].

122. The applicant is aware that the project has the potential to affect birds within the vicinity of its operations and proposed works. The potential effects primarily arise from direct habitat disturbance during the construction period and effects on feeding areas as a result of the disposal of dredged material.

[67] See Appendix 2
[68] Statement of Evidence, Dr Shane Kelly, Appendix 4
[69] Sneddon et al (2017) pg. 130.
[70] Statement of Evidence, Dr Shane Kelly, Appendix 4
[71] AEE, Volume 1, Section 13, pg. 147
[72] Appendix L, Volume 3 of Application and AEE, Potential Effects on Birds of a Proposed New Wharf and Dredging Project at the Port of Napier, Wildlands, June 2017
[73] AEE, Volume 1, Section 13, pg. 147

123. Conscious of the potential effects, the applicant commissioned Wildlands to investigate the potential impacts of the project on birds. Core to the Wildlands investigations are the potential effects on little blue penguins (Korora), who inhabit the existing revetment at the container terminal where the new wharf is proposed. The Wildlands report and investigations involved site visits, iterative reviews, database searches and engagement with the Department of Conservation, mana whenua, HBRC officers and staff from the National Aquarium of New Zealand.

124. The Korora are known to nest within the Napier Port, Cape Kidnappers and Bare Island with these locations being popular nesting spots for the Korora because the three locations are largely predator free. The Korora occupy nest sites for much of the year and they return to nest in successive years. The species are generally prone to predation by a range of mammals, from cats and dogs to rats. Napier Port is beneficial to Korora because the area employs pest control and dogs are excluded from the premises. A survey undertaken using a trained dog revealed 29 indicative nest sites within the area to be directly disturbed by the wharf construction[74]. Figure 6 shows the existing revetment where Korora are known to nest.

Figure 6. Existing Revetment[75] (site of proposed wharf)

[74] AEE, Volume 1, Section 13, pg. 147
[75] Site Visit 19/07/2018

125. The applicant has identified that mitigation can be employed to reduce the level of potential effect but to a certain extent, there is still a moderate to significant risk to some Korora.

126. There are other species that have been considered by the Wildlands investigations. These include, Black-Billed Gulls (Tarapunga), White-Fronted Tern (Tara) and Shag species. It has been explained that the former nesting areas of black-billed gulls, tarapunga, and white-fronted terns, tara, are not directly within the project construction area. If these birds return it would likely be to another part of the Port. Thus it cannot be said that they are affected adversely by the project. Both species have demonstrated high levels of tolerance to busy working port environments[76]. Shags roosting on the main breakwater may however be affected by pile driving noise at the distance of the new wharf.

127. Wildlands concluded that the potential effects of the proposed dredging activities on all species are likely to be less than minor for pelagic[77] seabirds and minor for others. Wildlands also concluded that it is unlikely that the dredging and deposition would affect the birds within and the habitat provided by the Ahuriri estuary[78].

128. Wildlands have provided the applicant with a number of recommendations set out in Appendix L as the 'approach to be applied'. The various approaches to mitigate effects on avian species set out by Wildlands seem reasonable and practical. The applicant has proposed a management plan within the suite of consent conditions offered in section 26 of the application and AEE. I have largely adopted the condition offered by the applicant but some additions to the condition are recommended to give effect to the recommendations made by Wildlands consultants. The additions to the existing condition offered by the applicant are to ensure that the applicant endeavours to mitigate effects on other avian species recognised by the Wildlands report.

129. The draft condition recommended, if the consents were to be granted, is included in the draft set of conditions proposed by this section 42A report for the construction consent (CL180008L). The condition is titled "Little Blue Penguin (and other species) - Avian Management Plan (AMP)".

Construction Effects

130. The project includes the construction of a new wharf and dredging of the sea bed (both capital and maintenance). The dredging component of the project is entirely within the CMA and any ancillary activities such as the refuelling of vessels will be consistent with activities that should be expected as part of operating a busy port site.

[76] AEE, Volume 1, Section 13.3.2, pg. 150
[77] A bird that frequents coastal waters and the open ocean
[78] Wildlands, Appendix L, pg. 22

131. The applicant has advised that Dredging will operate within contract conditions, which will include any management requirements which are the subject of conditions as part of the resource consent regime. The contract conditions will manage Port access, security and other aspects which are not subject to RMA requirements[79]. The effects associated with the dredging and the proposed approach to manage these effects are discussed and addressed in other sections of this report and by the draft conditions recommended[80].

132. Wharf construction could take more than two years, including the time required to clear the proposed wharf site and set up the construction area. The proposed wharf location is well separated from residential dwellings and surrounded by existing port activities. However, neighbouring properties will likely notice the works on the wharf during the construction phase.

133. The applicant has assessed the effects associated with the construction of the wharf. As part of the assessment, the applicant commissioned reports relating to noise vibration and traffic. Noise and vibration have been considered in a report prepared by Marshall Day Acoustics, provided as Appendix J. In addition, Marshall Day has provided noise predictions for Port operations, including the new wharf, as at 2026. These are provided as Appendix K. Traffic impacts are addressed in Appendix M, a report by Wanty Transport Consultancy.[81]

134. The RCEP defines 'Port noise' as having the same meaning as in New Zealand Standard NZS6809:1999 (Port Noise Management and Land Use Planning) which is "noise generated within a port, and includes noise from handling of cargo and passengers; operation of machinery and equipment; ships at berth; maintenance, repair, storage and administration activities; and vehicle/rail activity only when it relates to port activities and is inside the port. Noise from vessels not at berth is excluded, as is noise associated with construction of permanent port facilities."[82]

135. The RCEP includes a chapter[83] relating to Noise in the CMA and its management. The chapter includes objective 25.1, policy 25.1 and environmental guidelines that relate to management of noise within the CMA. These RCEP provisions require that Napier Port adopt the best practicable option to manage Port noise[84]. The applicant has stated[85] that construction noise is specifically excluded from the management of day to day operational Port noise, in accordance with the District Plan,

[79] AEE, Volume 1, Section 14.1, pg. 154
[80] Effects on Coastal Processed & Effects on Water Quality sections (and others) of AEE (s.42A report)
[81] AEE, Volume 1, Section 14.1, pg. 154
[82] RCEP Glossary
[83] Chapter 25, RCEP
[84] Table 25-1.2, RCEP.
[85] AEE, Volume 1, Section 14.2, pg. 155

and is managed under separate rules in the District Plan[86]. However, I note that Rule 177 of the RCEP relates to emissions of noise in the Port Management Area and the management of construction noise through condition c).

136. In regard to construction noise, Rules 176 and 177 provide that construction noise must not exceed the limits recommended in, and measured and assessed in accordance with, New Zealand Standard NZS6803:1999 'Acoustics: Construction Noise'.

137. In regard to the RCEP and other noise emissions (other than construction noise), noise emissions in the Port Management Area are permitted provided the sound levels do not exceed the standards set out by Rule 177 of the RCEP. Noise emissions from the CMA (outside the Port Management Area) are permitted provided the sound levels do not exceed the standards set by Rule 176 of the RCEP (other than construction noise).

138. The applicant has advised that Noise emissions within the Operation Port Area, and noise from dredging activities will meet permitted activity requirements under Rules 176 and 177.

139. Vibration effects are expected to be negligible. Vibration is propagated as ground waves. The Marshall Day Acoustics report states that "due to the large separation distance from the proposed construction works to nearby residential receivers, effects from construction vibration would be negligible and have not been considered further".

140. The technical reports relating to construction noise conclude that the proposed works will not cause a breach of the construction noise standards. However, noise management forms part of the Construction Management Plan offered by the applicant through a condition of the construction consent sought. Similarly, it is recommended that the Construction Management Plan be required as a condition of consent if consents are granted and the requirement is included in the draft consent conditions that accompany this report. It is anticipated that this requirement will address the concerns of submitters[87] in relation to noise generated by the applicant's existing operations and proposed project.

141. The long term operational noise of Napier Port will need to remain compliant with the Napier District Plan. Appendix K of the application and AEE[88] concludes that the future growth and change examined by their assessment is predicted to remain compliant with the Napier District Plan.

[86] Napier City Council, District Plan - Rule 57.9.1.h and Note 3 which applies the recommended limits and measurements basis of New Zealand Standard 6803:1999 "Acoustics – Construction Noise Measurement and Assessment of Noise from Construction, Maintenance and Demolition Works".
[87] Submissions numbers 14,15, 16, 17, 18, 19 (and others)
[88] Report by Marshall Day Acoustics

142. There is expected to be an increase in traffic movements during the construction phase. A traffic impact assessment[89] has been carried out by Wanty Traffic Consultants. The Wanty report suggested some minor safety improvements that are separate from this project. However, the applicant has advised that these improvements will likely be implemented ahead of construction commencing.

143. The applicant stated that any wider implications on the road network from expanded Port-related traffic have not been assessed as these implications are addressed by the New Zealand Transport Agency for State Highways, and the Napier City Council, as road controlling authorities. Similarly, the ability of the rail system to handle more Port-related transport has not been assessed but remains a possibility[90].

144. NZTA provided a submission[91] in relation to the applications. The submission is supportive of the project and the approach taken by the applicant in commissioning an assessment of traffic effects. NZTA have requested that the Traffic Management Plan that has been offered as a condition of consent by the applicant be provided to the relevant NZTA network contractor prior to it being lodged with HBRC. The request from NZTA is considered reasonable and therefore, I have amended the condition offered by the applicant to include this provision.

145. If the consents are to be granted, I suggest that the draft condition requiring a Traffic Management Plan be adopted in the final suite of consent conditions.

Effects on Access and Recreation

146. The protection of recreational use and public access to the coastal environment is given significant emphasis by the RMA, the New Zealand Coastal Policy Statement and the RCEP. Access to the functioning Port area is unavailable due to biosecurity restrictions, security and safety. However, the beach areas surrounding the Port and the area of sea surrounding the Port and the wider Hawke Bay area are widely used for recreational activities, swimming, surfing, diving and the gathering of kai moana and other activities dependant on access to the coastal environment.

147. Effects on recreational fishing (and commercial fishing) have been addressed earlier in this report and have been addressed by the applicant and the Cawthron report attached to the application and AEE as Appendix H. This matter is also addressed by the evidence of Dr Shane Kelly. Dr Kelly's evidence is attached as an appendix to this report as Appendix 4

[89] Appendix M, Volume 3 of Application and AEE
[90] AEE, Volume 1, Section 14.3.3, pg. 160
[91] Submission number 39

148. The potential effects on recreational fishing in general are best addressed by other sections of this report. Regarding access to the coastal environment for recreational fishing, the proposal will not affect this. However, boat skippers will need to continue to abide by the Hawke's Bay Navigational Safety Bylaw to ensure ongoing safety when in transit past dredging vessels and vessels using the Port of Napier Approach Channel. The disposal area will be affected, at least in the short to medium-term. Therefore, recreational fishers would likely be best to access other areas of Hawke Bay for recreational fishing.

149. City Reef and Hardinge Road are two popular surf breaks within the vicinity of the proposed activities. The proposed dredging will change the nature of the sea bed and therefore, it is important to consider any potential effects on surf breaks and the amenity values of surfers. Although the two surf breaks are not listed as nationally significant by the NZCPS, the overall intention of Policy 16 is relevant and it is important that the proposal does not affect access to these two surf breaks, the quality of the break and their recreational attributes.

150. The applicant has addressed the potential effects on surf breaks and surfing amenity, impacts on surf breaks near to the Port are addressed in reports by Advisian, Appendix D, and Shore Processes and Management Ltd, Appendix G. These are also summarised by Volume 1 of the application in the AEE[92].

151. The potential effects the proposal may have on surfing are addressed in the evidence and technical advice provided by Dr Terry Hume and Mr Richard Reinen-Hamill. The assessments and advice provided to Council from these two experts are attached to this report as Appendix 4

152. Regarding effects on beach access, there are not expected to be any effects on beach access and overall enjoyment of these nearby public spaces. The main risk to the amenity values of these spaces would be noise effects during construction. However, as detailed previously, noise effects are expected to meet construction standards. Therefore, effects on beach users should not be adverse.

153. A number of submitters have suggested that their ability to use the coastal environment for recreational purposes such as fishing, diving and gathering of kai moana could be compromised by the proposed activities and in particular the disposal of the dredged material. It is not disputed that the activities, particularly the disposal of dredged material will have short to medium-term effects at the disposal location. Regarding the effects on recreational fishing, a balanced determination needs to be made that considers the scale of the effects on the overall fishery within Hawke Bay versus the effects confined to the offshore disposal site.

[92] AEE, Volume 1, Section 15, pg. 161

154. Provided the activities are undertaken in accordance with best practice to minimise potential effects where possible, I consider that the extent of the effects on recreational access to the overall fishery should be less than minor because the effects are expected to be localised and of a short to medium-term nature. Other effects on recreational activities being negligible or less than minor in general.

Effects on Natural Character and Landscapes

155. The natural character of the coastal environment requires preservation. Because landscape and visual values contribute to people's appreciation of an area's amenity, even when substantially modified from a natural state.

156. The natural character of most of the area affected by dredging and the new wharf is substantially modified, with the shorelines being reclaimed land and the Port entrance having been capital dredged in the past[93]. Furthermore, the site of the proposed wharf is located within the existing Napier Port footprint and the area near the proposed wharf is currently used for container storage. The offshore disposal area is however largely natural.

157. A number of the reports included in Volume 3 of the application and AEE contribute to an understanding of natural character. As natural character includes the biological environment as well as the physical one, these include the three Advisian reports (Appendices D, E and F in Volume 3), the Shore Processes and Management Ltd report (Appendix G), the two Cawthron reports (Appendices H and I) and the Wildlands report (Appendix L). An additional report has been prepared by Boffa Miskell Ltd. This report specifically analyses the visual, landscape and natural character of the project. This is provided as Appendix N in Volume 3 of this application and AEE.

158. The site visit undertaken on Thursday 19 July was useful to understand the scale of the proposed new wharf in relation to the existing development within the Napier Port. The location of the proposed wharf is shown by Figure 6 (above). The working area of the Port near the existing revetment is currently used for container storage, as shown by the photograph.

159. I consider that the conclusions of the Boffa Miskell report are useful when considering the potential effects on natural character and landscape. The report concludes[94]:

- In terms of visual effects the proposed introduction of the wharf associated vessels, aligned with the existing reclamation, it is not considered to generate more than minor long or short term adverse visual effects for users of the adjacent road network, walkways, coastal edge or other

[93] AEE, Volume 1, Section 16, pg. 165
[94] AEE, Volume 1, Section 16.3, pages 167 and 168

public places, as seen from the water, land or air. The location and relatively small scale of the proposal mean that the new wharf will have minimal additional impact and limited visibility.

- The proposal will have a minimal visual impact with the main visible element being the temporal presence of ships on a new east/west alignment. When no ship is at berth the proposed wharf itself has a negligible visual presence.
- For some people who visit Bluff Hill the Port already forms an attraction and point of active visual interest not only due to its ships but to the activity within the Port and its industrial scale and character.
- For residential viewers within the elevated catchment of Bluff Hill, who have a more frequent and static locational viewpoint, the change in the Port area resulting from the new wharf and potential ships at berth on a new alignment, it is considered that there will be a minor to negligible visual effect, consistent with the existing and long-established presence of the Port.
- For viewers both in the public realm on the foreshore or in residential properties on the flat the proposed new wharf will be out of view. The only change in the view will result from a new location and orientation for ships berthed in the Port. This change is not considered to generate an adverse visual effect with ships already comprising a habitual component of the Port and forming part of its visual interest.
- For users of the popular small swimming beach adjacent to the Port reclamation it is considered that no change will be perceived and no visual effect generated.
- From water based public viewpoints, the Port already comprises a significant element at the landward edge of the Bay, with Bluff Hill providing a strong physical containment and backdrop to the flatter profile of the Port. Views toward the coastline already encounter a modified urban environment dominated by residential housing and larger scale development including the Port seen within this existing urban context and modified coastline. The new wharf will be consistent with this existing character of the environment. Even in more proximate water based views the proposal will sit into the existing character of the landscape and land/water interface and will not create a significant change. No adverse visual effects will be generated.
- From the air the proposed new wharf will be of negligible impact and will not noticeably increase the scale of the Port and or vary activities. This established characteristic will remain relatively unchanged.

160. The conclusions made by the applicant in regard to the effects on natural character and landscapes detailed above seem appropriate and support the conclusion that the effects of the new wharf structure should be less than minor. The dredging related activities will change the natural character of the sea bed, especially in regard to the previously un-dredged area of the sea bed that is proposed

to be dredged. The applicant has chosen the proposed offshore disposal site because it will provide for "like for like" in terms of existing material on the sea bed versus the nature of the dredged material. Dredging related activities should have a minor effect on natural character and landscapes.

161. Some submitters have expressed their concerns regarding the future of Westshore Beach. The beach is currently characterised as an eroding landscape with a material deficit. Evidence has been provided[95] that suggests the disposal of maintenance dredging at Westshore Beach would build up the level of fine sand that make up the seabed and offset the sediment deficit. However, also explained is the fact that this mitigation is not a permanent fix and the material is not likely to remain in place near Westshore Beach. The applicant has an existing resource consent that could be exercised to provide for nourishment of Westshore Beach. A draft condition has been added to the excavation (dredging) consents requiring any "suitable material" derived from the proposed dredging to be deposited near Westshore Beach. The draft condition that is recommended includes a definition as to what is considered "suitable material". It is likely that this matter will be the topic of further discussion at the hearing. The respective coastal processes experts would be best placed to provide information on this matter.

162. In terms of the test required by section 108AA of the RMA, in my view a condition requiring nourishment at Westshore would be directly connected to (and would mitigate) an adverse effect of the activity on the environment. This matter has been addressed by the evidence of Council's experts and is discussed in more detail later in this report.

Effects on Marine Archaeology

163. Archaeological sites are protected under the Heritage New Zealand Pouhere Taonga Act 2014 and the protection of historic heritage from inappropriate subdivision, use, and development is a matter of national importance that needs to be recognised and provided for[96].

164. There are eight historic heritage features within the Hawke's Bay coastal environment as identified by Schedule M of the RCEP, two of these features are within close proximity to the Port. These features are listed in the RCEP as item 4 (Shipwreck) and item 5 (Ex-Freezing Works Site).

165. As identified by the applicant, only item 4, the shipwreck of the Montmorency (an immigrant and cargo ship from England) is positioned in a shallow water location where it could be compromised by the proposed activities if there was a significant change in the existing wave climate.

[95] Evidence of Richard Reinen-Hamill and Terry Hume
[96] RMA, Section 6(f)

166. Based on the evidence of the coastal experts in relation to potential changes in wave climate, I concur with the conclusion made by the applicant that the Montmorency shipwreck is unlikely to be affected by the small change in wave climate expected. I also agree that there will be no effects relating to the site of the ex-freezing works near Whakarire Avenue.

Effects of Occupation

167. The applicant has sought a new coastal occupation consent to authorise both the new extent of the occupation following the proposed development and to replace the two existing authorisations held by the applicant that authorise the existing occupation of the CMA[97]. The existing Coastal Permits for occupation were issued in 1994 pursuant to s 384A RMA.

168. HBRC is responsible for activities within the CMA including control of the use of land comprising the seabed and associated natural and physical resources including the water column and the airspace above the seabed, within the CMA. Napier City Council has responsibilities in relation to the use and development of the applicant's land that is outside of the CMA.

169. Limitations on activities within the CMA, including occupation, are set out by section 12 of the RMA.

170. Of the two consents currently held for occupation, the first was issued directly under section 384A of the RMA by the Minister of Transport in 1996 and does not expire until September 2026[98]. This applies to the whole of the inner harbour and current swinging basin as well as to a 20m strip generally around the whole of the land occupied by the Port, from Town Reef in the south to the small breakwater to the west of Port Beach[99]. The second permit followed a further 2ha reclamation and was issued in 2003 by HBRC[100] applying to a 20m strip adjacent to the revetment. Its expiry date aligns with the expiry date of the earlier permit.

171. A consent for occupation effectively provides for the exclusive access to and use of the area on the basis that such occupation is "reasonably necessary for another activity", in this case, the operation of Napier Port.

172. The proposal to construct a new wharf and berth pocket and utilise a new area of the CMA for a swinging basin results in the need for an extension in the area occupied by the applicant and the Port's activities

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[97] The RMA defines the coastal marine area (CMA) as: *…the foreshore, seabed, and coastal water, and the air space above the water – (a) of which the seaward boundary is the outer limits of the territorial sea: (b) of which the landward boundary is the line of mean high water springs…*

[98] CL940231O.

[99] Note that the occupation permit does not apply to the area between the Town Reef and the start of the breakwater, although the landward side is within the Port's secure area and the Port undertakes some maintenance in this area.

[100] CL030374O.

173. The applicant has sought to replace the existing occupation consents with one occupation consent authorising the full extent of the Port's operation following the proposed development. The 35 year duration sought is required to provide sufficient certainty in regard to the Port's future to justify the planned development. Figure 7 below shows the existing extent of occupation authorised by CL940231O and Figure 8 shows the total extent of the occupation sought by this application.

Figure 7. Extent of Existing Port Occupation (CL940231O)[101]

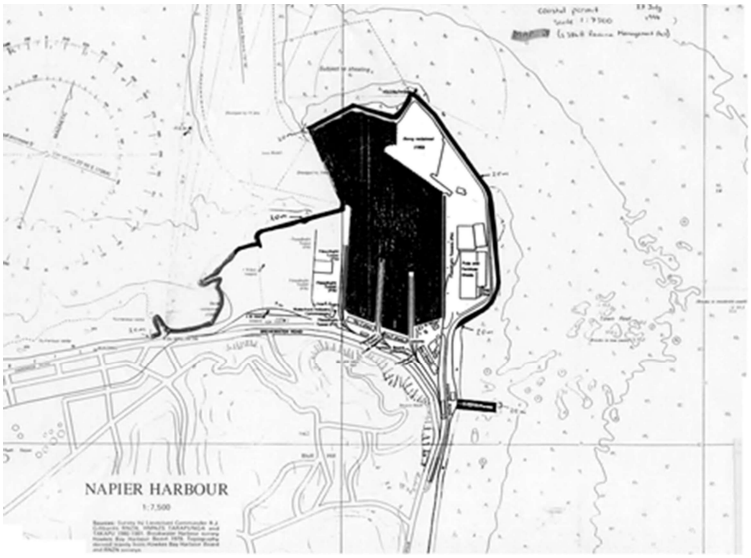
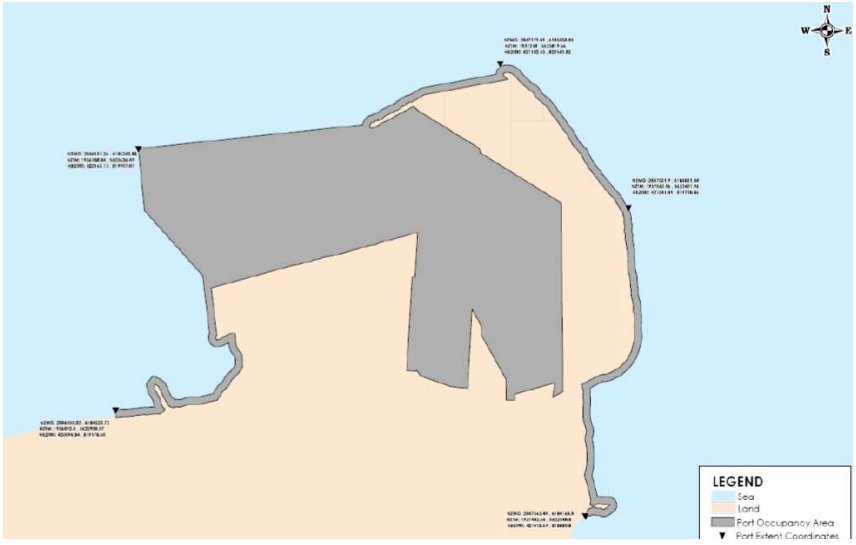


Figure 8. Extent of Proposed Occupation



[101] This map showing occupation does not include the 20 m strip authorised by CL030374O

174. As explained by the applicant in section 21.3 of their application and AEE, the rights associated with an occupation permit include that other people can be excluded from the area of the permit if necessary. For port activities, this is most likely to be on the grounds of safety, security or biosecurity. However, it also has aspects which relate to the need for 24-hour uninterrupted access for vessels seeking to access and use port facilities. It also provides certainty for the Port's commercial occupation, in that it conveys a long-term right of access for the Port's use and for any development for which consents are obtained. The need for exclusive occupation is justified and enables the protection of the Port's assets and operations as well as provides for the health and safety of the community.

175. Navigation and use of the CMA by other vessels and particularly recreational vessels is managed by HBRC bylaws. This does not limit access to the proposed swinging basin area where the larger container ships and cruise ships will be undertaking manoeuvres. Therefore, the extension of the occupation permit footprint is required to ensure that larger vessels required to use the new swinging basin area can manoeuvre safely and efficiently within the area. This will also protect the health and safety of the public. It is important to note that access and recreation at Port Beach will not be affected by this proposal and these future activities.

176. The actual effects that need to be considered is the potential for the applicant to exclude other users from the water area as and when necessary. This is considered appropriate and I agree with the conclusion of the applicant that the potential adverse effects would be less than minor. I also agree that there is a significant positive benefit to the granting of this occupation consent for the applicant and the wider community. The 35 year term sought provides certainty for both the applicant and the wider community. The applicant's requirement for this certainty is to secure the required capital to undertake the project which will have a flow on effect to the region, specifically those that rely on the future of the Port's activities to provide for their well-being.

Positive Effects

177. The potential positive effects associated with the proposal are significant and must be given consideration because they contribute towards the purpose and principles of the RMA by enabling people and communities to provide for their social, economic, and cultural well-being and for their health and safety[102].

178. To determine the potential positive effects associated with the project, the applicant has taken an approach that is consistent with the method used to identify and consider the other effects relating to

[102] RMA, Part 2, Section 5

the project. The applicant commissioned Economic Solutions Limited to assess the contribution of the Port to the local and wider economy, and to assess the additional wider economic benefits which would arise from the new wharf and the access to enable larger ships to visit the Port in the he future. The Economic Solutions Ltd report is attached to the application and AEE as Appendix O.

179. In regard to the existing contribution of the Port to the regional economy, the applicant has stated that the total regional Value Added/Gross Regional Product (GRP) impact of the Port of Napier across all sectors for the 2015 year was $3,447.7 million. This means that Port activities are directly and indirectly associated with approximately 51% of total Hawke's Bay GRP at present[103]. The total regional employment contribution, at 27,801 is 38%[104]. This comprises both direct economic impacts of the Port operation, and the wider impacts on the economy through the Port underpinning and providing essential services for the wider economy.[105]

180. Port and related stevedoring operations contribute $207 million annually to regional production revenue, with ongoing capital and maintenance expenditure contributing a further $20 million annually.

181. The Port of Napier thus makes a very significant direct and indirect contribution to the overall economic scale and performance of the Hawke's Bay regional economy. This point is not disputed and a number of submitters, even those in opposition to aspects of the proposal, state that they are supportive of the future development of the Port.

182. Upon completion of the proposed new wharf development, the Port Company's operations will directly and indirectly raise its Employment impact from 526 currently to between an estimated 700 and approximately 810 by 2025, depending on the level of actual resource productivity gains in Port operations over the next ten years.

183. The applicant expects that the proposed development will ensure that it is able to service all future requirements from the region, meaning that exporters and importers will not need to utilise any out-of-region facilities.

184. The proposed No.6 Wharf is designed to accommodate a vessel up to 360m in length, and this would allow the Port to simultaneously work two container vessels of greater than 230m. Such a combination is not currently feasible. The new wharf would enhance the Port's ability to handle two larger cruise vessels. The Port currently limits the number of cruise vessel calls at Napier due to operational

[103] Statistics New Zealand estimates that Hawke's Bay regional Gross Domestic Product (GDP) was $6.59 billion for the year ended 31 March 2015.
[104] The value added and employment information is from Table 4, Appendix 1 of the Economic Solutions Ltd report in Appendix O.
[105] AEE, Volume 1, Section 22, pg. 184

constraints. This has a direct impact on the tourism sector in terms of passenger numbers and local spend. On average the Port could attract another five to six cruise vessels, meaning another 12,000 visitors per annum. The additional visitors alone is a significant positive effect for businesses relying on tourists for their income.

185. There is a significant and tangible regional and economic benefit from the proposed project.

186. Another positive effect that is worth noting is the matter acknowledged by the applicant in their AEE. The applicant acknowledges that they have been on a journey of discovery with mana whenua as the proposed project has been developed and its environmental implications investigated. The project has provided a catalyst for the development of a better understanding of the cultural values of the area for the Port management itself[106]. This can and should be considered as a positive effect directly relating to the project process undertaken by the applicant to date. Furthermore, the consents, if granted, provide an opportunity to further enhance the relationship between the applicant and mana whenua. This potential positive effect is provided for by the consent condition offered by the applicant that was developed in partnership with mana whenua hapu. I support the condition requiring the preparation of a Marine Cultural Health Programme (MCHP) and the opportunities that this can provide in terms of cultural monitoring and information sharing. Essentially, the benefits will be recognised when the applicant and hapu work together to share information relating to best practice, tikanga Maori, western science and indicators of a healthy moana in respect to mauri and general wellbeing of Hawke Bay and those sites of great significance to mana whenua.

8. ASSESSMENT OF ALTERNATIVES

187. The RMA (section 104 and schedule 4) requires a description of any alternative locations or methods for undertaking the activities proposed if it is likely that the activity will result in any significant adverse effect on the environment[107]. Similarly, if the activity includes the discharge of any contaminant[108], a description of any possible alternative methods of discharge, including discharge into any other receiving environment must be included in the AEE. The applicant believes that no significant adverse effects are considered to be associated with the proposal for which consents are sought. However, an assessment of alternative options has been undertaken by the applicant that includes the range of options considered in regard to wharf development alternatives, design options for the swinging basin

[106] AEE, Volume 1, Section 17.4, pg. 170
[107] Schedule 4, subsection 6(1)(a).
[108] **Contaminant** includes any substance (including gases, odorous compounds, liquids, solids, and micro-organisms) or energy (excluding noise) or heat, that either by itself or in combination with the same, similar, or other substances, energy, or heat—
(a) when discharged into water, changes or is likely to change the physical, chemical, or biological condition of water; or
(b) when discharged onto or into land or into air, changes or is likely to change the physical, chemical, or biological condition of the land or air onto or into which it is discharged, RMA (1991).

and channel and of significant importance to this application, alternatives for the disposal of the dredged material have also been considered.

Alternative Wharf Options Considered

188. The applicant considered four alternative wharf options (including status quo). These alternative options are described in detail in section 5.2 of the application and AEE[109]. The assessment of alternative wharf options is considered sufficient and can be adopted for this report. No alternative option considered provides an acceptable, robust and versatile long-term solution which provides for future needs and the increasing size of vessels. Furthermore, other options considered were shown to have more potential for environmental effects.

Channel and Swinging Basin Design

189. The location of the channel and swinging basin is governed by the location of the existing Port, the location of the proposed Wharf 6 and required setbacks from the Significant Conservation Area (SCA), Pania Reef. The channel design has been determined based on safety and efficiency and further refinement has been undertaken to manage potential effects on coastal processes and nearby surf breaks. The assessment undertaken by the applicant in determining the final design of the channel and swinging basin is considered appropriate and the potential effects in relation to this aspect of the project have been assessed by Council's experts[110].

Disposal of Dredged Material

190. This aspect of the alternative assessment undertaken by the applicant is of significant importance in regard to the issues raised by submitters and the overall assessment of potential effects on the environment and any individual or party.

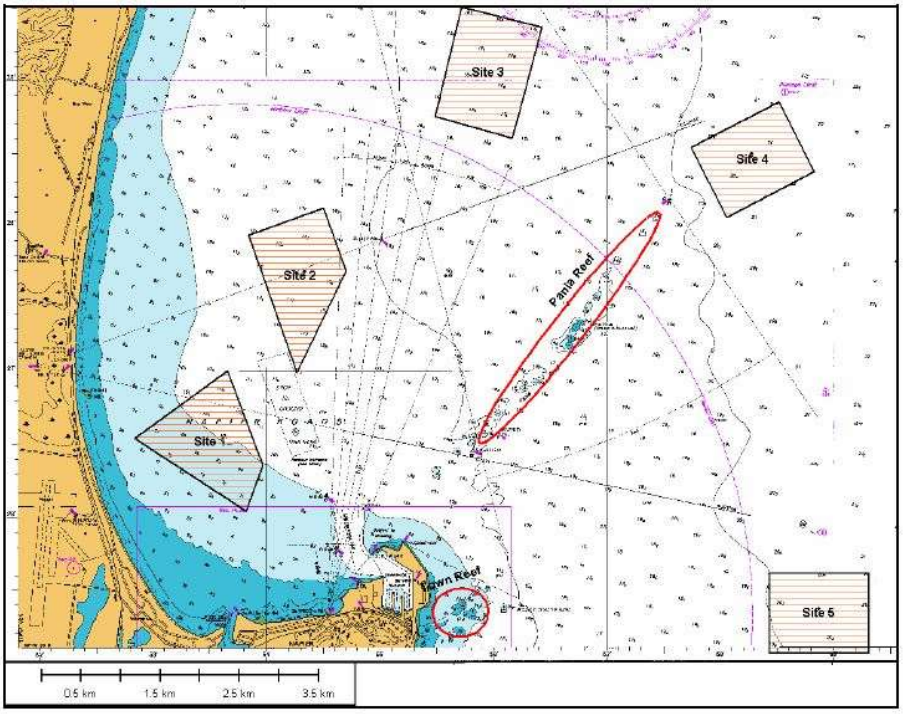
191. Regarding alternative uses of dredged material, the applicant is going to use a small portion of the material along the proposed revetment and for surface levelling at the Port. The applicant was advised by Tonkin and Taylor that there are challenges associated with the use of the material for other purposes such as reclamation and engineered fill because it is susceptible to liquefaction[111]. Therefore, for now, the disposal of the dredged material in the coastal environment seems practical.

192. The applicant undertook an assessment of alternative dredge disposal areas in 2005 when the previous 'Wharf 6'[112] project was being considered. Initial studies considering five alternative sites

[109] AEE, Volume 1, Section 7.5, pages 58 – 60
[110] Richard Reinen-Hamill, Terry Hume and Shane Kelly
[111] AEE, Volume 1, Section 5.4.2, page 63
[112] Note: different wharf location to that proposed by this project and consent application(s)

were undertaken and the studies applied relatively simplified numerical modelling based on a one-month limited dataset of information on seabed current directions and strength[113]. The site options considered in 2005 are depicted by Figure 9 below.

Figure 9. Alternative Dredge Disposal Areas Considered (2005)[114]



193. The applicant accepts that the results of this early alternatives assessment were indicative only and that a more detailed assessment was required for the current applications. Keeping in mind the scope and level of analysis of this initial assessment, Site 1 appeared to have a substantially greater potential adverse effect on Pania Reef than other options[115]. Furthermore, based on this initial assessment, Site 1 was shown to have the greatest potential to affect Town Reef[116].

194. A number of submitters expressed discomfort in the modelling and assessments that were undertaken to select the proposed disposal site. It is important to note that the assessment of alternatives undertaken by the applicant did extend beyond the extent of the one month limited dataset mentioned earlier and referenced by a number of submitters in their submissions.

195. The applicant commissioned further numerical modelling to that outlined previously. This modelling assessed the potential for sediments from the disposal of dredged material at Sites 4 and 5 to reach Pania Reef and Town Reef. The applicant explained in the AEE that this modelling took into account

[113] AEE, Volume 1, Section 5.4.1, pg. 61
[114] AEE, Volume 1, Figure 5-1, pg. 62
[115] AEE, Volume 1, Section 5.4.1, pg. 62
[116] AEE, Volume 1, Table 5-1, pg. 61

more comprehensive current information and assumptions about the nature of the dredged material (silt) and the method and duration of disposal. Specifically regarding the current information used, three months (November 2004 to January 2005) of measured tidal currents from two nearshore locations were used and were correlated with long-term wind information (1999 – 2005)[117]. Of particular interest are the following results from this particular assessment:[118]

- The potential for sediment plumes from material disposed at Sites 4 and 5 to reach Pania Reef or Town Reef are significantly lower than from disposal at Site 2. Note: Site 2 is an existing dredge disposal site under the authorisation of CL970159D.
- The model predicts lower potential for turbidity at both reefs from Site 5 compared to Site 4.
- During disposal at Site 5 under prolonged easterly, south easterly and southerly storm events, there is some potential for tidal currents to move the silt-sized material towards the north. If Site 5 is used, then disposal would not be recommended during such conditions.
- During disposal at Site 5 under low wind conditions and during prolonged north, northeast, west and northwest wind directions the plume will move towards the southeast.

196. The applicant has stated that Sites 1 and 2 were originally the preferred option for dredge disposal because the areas are already consented (CL970159D). However, because the large volume of dredge material was going to be significantly larger than the two areas could contain, the area between Sites 1 and 2 was also given consideration. The Hawke's Bay Regional Coastal Environment Plan (RCEP) became operative in November 2014. The RCEP includes two dredge disposal areas (Dredge Disposal Area 1 and Dredge Disposal Area 2) for the deposition of dredged material arising from maintenance dredging[119].

197. As part of the ongoing analysis undertaken during the design of the capital dredging areas, more detailed studies were undertaken by Advisian[120]. The applicant has stated that the studies they commissioned as part of the application have indicated that fine sediments deposited within and between the areas initially considered for the disposal of dredged material would in most conditions move in an anti-clockwise direction back towards the dredged channel area and potentially in the direction of Pania Reef. In addition, the applicant believes that this finding aligns with the suggestions from consultation that Pania Reef has experienced higher turbidity in recent years possibly as a result of dredge disposal[121]. On the basis of these findings, the applicant has sought consent for an offshore

[117] AEE, Volume 1, Section 5.4.1, pg. 62
[118] AEE, Volume 1, Section 5.4.1, pg. 62
[119] RCEP Rule 150 and RCEP Planning Map number 115 shows the two areas
[120] See discussion in Advisian Reports "Napier Port Proposed Wharf and Dredging Project – Coastal Process Studies in Support of Consent Application", section 8, and "Napier Port Proposed Wharf and Dredging Project – Post-Disposal Fate of Dredge Sediments", section 5, both in Volume 3 of this application, Appendices D and E.
[121] AEE, Volume 1, Section 5.4.1, footnote number 34, pg.63

disposal site believing that it would have reduced adverse environmental effects over the inshore site that they were originally proposing (Disposal site 1 and 2 and the area in between these two sites).

198. The location of the proposed deposition site (Site 5) has been determined as a result of both past and more recent investigations. The full assessment of the suitability of the deposition site applied for is explained by the various technical reports commissioned by the applicant. These reports made up Appendices D, E and F of the application and AEE.

199. In summary, the applicant has undertaken a suitable assessment of alternative options in regard to the project. The assessment undertaken in relation to the dredge disposal location has been of particular interest to the submitters and therefore, the matter is contentious. The suitability of the offshore disposal site is discussed in more detail in the evidence of Richard Reinen-Hamill, Terry Hume and Shane Kelly. Subject to the point discussed below, I consider that the applicant has fulfilled the requirements of section 104 and schedule 4 in relation to the requirement for an assessment of alternatives. In my view, the issue that submitters raise regarding deposition of 'suitable' sandy material to nourish Westshore Beach could have been investigated specifically or, in more detail. Specifically, this assessment could have investigated the potential effects on Pania Reef and Town Reef if larger grain material was placed at Westshore Beach as a result of the proposed dredging in relation to this project. If it was only the 'maintenance' dredging material considered suitable for beach nourishment, the applicant could have provided more clarity in regard to the potential for deposition in the inshore zone to continue in future. The applicant has an existing authorisation to deposit material near Westshore Beach (CL970159D). However, the application and subsequent correspondence is ambiguous as to the future of deposition near Westshore Beach. A number of submitters are concerned that the applicant may surrender their existing consent that allows them to deposit material at Westshore Beach.

200. As stated previously, given the potential for the dredged channel to provide greater trapping efficiency due to its increased size and depth, it would seem sensible to mitigate this effect. I have taken the approach of including a condition requiring beach nourishment on the dredging consents that are sought. This would require that 'suitable material' made available by dredging be used for the purpose of beach nourishment.

9. CLIFTON TO TONGOIO COASTAL HAZARD STRATEGY

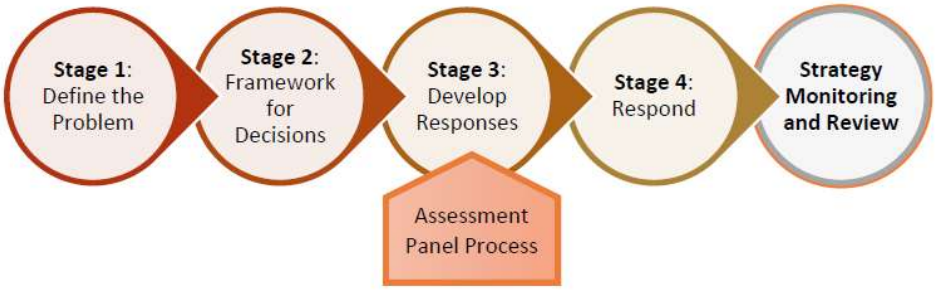
201. The Clifton to Tongoio Coastal Hazard Strategy is currently underway. The Clifton to Tangoio Coastal Hazards Strategy 2120 will provide a framework to guide and direct the assessment and implementation of preferred options for the long term management of the coast between Clifton and

Tangoio. The long term vision for the Strategy is that "Coastal communities, businesses and critical infrastructure from Tangoio to Clifton are resilient to the effects of coastal hazards". This strategy will be developed to provide a framework for assessing coastal hazards risks and identifying options for the management of those risks to 2120.

202. It is being developed collaboratively by Hastings District Council, Hawke's Bay Regional Council, Napier City Council, and groups representing mana whenua and/or tangata whenua through a joint committee. The Strategy will identify the areas that may be affected by various coastal hazards over the long term and the risks to public and private property, cultural sites and areas, recreational use and infrastructure services[122].

203. The Strategy was initiated in 2014 with the establishment of a Technical Advisory Group ("TAG") formed by senior Council staff and advisors, and the Clifton to Tangoio Coastal Hazards Strategy Joint Committee ("Joint Committee"). The Strategy is being developed in four key stages, followed by an ongoing monitoring and review process. Figure 10 below shows the strategy development process.

Figure 10. Clifton to Tangoio Coastal Hazard Strategy – Process of Development



204. A report has been released[123] by the Northern and Southern cell panels detailing the recommendations for each unit within each cell. This report was prepared in relation to Stage 3 of the process shown by Figure 8 above. The active work on this strategy and the recommendations for the northern cell and in particular, Westshore Beach (Strategy Unit D) are somewhat relevant as background to this consent process. The proposed 'pathway' for Westshore is renourishment in the

[122] Refer: www.hbcoast.co.nz
[123] Report of the Northern and Southern Cell Assessment Panels, 14 February 2018

short term (0 – 20 years), renourishment and control structures in the medium term (20 – 50 years) and renourishment and control structures are also the proposed long term option (50 – 100 years).

10. POLICY CONTEXT AND EVALUATION

205. The applicant's assessment against the relevant planning instruments is comprehensive. The policy assessment undertaken by the applicant is set out in section 24 of the application and AEE document (volume 1). In general, I agree with the policy evaluation that the applicant has undertaken. Therefore, to avoid unnecessary duplication, I have taken the approach of specifying the areas of the assessment that I agree with in full, adding any information that I feel has been overlooked and identifying any points of disagreement.

206. In deciding these applications, the RMA contains a number of provisions that require consideration. These include sections 104, 105 and 107. Section 104(1) is subject to the matters contained in Part 2 of the RMA, which contains sections 5, 6, 7 and 8.

207. The Fourth Schedule of the RMA (clause 2(1)(g)) requires an assessment of the activity against any relevant provisions of a document referred to in section 104 (1)(b). Clause 2(2) of the Fourth Schedule explains that this assessment must include an assessment against:

a) any relevant objectives, policies or rules in a document; and
b) any relevant requirements, conditions or permissions in any rules in a document; and
c) any other relevant requirements in a document (for example, in a national environmental standard or other regulations).

208. In terms of section 104(1)(b) the relevant documents may be:

a) a national environmental standard;
b) other regulations;
c) a national policy statement;
d) a New Zealand coastal policy statement;
e) a regional policy statement or proposed policy statement; and
f) a plan or proposed plan.

209. The applicant has identified items (d), (e) and (f) as being relevant to the current applications, I agree with this approach and the explanation as to why the other documents specified above (items (a), (b), (c)) are not relevant and therefore, an assessment against those planning instruments is not required.

210. In terms of the overall section 104(b) list of documents, the following are considered relevant, have been assessed by the applicant and their provisions are also analysed below:

- the 2010 New Zealand Coastal Policy Statement (NZCPS);
- the operative regional policy statement, which is part of the Regional Resource Management Plan, 2006 (sections 2 and 3 of the Plan); and
- the operative Hawke's Bay Regional Coastal Environment Plan (RCEP) 2014.

211. There are no relevant **proposed** regional policy statement(s) or plans, nor plan changes or variations that apply to the applications.

New Zealand Coastal Policy Statement

212. The Resource Management Act (RMA) 1991 established a coastal management regime through the NZCPS. The NZCPS applies to the coastal environment. The CMA is thus just part of the broader area to which the NZCPS applies. The NZCPS must be given effect to through planning and decisions of regional and district councils. In the preamble, the NZCPS notes that *"the coastal environment contains established infrastructure connecting New Zealand internally and internationally such as ports, airports, railways, roads and submarine cables"*.

213. The New Zealand Coastal Policy Statement (NZCPS) took effect in December 2010, after the RCEP was publicly notified (30 August 2006) and decisions were notified (19 July 2008). Therefore, it cannot be assumed that the RCEP gives full effect to the NZCPS, hence it is important that the applicant has suitably addressed the relevant NZCPS provisions.

214. The NZCPS promotes the sustainable management of the natural and physical resources of the coastal environment through stated objectives and policies, including coastal land, foreshore and seabed, and coastal waters from the high tide mark to the 12 nautical mile limit. The NZCPS contains seven objectives and 29 more detailed policies.

215. The NZCPS guides regional and district (city) councils in the day to day management of the coastal environment, and in particular provides a coastal management framework expressed through the objectives, policies and rules in the relevant regional policy statement and the regional coastal plan.

216. The analysis of the NZCPS undertaken by the applicant in section 24.2 of their application and AEE has correctly identified the objectives and policies that may be applicable to the consents sought. I agree with the commentary that the applicant has provided in respect to the relevant objectives and any associated policies.

217. I note that the applicant has taken into account the relevant Iwi management plan as required by Policy 2(e) of the NZCPS. The applicant's commentary relating to Policy 2(e) is shown below.

Hawkes Bay Regional Council recognises six Iwi Management Plans associated with Ngati Kahungunu or hapū organisations. Only one appears to be potentially relevant to the Napier Port applications – the Kahungunu ki Uta, Kahungunu kit Tai Marine and Freshwater Fisheries Strategic Plan. This is a high level document dating from a series of hui in 2008. It was created because of concern about the state of fisheries and ecosystems within the rohe. It seeks to develop management practices which are holistic and inclusive. It expresses concern about the decline in abundance of fisheries.

The plan sets out goals, activities to be undertaken and priority and further tasks and responsibilities to help achieve the stated goals, under 12 headings ranging from fisheries and spatial management through environmental issues, capacity building, relationships and training and development.

To the extent that the Port of Napier project may intersect with this Iwi Management Plan, Iwi would wish to understand whether the project would impact on fisheries-related ecosystems, including food stocks and feeding and breeding areas. These aspects have been investigated and the extent of any actual and potential effects are set out in sections 10 and 11 of this report and the specialist reports referred to within those sections. Also of interest would be any impact on coastal processes and water quality, covered in sections 8 and 9 of this report, which also relate to sections 10 and 11. In summary, Port Napier's project is effectively neutral in terms of this Iwi Management Plan. There may be a slight benefit in that new information has been yielded, and monitoring is expected to be required (subject to conditions). This may contribute in a small way to information available to Iwi and overall fisheries management.

Cultural monitoring in relation (particularly relating to Pania Reef) has been proposed as a condition of consent.[124]

218. I agree with the applicant's approach in proposing a cultural monitoring condition. This could contribute achieve the goals set out by the Iwi management plan described above. However, further information from the applicant on the potential effects relating to fisheries is required. The protection and enhancement of the Hawke Bay fishery is an important goal of the subject Iwi management plan. As explained previously, the potential effects on the finfish fishery, particularly on the flatfish fishery supported by Hawke Bay as a result of dredged material being disposed of at the proposed offshore disposal site is an issue of concern, the issue is explained by the evidence of Dr Kelly. A related matter

[124] AEE, Volume 1, Section 24.2.3, pages 200 & 201.

that also needs to be addressed is that relating to the ecological data that was used to determine the ecological values and condition of the dredging and disposal areas. The ongoing collection of new data and involvement in cultural monitoring would be consistent with the relevant Iwi management plan.

219. The NZCPS is a comprehensive framework for coastal management. I agree with the assessment undertaken by the applicant that the proposal is not inconsistent with the NZCPS. Subject to the receipt of further information from the applicant on the potential effects relating to the matters outlined by this report, the mitigation which is either inbuilt within the project or is proposed through draft conditions has been able to ensure that effects will all be minor or less and consistent with the management framework set out by the NZCPS.

Hawke's Bay Regional Policy Statement

220. This Regional Policy Statement is incorporated in the Hawke's Bay Regional Resource Management Plan, which became operative in 2006. The Regional Policy Statement comprises Chapters 1 to 4 of the overall plan[125] with Chapters 2 and 3 setting out the main objectives and policies. Chapter 4 however recognises non-regulatory methods of achieving the objectives including information and education.

221. Table 24-1 sets out key objectives and related policies of the Regional Policy Statement which are relevant to the project. Note that Objectives 6, 9 and 10 are set out under the heading of Chapter 3.2 – The Sustainable Management of Coastal Resources. This section contains only objectives, as the applicable policies are found in RCEP. This is explained under the heading of Policy in this section of the Plan.

Table 6: Summary of Key Objective and Policy Themes of the Regional Policy Statement

Objective and Policy	HB Regional Policy Statement Objective and Policy Theme
Objective 6	**Coastal water quality** - the management of coastal water quality to achieve appropriate standards, taking into account spatial variations in existing water quality, actual and potential public uses, and the sensitivity of the receiving environment.
Objective 9	**Investment and maintenance** - requires appropriate provision for economic development within the coastal environment, including the maintenance and enhancement of infrastructure, network utilities, industry and commerce, and aquaculture.

[125] See Chapter 1.2.1.

Objective and Policy	HB Regional Policy Statement Objective and Policy Theme
Objective 10	**Safe and efficient navigation** – enables safe and efficient navigation for port vessels.
Objective 32 **Policy 56**	**Ongoing operation and development** – provides for the ongoing operation, maintenance and development of physical infrastructure that supports the economic, social and/or cultural wellbeing of the region's people and communities and provides for their health and safety.
Objective 33 **Policy 56**	**Regionally significant infrastructure** - provides recognition that some infrastructure which is regionally significant has specific locational requirements.
Objective 34 **Objective 35** **Policy 59** **Policy 62**	**Matters of significance to Iwi/Hapū** - requires the recognition of tikanga Maori values, such as consultation being *'kanohi ki te kanohi'* (face to face) or personal contact, and the contribution they make to sustainable development and the fulfilment of HBRC's role as guardians, as established under the RMA, and tangata whenua roles as kaitiaki, in keeping with Maori culture and traditions.
Objective 36 **Objective 37** **Policy 64** **Policy 65**	**Matters of significance to Iwi/Hapū –** requires the protection of waahi tapu and mahinga mātaitai by avoiding significant adverse effects on them.

222. In regard to the project's consistency with the RPS, I agree with the commentary provided by the applicant and their assessment. The applicant explains that the project is not inconsistent with the objectives of the Regional Policy Statement that relate to the coastal environment, and to regionally significant infrastructure. The investment and ongoing development proposed is in line with this regional policy. The single objective relating to coastal water quality underpins the water classification applied through the RCEP, with which the dredging and disposal activities are also consistent. The policy relating to tangata whenua requires respectful and appropriate consultation, which Napier Port considers it is undertaking, and the recognition and protection of, *inter alia*, waahi tapu and mātaitai areas. By emphasising the intention to minimise adverse effects on Pania Reef while also providing monitoring information, again the regional-level objectives and policies are being achieved.

Hawke's Bay Regional Coastal Environment Plan (RCEP)

Introduction and General Policy Framework

223. Decision-makers on resource consent applications must have regard to the provisions of the RCEP as required by section 104(1)(b)(vi) of the RMA when considering the applications for coastal permits.

224. The RCEP became fully operative on 8th November 2014. It can be regarded as the most significant policy document directly influencing the applications. It also contains the rules which establish the status of the applications. The relevant contextual framework[126] and rules also contribute to an understanding of how the policy framework applies to the applications.

225. Of particular significance is the mapped Port Management Area and the Fairway and Swinging Basin. These identified mapped areas mean that some of the maintenance dredging which forms part of the overall project, is permitted or controlled[127] and the policy in the RCEP does not apply to these activities.

226. It is also important to note that the mapped area of the Special Conservation Area around Pania Reef is also associated with Rule 143, which makes any removal of sand, rock or gravel within 700m of Pania Reef (SCA 13) a prohibited activity for which an application cannot be made[128]. The application for dredging is entirely beyond 700m from the boundary shown on the RCEP maps, and the relevant policies apply.

227. As would be expected, there are a large number of objectives and policies that are directly relevant to the applications. Many have been derived from the NZCPS and the RPS, and have effectively been analysed earlier in this section. For completeness, the applicant has provided a full assessment against the provisions of the RCEP. Those provisions which have been already been addressed in relation to the RPS and NZCPS are marked with an asterisk.

Table 7: Applicant's Summary of Key Objectives and Policy Themes of the RCEP

Objective and Policy	RCEP Objective and Policy Theme
Objective 2.1* **Policy 2.1** **Policy 2.3** **Policy 2.4** **Policy 2.5** **Policy 2.8** **Policy 2.9** **(this suite of provisions already evaluated in section**	**Natural character** – preservation of natural character and protection from inappropriate use and development; avoiding adverse effects on natural character; promoting use and development in areas where natural character is already modified; enabling the use and development of Port facilities while avoiding, remedying or mitigating (where practicable) adverse effects on natural character and processes; to mitigate effects on natural coastal processes; to mitigate effects on natural coastal processes; and to seek to maintain and enhance existing cultural and amenity values.

[126] In terms of geographical aspects which apply in the vicinity of the Port.
[127] Under rules 139 and 140.
[128] In terms of section 87A(6) of the RMA.

Objective and Policy	RCEP Objective and Policy Theme
23.2.2 and 23.2.5)	
Objective 4.1* **Policy 4.1** **Policy 4.2** **Policy 4.4** **(this suite of provisions already evaluated in sections 23.2.1)**	**Indigenous species** – protecting areas of regionally or nationally significant habitat of indigenous fauna or ecosystems; avoiding adverse effects on fishing grounds, indigenous biota, etc; ensuring adverse effects are remedied or mitigate (where complete avoidance is not practicable) on outstanding or rare species or habitats; and ensuring avoidance, remedy or mitigation of adverse effects on SCAs.
Objective 5.1* **Policy 5.7** **Policy 5.8** **Policy 5.9** **Policy 5.10** **(this suite of provisions already evaluated in section 23.2.4)**	**Public access** – maintaining access except where necessary for health, safety and securing reasons; excluding the Port Management Area from public access; and limiting occupation to only that which is necessary in space and time and to not unreasonably restrict other uses.
Objective 6.1* **Policy 6.1** **Policy 6.4** **Policy 6.5** **Policy 6.8** **Policy 6.9** **(this suite of provisions already evaluated in section 23.2.3)**	**Tangata whenua** – protection of the characteristics of the coastal environment of special significance to tangata whenua; recognising and supporting kaitiaki roles; ensuring adverse effects on cultural sites are avoided, remedied or mitigated; active involvement of tangata whenua in management of cultural resources; adequate consultation; and taking into account findings of cultural impact assessments.
Objective 7.1 **Policy 7.1** **Policy 7.3**	**Historic heritage** – protection of historic heritage from inappropriate development; and avoid, remedy and mitigate adverse effects on historic heritage in the CMA

228. Subsequent sections (chapters) of the RCEP address the actual activities and set out objectives, policies and environmental guidelines and anticipated environmental results. The applicant has identified that RCEP chapters 16 (Discharge of contaminants into CMA), 17 (Disturbances,

depositions and extractions in CMA) and 18 (Structures and occupation of space in CMA) relate directly to the activities for which consents are sought.

229. In general, I agree with the assessment undertaken by the applicant in relation to the RCEP provisions summarised above and set out by the applicant in section 24.4 of the application and AEE.

230. The applicant's commentary in relation to Policy 17.1 is an area that requires further discussion and clarification.

231. Policy 17.1 sets out the environmental guidelines for the management of deposition and extraction of material within the CMA and disturbance of the foreshore and seabed. Guideline 3(b) of Table 17-1[129] states that Initiatives to deposit dredged or excavated sediment in designated disposal areas within the coastal marine area shall be provided for where the deposit will help to renourish beaches adjacent to existing developed areas that are at risk from coastal erosion or inundation.

232. The applicant stated following in their commentary relating to guideline 3(b); *the nature of the material to be disposed of means that it is unsuitable for renourishment on the Napier city beaches. Should suitable material be identified, it will be deposited under the existing deposition permit which allows deposition in the nearshore area close to Westshore*[130]. The first sentence made by the applicant suggests that they are confident the material to be excavated (dredged) will not be suitable for beach nourishment. In contrast, the second sentence suggests there is some potential for suitable material to be identified and subsequently used to nourish Westshore Beach.

233. If further investigations regarding the nature of the material is required to reduce the ambiguity explained above, this should be done. However, I consider that the assessment required to identify suitable material for beach nourishment is provided for by the 'Dredging and Disposal Management Plan' (DDMP) proposed by the applicant. Point a) of the proposed condition requires that the DDMP include a map and description of the area to be subject to capital dredging, the intended depth of dredging, and the estimated volume **and nature of the dredged material**[131].

234. The use of suitable material for the nourishment of Westshore Beach would be consistent with Chapter 15 of the RCEP which includes the objectives and policies relating to coastal hazards and their management. Beach nourishment is a management approach listed in Table 15-1 which includes the environmental guidelines to manage coastal erosion and inundation risks. Guideline 11(b) of Table 15-1 states that activities should recognise and provide for the ongoing

[129] RCEP
[130] AEE, Volume 1, Pg. 211
[131] AEE, Volume 1, Section 26.3, Condition 2, Pg. 238

renourishment of Westshore Beach as an appropriate means of mitigating the effects of coastal hazards on the shoreline.

235. To conclude, I generally agree with the assessment undertaken by the applicant regarding the RCEP but add that providing for beach nourishment would be consistent with the provisions of the RCEP described above.

RMA Sections 105 and 107

236. As well as the framework for decisions established in section 104 of the RMA, sections 105 and 107 provide specific additional considerations for section 15 applications (discharges, including within the CMA). The key requirements of the parts of these sections that the applicant considers apply to the applications, and the applicant's comments on them, are set out in Table 8 below.

Table 8: Applicant's Analysis of Applications in terms of RMA sections 105 and 107

RMA Section	Commentary
105(1)(a)	This provides an additional matter for decision-makers to have regard to in relation to discharge permits (RMA section 15) in the Coastal Environment – *"the nature of the discharge and the sensitivity of the receiving environment"*. Consents are sought for actual or incidental discharges of sediment which is already within the local marine environment, but which is disturbed by the construction, dredging and/or disposal activities proposed. The discharge is therefore of naturally-occurring sediment. The nature of the receiving environment has been taken into account, and effects assessed on that basis. Of particular relevance is the information and assessment provided in sections 9, 10 and 11 of the application and AEE and in the background reports referred to in those sections.
105(1)(b)	This provides an additional matter for decision-makers to have regard to in relation to discharge permits (RMA section 15) in the coastal environment – *"the applicant's reason for the proposed choice"*. Consents are sought for actual or incidental discharges of sediment which is already within the local marine environment, but which is disturbed by the construction, dredging and/or disposal activities proposed. The reasons for the applicant's choice of project and the alternatives considered are set out in sections 4 and 5 of the application and AEE, and include the economic and functional reasons for increasing the depth of the channel giving access to the Port. The location of the disposal area has been chosen so that potential adverse effects of the discharges on the receiving environment are at a less than minor level.

105(1)(c)	This provides an additional matter for decision-makers to have regard to in relation to discharge permits (RMA section 15) in the coastal environment – *"any possible methods of discharge, including discharge into any other receiving environment"*. Alternatives, including alternative discharge, locations for dredged material within the CMA, and discharges onto land for possible beneficial use, have been considered as set out in section 5.4 of this report. Discharges from the construction and dredging activities (as compared to the disposal of dredged material) are unavoidable, and, in the case of wharf construction, are incidental.
107(1) and (2)	The first sub-section of section 107 provides "bottom line" standards relating to the actual and potential effects of discharges, and requires that any discharge does not give rise to conspicuous change in colour or visual clarity, odours, scums, foams, floatable objects, oil or grease films, or significant adverse effects on aquatic (marine) life. The second sub-section provides that a consent authority can grant a permit in such circumstances if either: • there are exceptional circumstances justifying the discharge; or – the discharge is of a temporary nature; or – the discharge is associated with maintenance; and – appropriate conditions are applied. In this case there will be temporary changes in colour and clarity of the water. However, the discharges meet the requirement of being temporary in nature, except for the discharges associated with dredge material disposal, which, once completed, will result in a permanent change in the environment in the area affected. The need for the particular dredging project arises from the exceptional circumstances of changes in international shipping which are beyond the control of any New Zealand port operator. Overall, the effects are minor or less and together fit within the constricts of section 107. Draft conditions, including monitoring and review conditions are proposed to address the residual effects which have not been able to be avoided through choice of location and project design.

237. I agree with the conclusion made by the applicant and concur that while RMA sections 105 and 107 provide additional considerations relating to discharge consents, these do not prevent the proposed activity being granted consents subject to the outstanding issues identified by this report being resolved.

Part 2 of the RMA

238. Part 2 of the RMA is the Act's purpose and principles, including matters of national importance in section 6, other matters which particular regard must be had in section 7, and Treaty principles in section 8. Section 104(1) of the RMA makes all decisions on resource consent applications subject

to Part 2. I am aware of case law[132] which states that unless particular exceptions apply, there is no need (or ability) to refer back to Part 2 of the RMA when determining a resource consent application under section 104 of the Act, as the plan will have been developed in accordance with Part 2 and can be assumed to have given substance to Part 2. However, for the sake of completeness in case any exceptions are found to apply, and because I am aware that the Davidson decision is currently under appeal, I have considered the applicant's assessment against Part 2 and also briefly set out my own analysis of the relevant parts of Part 2 for this proposal below.

239. In terms of **section 6**, I agree with the applicant's assessment of the proposal in relation to matters of national importance as set out in the application[133]. The applicant noted that subsections (a), (c), (d), (e), (f) and (g) may all be relevant. I agree with this statement. In addition, subsection (h) being the management of significant risks from natural hazards is another matter of relevance. The proposal including the wharf design has been developed with sea level rise in mind and with regard to modelled extreme wave conditions, storm frequency and intensity. Furthermore, the applicant intends to develop an overall strategy to tackle sea level rise in a holistic manner in future[134].

240. In terms of **section 7**, other matters to which the applicant believes particular regard must be had are found in subsections (a), (b), (c), (d), (f) and (i). I agree with the applicant's assessment of section 7 and consider that the application and recommended conditions ensure that particular regard has been given to these matters and/or will be given to the matters throughout the durations of the proposed consents. An example of this is the concept of Kaitiakitanga (subsection (a)) that is provided for by the consent conditions that are intended to promote an ongoing relationship between Napier Port and local Iwi and hapū, through participation in environmental and cultural monitoring.

241. **Section 8** requires that Treaty of Waitangi principles must be taken into account. Napier Port has approached the project on the basis of the need for active consultation with Iwi and hapū, as well as respect for cultural values associated with the Pania Reef area and the CMA as a whole, including the preparation of a CIA.

242. Finally, **section 5** sets out the purpose of the RMA as being the promotion of sustainable management as defined within the section. In this case Napier Port proposes to use and develop an area of the CMA within the Port Management Area to enable the enhancement of the Port function to meet regional and local needs, thereby contributing to economic, social and cultural wellbeing. The design of the project provides for health and safety. The project provides a new,

[132] *RJ Davidson Family Trust v Marlborough District Council* [2017] NZCA 194).
[133] Pg. 224
[134] Napier Port s.92 response, dated 19 March 2018

needed, physical resource which meets the needs of the present as well as contributing a facility for the use of future generations; the life-supporting capacity of air, water and ecosystems is safeguarded, and actual and potential adverse effects which could be associated with the project have been avoided, remedied or mitigated.

11. CONSULTATION AND NOTIFICATION ASSESSMENT

243. The applicant requested that the application be publicly notified. The application was notified on Thursday 29 March 2018, with the submission period ending (after 20 working days) on Tuesday 1 May 2018.

244. In addition to the notice in the local newspaper, hard copies being available to view and access to the application online, direct notification was also sent to the following parties:

- Port of Napier Limited
- Hawke's Bay District Health Board
- Hawke's Bay Regional Council (Chief Executive)
- Ministry for the Environment
- Ministry for Primary Industries
- Minister of Conservation
- Hastings District Council (applicant)
- Napier City Council
- Department of Conservation (local office)
- Heritage New Zealand Pouhere Taonga
- Maritime New Zealand
- Westshore Residents Society
- Legasea
- HB Volunteer Coastguard
- Maungaharuru Tangitu Trust
- Trustees of the Ngati Pahauwera Development Trust
- Mana Ahuriri Incorporated
- Ngati Kahungunu Iwi Incorporated
- Petane Marae
- Tangoio Marae
- Te Taiwhenua O Te Whanganui-a-Orotū
- Te Taiwhenua O Heretaunga
- Ngati Parau

- Heretaunga Tamatea
- Te Aitanga a Puta, Ngati Kurupakia e Ngai Tauira
- Rihari Dargaville (for NZ Maori Council)
- Cletus Maanu Paul (on behalf of all Maori)

245. As discussed in section 6 of this report, 43 submissions were received, of these **43** submissions, **1** submission was neutral, **12** were in support of the proposal and **30** were in opposition to the overall proposal or, specific parts of the proposal.

12. RECOMMENDED CONSENT CONDITIONS

246. A set of recommended consent conditions is provided in Appendix 1 for consideration. These conditions are similar to the conditions recommended by the applicant as outlined by section 26 of the application and AEE[135].

247. If the consents are granted, the suite of conditions finalised by the independent hearing commissioners will be transferred onto the standard Council consent document template. The conditions relevant to each consent sought have been presented in a way that I consider to be best suited as an appendix to this report. It is expected that the conditions will be further refined through the hearing and decision making process.

248. Notable additions to the conditions proposed by the applicant that have been made by the reporting officer are, in summary:

- The requirement for a Biosecurity Management Plan (BMP). This addition is recommended by the evidence of Dr Kelly and is consistent with what is required of other Port's in New Zealand in relation to similar dredging projects.
- The requirement for a specific Maintenance Dredging and Disposal Management Plan. This would be necessary if the applicant is required, by condition of consent, to utilise some of the dredged material for beach nourishment within the existing dredge disposal areas (CL970159D – or any subsequent/varied version). This would be similar to the Dredging and Disposal Management Plan but would include specific management practices to ensure that any proposed beach nourishment is undertaken in accordance with best practice and consistent with the current Water Quality Management Plan.
- I have amended the Little Blue Penguin Management Plan condition that was proposed by the applicant, this has been amended to ensure that other avian species are also considered and suitably protected. The amendments I have proposed are consistent with the recommendations of Wildlands Consultants and their report that is attached to the application

135

and AEE as Appendix L. The amendment does not seek to change the intended approach for management and protection of the Little Blue Penguin but the condition has been broadened to ensure other species are also considered and suitably protected.

- I have included some of the existing conditions of other similar consents held by the applicant in the suite of conditions recommended for the proposed consents. It is anticipated that the conditions will be further refined by the evidence of the applicant and through the hearing process.

13. CONSENT DURATIONS

249. In recommending a consent duration, the reporting officer has considered a number of factors including but not limited to the below:

- The duration of consent sought by the applicant.
- The Regional Coastal Environment Plan (November 2014).
- The level of information provided regarding the effects of the activities.
- The potential effects of the activities.

250. The durations sought by the applicant for each of the consents applied for are set out by Table 9 below.

Table 9: Consent Durations Sought by Applicant

Application No.	Nature of Resource Consent	Duration
Construction, Use and Maintenance		
CL180008C	Coastal permit for the construction, use, operation and maintenance of a new wharf (Wharf 6) and associated activities.	35 years (Construction -15 years)
Capital Dredging		
CL180009E	Coastal permit for Stage 1 capital dredging beneath the proposed new wharf, in the inner Port area, swinging basin and part of the Deep Water Channel.	35 years
CL180010E	Coastal permit for Stages 2 to 5 capital dredging within the inner Port area, swinging basin, in and near to the existing three channels and to form a new channel.	35 years
Maintenance Dredging		

Application No.	Nature of Resource Consent	Duration
CL180011E	Coastal permit for maintenance dredging within the areas for which capital dredging permits are sought (Stages 1 to 5).	35 years
Disposal of Dredged Material		
CD180012W	Coastal permit for deposition and disposal of dredged material from capital and maintenance dredging into deposition and disposal areas shown in the application.	35 years
Occupation		
CL180013O	Coastal permit for the occupation of the common marine and coastal area for existing Port activities (replacing the existing coastal permits held by Napier Port to occupy an area for Port purposes), the proposed new wharf, the adjacent berth pocket including the areas on both sides of the dolphins, and the new swinging basin, as shown in the plan attached to the application.	35 years

251. As outlined by the table above, the duration sought for the construction aspect of wharf 6 is 15 years. For all other aspects of the project, the applicant has sought a duration of 35 years.

252. In terms of the Act, sections 5(2) and 123(c) outline relevant factors to be considered when considering durations of resource consents.

253. Section 29.2.3 of the RCEP provides guidance on consent duration. The RCEP states that the Regional Council will grant land use consents for land use activities pursuant to section 9, and reclamations pursuant to section 13 of the RMA for an unlimited period, and resource consent for other activities, including discharges, for a period of 20-35 years unless one or more of the following exceptions apply:

- the activity has a duration of less than 20 years, in which case a consent will be granted for the duration of the activity
- there is a need to align the consent expiry date with others, in order that the cumulative effects of activities can be considered through a common consent renewal process
- the consent is for the allocation of gravel or another resource whose availability changes over time in an unpredictable manner
- the type of activity has effects that are unknown or potentially significant for the locality in which it is undertaken
- at the time of granting consent, the effects of the activity are/were unknown or little understood and a precautionary approach is adopted

254. A decision on what is the appropriate term of the applications requires an assessment of the actual and potential effects on the environment, the sensitivity of the receiving environment to adverse effects and the alternatives that have been assessed in relation to disposal sites for the dredged material.

255. The effects of the activity have been discussed in Section 7 of this report and by the evidence of Council's experts attached as Appendix 4. The findings and conclusions of the information and scientific reports provided by the applicant in relation to the proposal and its effects are considered sufficient to ensure that the bio-physical effects are not unknown or potentially significant. Therefore, I do not consider that a term less than 20 years would be warranted.

256. The applicant has emphasised the importance of the consent durations sought signalling that the major infrastructure port development project involves a long-term investment strategy that requires surety and certainty.[136]

257. A reduction in the term of the consents sought is not considered warranted or necessary. A reduction in term will not reduce any of the uncertainty regarding the proposal and as such, the consents should only be granted if potential effects can be suitably avoided, remedied or mitigated to the necessary extent. Secondly, I consider that the applicant has established a basis for adoption of the 35 year statutory maximum[137] which is sought for all consents except that relating to the consent for the construction of the wharf. Also important to note is that the 35 year term is required for the capital dredging along with the flexibility to undertake stages 2 through to 5 as and when required, depending on the demand to berth larger vessels at Napier Port. When the Port will need to be capable to berth these larger vessels is difficult to forecast. Flexibility needs to be provided and a 35 year term will achieve this.

258. The project involves a long-term investment that is significant in terms of the capital required to undertake the proposed development. The applicant's approach to the consent duration sought would create surety surrounding the investment required and this may assist the raising of the required capital. For this very reason, the replacement occupation consent with a matching 35 year duration is sought. It is reasonable that this replacement occupation consent be granted for the maximum duration allowed to provide certainty to the applicant in respect of its operations and to the wider community that depend on the Port's activities to provide for their social, economic and cultural well-being.

259. The existing coastal permits for capital dredging will be surrendered upon the granting of the consents sought.

[136] Napier Port AEE 'Proposed Wharf and Dredging Project', Volume 1, Page 77
[137] RMA Section 123 (c)

260. The applicant has applied for a lapse period of 10 years for all consents. Given the scale of the project and the significant capital that is required to implement the project, the 10 year lapse period sought has been recommended and is reflected in the draft consent documents attached.

14. MONITORING

Monitoring by Consent Holder

261. The draft conditions of consent recommended require significant input from the applicant prior to undertaking the project and throughout the term of the consents sought. These requirements are set out by the recommended conditions of the consents which are supplied in draft format anticipating that some changes may be required following further discussion of issues at the hearing.

Monitoring by Council

262. It is recommended there be provision for Council to undertake monitoring during construction of wharf 6 and as required after the completion of works. Cost of this monitoring will be charged to the consent holder and shall be in accordance with the Annual Plan in place at that time.

263. The recommendation is that routine monitoring of this consent may be undertaken by a Council officer as and when required during each of the five dredging campaigns that are proposed. Once all capital dredging has been completed, it is recommended that there is provision for monitoring to occur up to twice per year. The costs of this routine monitoring and any formal monitoring programme that may be established in consultation with the consent holder will be charged to the consent holder in accordance with the Annual Plan current at the time.

264. “Non routine” inspections will be made on other occasions if there is reason to believe (e.g. following a complaint from the public, or monitoring) that the consent holder is in breach of the conditions of this consent. The cost of non-routine monitoring will be charged to the consent holder in the event that non-compliance with conditions is determined, or if the consent holder is deemed not to be fulfilling the obligations specified in the RMA.

15. CONCLUSION

265. This assessment has been carried out in accordance with s 104, 105, 107 and 104B of the RMA and it is recommended that consents be granted, subject to the recommended conditions of consents. This recommendation is subject to further information from the applicant on the potential effects relating to the matters outlined below;

1) The potential effects on the finfish fishery, particularly on the flatfish fishery supported by Hawke Bay as a result of dredged material being disposed of at the proposed offshore disposal site. Dr Kelly has identified this matter as an issue of concern. A related matter that also needs

to be addressed is that relating to the ecological data that was used to determine the ecological values and condition of the dredging and disposal areas.

2) The evidence of Mr Reinen-Hamill it is noted that there appears to be some anomalies in the sediment transport derived from wind driven currents, with westerly winds showing strong westerly transport. Mr Reinen-Hamill understands that this will be reviewed and explained in evidence by the Port coastal experts. This is a matter that needs to be resolved in the applicant's evidence and finalised at the hearing. Finalising this issue will address the concerns of a number of submitters who among others, need faith in the scientific evidence presented.

3) The final matter that needs to be addressed in the evidence supplied by the applicant and finalised at the hearing is the intended pathway to mitigate the effects that the proposed dredging of the channel will have on the sediment supply to the eroding Westshore Beach. However, there is a lack of detail and analysis of the nearshore disposal effect on coastal process and marine ecology included in the application as it is focussed on a single offshore disposal location around the 20 m depth contour. If nourishment of Westshore Beach is required to mitigate an effect in relation to the activities proposed, then in my view this mitigation should be managed through a condition of consent requiring nourishment. Alternatively, the matter could be addressed through a Memorandum of Understanding (or similar), although this would provide less certainty that the mitigation will occur than if a consent condition was imposed. If the commissioners conclude that nourishment is necessary mitigation for the proposed activities effects (dredging and deepening of the channel), then I consider a consent condition requiring suitable dredged material to be used for beach nourishment is the more appropriate approach.

16. RECOMMENDATION

266. The recommendation of the Principal Consents Planner (subject to the matters outlined previously) is that the resource consents, as attached in draft format, be granted to Port of Napier Limited.

Recommending Officer	Recommendation Confirmed
	
Reece O'Leary **Principal Consents Planner** REGULATION GROUP	**Malcolm Miller** **Manager Consents** EXTERNAL RELATIONS GROUP
31 July 2018	31 July 2018

Appendix 1. Draft Recommended Conditions of Consent

Note: If the consents are granted, the final consent conditions will be issued by HBRC in Council's standard consent document format. The six consents sought are presented below in a format best suited to this report. Council's standard practice is for a separate document to be issued for each respective consent. Therefore, a number of conditions are duplicated below across the various consents, specifically when there is a requirement for a management plan, the management plan requested generally relates to a number of the activities and consent documents. For example, the Water Quality Management Plan relates to construction, excavation (dredging) and the deposition of dredged material.

Review of Consents

The Council may review conditions of this consent pursuant to sections 128, 129, 130, 131 and 132 of the RMA. The actual and reasonable costs of any review undertaken will be charged to the consent holder, in accordance with section 36 of the RMA.

Times of service of notice of any review: During the months of February, May, August and November of any year.

Purposes of review:

To deal with any adverse effect on the environment that may arise from the exercise of this consent, which it is appropriate to deal with at that time or which became evident after the date of issue.

To require the adoption of the best practicable option to remove or reduce any effects on the environment.

To modify any monitoring and/or reporting programme (including requiring additional monitoring or decreasing the frequency of monitoring and/or reporting required) if there is evidence that current monitoring and/or reporting requirements are no longer appropriate.

To modify any monitoring programme, or to require additional monitoring if there is evidence that current monitoring requirements are inappropriate or inadequate.

Draft Conditions of Consent: CL180008C

Purpose: to construct, use, operate and maintain a new wharf (Wharf 6) and undertake associated works and ancillary activities.

General Accordance

1. The consent holder shall undertake all operations in accordance with any drawings, specifications, and statements of intent, proposed mitigation measures and other information supplied as part of the application for this resource consent. Except where modified in accordance with these conditions, the consent holder shall undertake all operations in accordance with the following documents provided in support of the application:

    a) Proposed Wharf and Dredging Project, Resource Consent Applications and Description and Assessment of Effects on the Environment (Volumes 1, 2 and 3 and supporting documentation).

    If a conflict arises between any conditions of this consent and information in the application documentation, the conditions of consent shall prevail.

2. All works and structures relating to this resource consent shall be designed and constructed to conform to the best engineering practices and shall be maintained and repaired as necessary to ensure that the structure remains in a safe and serviceable state.

General Duty

3. The consent holder shall undertake all consented activities in a manner that applies all reasonable and practicable steps to avoid, remedy or mitigate actual and potential adverse effects on the environment.

4. The consent holder shall ensure that any contractors engaged to undertake work authorised by this consent abide by the conditions of this consent. The person responsible for the work on site shall be familiar with the consent conditions and management plans. A copy of this consent and all management plans shall be present on site or vessel at all times while the work is being undertaken.

Inadvertent Discharges

5. That where, for any cause (accidental or otherwise), contaminants associated with the consent holder's operations escape to water other than in conformity with the consent, the consent holder shall:

    a) Immediately take all practicable steps to contain and then remove the contamination from the environment,

    b) Immediately notify the Hawke's Bay Regional Council of the escape,

    c) Report to the Hawke's Bay Regional Council, in writing and within 7 days, describing the manner and cause of the escape and steps taken to manage it and prevent its reoccurrence.

Complaints Received

6. The consent holder shall notify the Hawke's Bay Regional Council of any complaints relating to the exercise of the consent within 7 days of being received by the consent holder.

Marine Wildlife Management Plan

7. A Marine Wildlife Management Plan (MWMP) shall be prepared in consultation with the Department of Conservation prior to commencing any construction or dredging works. The purpose of the MWMP is to avoid or minimise the potential for adverse effects on marine mammals and birds. The MWMP shall address:

    a) Responsibilities for observation and monitoring of marine mammals,

    b) Advisory practices, such as maximum vessel speeds,

    c) Responsibilities for liaison with the Department of Conservation over the project period,

    d) Responsibilities for recording and reporting types of and frequencies of any marine mammal sightings during any project activity, including transiting to or from the dredge material disposal site,

    e) Measures to minimise underwater noise from construction and dredging activities,

    f) Monitoring within designated safety zones, including the use of trained marine mammal observers, during and immediately following pile driving activities (during daylight hours only),

    g) Application of soft-start procedures and other noise dampening techniques,

    h) Methods of avoiding entanglement,

    i) Methods to ensure records of all entanglement incidents (regardless of outcome) are provided to the Department of Conservation,

    j) A description of the lighting being used, including any methods to reduce potential for bird strike.

    This plan must be certified by Council prior to any works commencing. Furthermore, any changes to the plan in future shall be discussed in advance with the Council and the change is to be submitted, certified and approved prior to any activity associated with the change commencing.

Cultural Monitoring and Information Sharing

8. Within the first two years of the consent being granted, the consent holder shall, in consultation with Mana Whenua hapū, prepare a Marine Cultural Health Programme (MCHP) to ensure the cultural health of the marine environment and in particular Pania Reef, is surveyed, monitored and reported upon. The purpose of the MCHP is to assist the consent holder, to assess the state of the marine environment, in particular Pania Reef, from a cultural perspective and assist Māori in marine environmental monitoring and reporting.

9. The MCHP shall include, but not be limited to, the following:

    a) A map and description of the area to be subject to the MCHP.
    b) Marine cultural indicators to be surveyed and monitored, including appropriate marine cultural health limits or baseline values and triggers to measure change against.

c) How the MCHP will align with the Water Quality Management Plan (WQMP) programme of dive surveys relating to Pania Reef.

d) Methodology for marine cultural health surveying and monitoring.

This plan must be certified by Council prior to any works commencing. Furthermore, any changes to the plan in future shall be discussed in advance with the Council and the change is to be submitted, certified and approved prior to any activity associated with the change commencing.

10. The frequency and nature of any specific marine cultural health surveying and monitoring shall, where practicable, be carried out alongside other related surveying and monitoring of Pania Reef.

Advice Note: The benefits of Napier Port personnel and hapū working together and sharing best practice, tikanga Māori, scientific and cultural information and indicators, are recognised. It is expected that the consent holder shall meet the reasonable costs incurred by hapū.

11. The consent holder in partnership with Mana Whenua hapū shall ensure a MCHP surveying and monitoring summary report is provided to hapū information networks.

Advice Note: More detailed information should be made available to hapū should they request. All of the above should be set out in a 'communication plan' developed in partnership with hapū.

Contaminant Release

12. The consent holder shall take all practical measures to limit the amount of sediment and to prevent external contaminants from entering the Coastal Marine Area from land or construction activities during wharf and associated construction works. Such measures shall include, but are not limited to:

a) Refuelling and carrying out machinery maintenance at least 10 m inland from MHWS.

b) Ensuring that wash water from tools, equipment or machinery is not discharged into the Coastal Marine Area.

c) Minimising the use of machinery within the Coastal Marine Area where practicable.

d) Providing appropriate wash-down facilities for all concreting equipment to the satisfaction of the Council (Manager Compliance) to prevent wash water from entering the Coastal Marine Area.

e) Storing any hazardous substances (as defined by the Hawke's Bay Regional Resource Management Plan, 2006) so that they will not enter the Coastal Marine Area.

f) Ensuring that during pile or wharf installation and ancillary work no wet concrete shall enter the Coastal Marine Area.

Noise

13. Noise resulting from construction activity shall not exceed the New Zealand Construction Noise Standard NZS 6803 (1999).

Construction Management Plan

14. The consent holder shall submit a Construction Management Plan (CMP) to the Regional Council for certification at least one month prior to any works commencing. Works shall not commence prior to certification. The CMP shall include, as appendices, the Construction Noise Management Plan and Traffic Management Plan (required by this consent). The objective of the CMP is to ensure that all wharf construction and associated activities are managed in a way that is in general accordance with the information referred to in Condition 1 of this consent and the detailed requirement of the CMP Appendices (Construction Noise Management Plan and Traffic Management Plan)

    Any changes to the certified CMP shall be discussed in advance with the Regional Council and the change will be required to be submitted and certified prior to any works associated with the change to the CMP commencing.

15. The CMP and the management plans included under **Condition 14** shall include details of:

    a) Staff and contractors' responsibilities,

    b) Training requirements for employees, contractors, any sub-contractors and visitors,

    c) Environmental incident and emergency management,

    d) Environmental complaints management,

    e) Compliance monitoring,

    f) Corrective actions, if necessary in specified circumstances (including, where necessary, relating to wildlife management),

    g) Stakeholder and communication management,

    h) The final construction methodologies,

    i) Shall contain sufficient information to ensure that the CMP achieves its purpose set out in **Condition 14**.

16. The CMP shall be consistent with, and as appropriate shall give effect to, measures within the Marine Wildlife Management Plan and the Little Blue Penguin (and other species) - Avian Management Plan.

17. The CMP shall be implemented and maintained throughout the entire construction period.

Construction Noise Management Plan

18. A Construction Noise Management Plan (CNMP) shall be provided as an appendix to the CMP, for the management of airborne construction noise and underwater noise. The CNMP shall be prepared by a suitability qualified and experienced person and shall be part of the documentation certified by the Regional Council.

19. The CNMP shall identify practicable noise mitigation measures, provide for effective communication between contractors and Port neighbours, and shall seek to minimise potential adverse noise effects on marine mammals.

    For **airborne construction noise** the CNMP shall include, but not be limited to, the following:

    a) The performance standards that must, as far as practicable, be complied with,

b) Predicted noise levels for relevant equipment and/or activities,

c) Construction noise mitigation and management strategies to be employed where practicable,

d) Monitoring,

e) Complaints response procedures.

For **underwater noise** the CNMP shall include, but not be limited to the following:

a) Methods to minimise noise in the marine environment,

b) Visual monitoring for marine mammals during pile-driving, and steps to take should any be identified (including species and distance from pile-driving area).

The CNMP shall be consistent with relevant requirements of the Marine Wildlife Management Plan.

Traffic Management Plan

20. The consent holder shall prepare a Traffic Management Plan (TMP) to be provided as an appendix to the CMP. The TMP shall be provided to NZTA (or the appropriate network contractor) prior to being finalised and the TMP shall include but not be limited to the following:

    a) Management of traffic to and from the construction area,

    b) Access and parking for contractors,

    c) Specification of any additional measures necessary during periods of activities which involve high levels of construction traffic on nearby roads (including communication with any necessary physical management steps).

Little Blue Penguin (and other species) - Avian Management Plan (AMP)

21. In association with the Department of Conservation and Mana Whenua hapu, the consent holder shall prepare an Avian Management Plan. The purpose of the plan shall be to as far as practicable avoid, but otherwise mitigate or remedy, adverse effects on the populations of Little Blue Penguin and other species established in and nearby the existing revetment, during the construction period. The Avian Management Plan shall address the following:

    a) Measures to minimise adverse effects on bird populations (specifically the Little Blue Penguin) during construction,

    b) Staff and contractor training,

    c) Any additional steps that are necessary to achieve no net loss of the Little Blue Penguin population in the vicinity of the Port over a 10-year period following commencement of construction.

    d) Any additional steps that are necessary to mitigate effects on White-Fronted Terns, Shag species and any other avian species considered necessary (as advised by a suitably qualified person) in the vicinity of the Port over a 10-year period following commencement of construction.

    e) Identify and implement any practicable environmental enhancements to improve the habitat for avian species in the vicinity of Napier Port.

Advice Notes (relating to AMP):
Expert advice from a suitably qualified person shall be sought in developing the Little Blue Penguin Management Plan.
Environmental enhancements could include public education and signage to protect the Little Blue Penguin habitat/population near Napier Port.

22. The consent holder shall submit the Avian Management Plan (AMP) to the Regional Council for certification at least three months prior to any works commencing.

    Council may seek external advice from a suitably qualified individual prior to certification of this plan. The consent holder would be invoiced for any costs (actual and reasonable) associated with this advice.

    Any changes to the plan in future shall be discussed in advance with the Council and the change is to be submitted, certified and approved prior to any activity associated with the change commencing.

Public Safety

23. During the exercise of this consent, the consent holder shall take all practicable precautions to protect public safety at all times.

Draft Conditions of Consent: CL180009E

Purpose: to undertake Stage 1 capital dredging beneath the proposed new wharf, in the inner port area, swinging basin and part of the Deep Water Channel.

General Accordance

1. The consent holder shall undertake all operations in accordance with any drawings, specifications, and statements of intent, proposed mitigation measures and other information supplied as part of the application for this resource consent. Except where modified in accordance with these conditions, the consent holder shall undertake all operations in accordance with the following documents and those provided in support of the application:

    a) Proposed Wharf and Dredging Project, Resource Consent Applications and Description and Assessment of Effects on the Environment (Volumes 1, 2 and 3 and supporting documentation).

    b) The Marine Cultural Health Programme (MCHP) certified under condition 9 of consent no. CL180008C, or any updated MCHP that is certified by the Council in the manner envisaged in that condition.

    c) The Marine Wildlife Management Plan (MWMP) certified under condition 7 of consent no. CL180008C, or any updated MWMP that is certified by the Council in the manner envisaged in that condition.

    d) The Avian Management Plan (AMP) certified under condition 22 of consent no. CL180008C, or any updated AMP that is certified by the Council in the manner envisaged in that condition.

    If a conflict arises between any conditions of this consent and information in the application documentation, the conditions of consent shall prevail.

General Duty

2. The consent holder shall undertake all consented activities in a manner that applies all reasonable and practicable steps to avoid, remedy or mitigate actual and potential adverse effects on the environment.

3. The consent holder shall ensure that any contractors engaged to undertake work authorised by this consent abide by the conditions of this consent. The person responsible for the work on site shall be familiar with the consent conditions and management plans. A copy of this consent and management plans shall be present on site or vessel at all times while the work is being undertaken.

Inadvertent Discharges

4. That where, for any cause (accidental or otherwise), contaminants associated with the consent holder's operations escape to water other than in conformity with the consent, the consent holder shall:

    a) Immediately take all practicable steps to contain and then remove the contamination from the environment,

    b) Immediately notify the Hawke's Bay Regional Council of the escape,

    c) Report to the Hawke's Bay Regional Council, in writing and within 7 days, describing the manner and cause of the escape and steps taken to manage it and prevent its reoccurrence.

Complaints Received

5. The consent holder shall notify the Hawke's Bay Regional Council of any complaints relating to the exercise of the consent within 7 days of being received by the consent holder.

Dredging and Disposal Management Plan

6. At least one month prior to commencing stages 1 capital dredging the consent holder shall submit a Dredging and Disposal Management Plan (DDMP) to the Regional Council for certification. Works shall not commence prior to certification. The objective of the DDMP is to ensure that all dredging and disposal activities are managed in a way that is in general accordance with the information referred to in Condition 1 of this consent and the detailed requirements of the DDMP Appendix.

   Any changes to a certified DDMP shall be discussed in advance with the Regional Council and the change is to be submitted and certified prior to any activity associated with the change commencing.

7. The DDMP shall include details of:

   a) A map and description of the area to be subject to capital dredging, the intended depth of dredging, and the estimated volume and nature of the dredged material.
   b) A description of the number and types of dredges to be used, the intended start date and the duration and expected hours of operation for the stage.
   c) A description of dredging methodology to be used.
   d) A description of how the location and quantities of disposed dredged material are recorded.
   e) A description of the maintenance of equipment and systems.
   f) A description of any other measures to avoid or mitigate bio-fouling, management of waste, and refuelling procedures.
   g) Staff and contractors' responsibilities.
   h) Training requirements for employees, contractors, any sub-contractors and visitors.
   i) Environmental incident and emergency management
   j) Environmental complaints management.
   k) Compliance monitoring.
   l) Corrective actions, if necessary in specified circumstances (including, where necessary, relating to wildlife management).
   m) Stakeholder and communication management.
   n) The disposal strategy for dredged material (including the chosen location(s))

8. The DDMP shall be consistent with, and as appropriate shall give effect to, measures within the Marine Wildlife Management Plan.

Water Quality Management Plan

9. A Water Quality Management Plan (WQMP)[138] for the integrated management of sediment plumes and turbidity, and monitoring of benthic ecological effects, shall be provided as an appendix to the DDMP. The WQMP shall be part of the documentation certified by the Regional Council prior to this stage of the capital dredging commencing (Stage 1).

10. The WQMP shall include, but not be limited to:

    a) Validation of modelled predictions included in the application documentation.
    b) Establishment of appropriate environmental limits (specified as turbidity at specified locations) in the water column during and immediately following dredging and disposal activities.
    c) Specifying methods of measuring and determining turbidity levels at any time.
    d) Identification of sensitive localities, if any, at which longer-term ecological monitoring is required (other than at Pania Reef (see (g) below).
    e) Linking of the specified environmental limits to pre-determined response steps through trigger levels and environmental response levels.
    f) Establishing reporting of trigger exceedances, including any response if the exceedance is determined to be due to dredging or disposal of dredged material.
    g) A detailed programme of dive surveys relating to Pania Reef, to commence within six months of the commencement of consent, and to continue until completion of Stage 5 dredging.
    h) A detailed programme of benthic surveys in and around the disposal location prior to and following completion of Stage 1 dredging.
    i) Reporting requirements for the various components of the WQMP,
    j) Sediment contaminant monitoring for the material being taken from inner port basin, and at the proposed disposal site,
    k) Sediment texture analysis and monitoring at the disposal site.

Any changes to a certified WQMP shall be discussed in advance with the Regional Council and the change is to be submitted and certified prior to any activity associated with the change commencing.

Records

11. The consent holder shall keep records detailing the timing, quantities and location of seabed material dredged, and also of the disposal to any disposal ground. These records shall be submitted to the Consent Authority Manager within one month of completion of a dredging stage or at any time upon request from the Hawke's Bay Regional Council.

Notice of Completion of Stage 1 Capital Dredging

12. After completion of Stage 1, the consent holder shall advise Hawke's Bay Regional Council in writing of having finished the works. This notice shall be provided to the Council within five working days of the works having been completed.

[138] Note: A Draft WQMP has been developed and is provided as **Appendix R** in Volume 3 of the application documentation

Bathymetric Surveys

13. A bathymetric survey of the areas dredged in accordance with this consent shall be undertaken by the consent holder as soon as practicable after completion of Stage 1 (Capital Dredging).

14. The results of the survey required by **Condition 13 (above)** shall be submitted to the Hawke's Bay Regional Council within one month of the completion of the survey. At this time the consent holder shall also provide to the Council a map, identifying where the dredging occurred, and shall confirm the volume of material excavated.

Coastal Monitoring

15. The consent holder shall, in consultation with the Hawke's Bay Regional Council, develop and implement a monitoring programme for the beach to the east of Perfume Point and the adjacent nearshore area. The purpose of the monitoring programme is to identify any changes to and consistent trends in beach and foreshore volume east of the Ahuriri inlet. Measurements shall be by aerial and bathymetric survey.

16. The surveys required by **Condition 15 (above)** shall commence within six months of commencement of consent, and shall be undertaken at least every six months until all consented capital dredging activities are complete, and then annually for five years. The results shall be reported annually to the Regional Council, with an accompanying report identifying and consistent trends, prepared by a suitably qualified and experienced person.

Biosecurity Management Plan (BMP)

17. At least one month prior to the arrival of the dredge vessel in Napier, the consent holder shall provide a BMP to the Regional Council for certification. A copy of the BMP shall also be provided to Mana Whenua hapū. The matters covered by the BMP shall include but are not limited to:

    a) How the risk of a biosecurity incursion from a dredge vessel is to be reduced to the greatest extent practicable.

    b) The steps to be taken if dredging activities discover an unwanted organism.

    The BMP shall be part of the documentation certified by the Regional Council prior to this stage of the capital dredging commencing (Stage 1).

    Any changes to a certified BMP shall be discussed in advance with the Regional Council and the change is to be submitted and certified prior to any activity associated with the change commencing.

Disposal of Suitable Material for Beach Nourishment

18. The consent holder shall dispose of all suitable material within Area “R” Ext as authorised by CL970159D (or any subsequent consent).

19. The material used for beach nourishment must be disposed of in accordance with the current DDMP and WQMP prepared specifically for the current dredging (excavation) campaign.

20. Bathymetric surveys must be undertaken following each dredging campaign to monitor change in the beach profile. The surveys undertaken must allow for the future analysis of the effects of nourishment of the nearshore at Westshore Beach

Public Safety

21. During the exercise of this consent, the consent holder shall take all practicable precautions to protect public safety at all times.

Draft Conditions of Consent: CL180010E

Purpose: to undertake Stages 2 to 5 capital dredging within the inner port area, swinging basin, in and near the existing three channels and to form a new channel.

General Accordance

1. The consent holder shall undertake all operations in accordance with any drawings, specifications, and statements of intent, proposed mitigation measures and other information supplied as part of the application for this resource consent. Except where modified in accordance with these conditions, the consent holder shall undertake all operations in accordance with the following documents and those provided in support of the application:

    a) Proposed Wharf and Dredging Project, Resource Consent Applications and Description and Assessment of Effects on the Environment (Volumes 1, 2 and 3 and supporting documentation).

    b) The Marine Cultural Health Programme (MCHP) certified under condition 9 of consent no. CL180008C, or any updated MCHP that is certified by the Council in the manner envisaged in that condition.

    c) The Marine Wildlife Management Plan (MWMP) certified under condition 7 of consent no. CL180008C, or any updated MWMP that is certified by the Council in the manner envisaged in that condition.

    d) The Biosecurity Management Plan (BMP) certified under condition 17 of consent no. CL180009E, or any updated BMP that is certified by the Council in the manner envisaged in that condition.

    e) The Avian Management Plan (AMP) certified under condition 22 of consent no. CL180008C, or any updated AMP that is certified by the Council in the manner envisaged in that condition.

    f) The Water Quality Management Plan (WQMP) certified under condition 9 of consent no. CL180009E, or any updated WQMP that is certified by the Council in the manner envisaged in that condition.

    If a conflict arises between any conditions of this consent and information in the application documentation, the conditions of consent shall prevail.

General Duty

2. The consent holder shall undertake all consented activities in a manner that applies all reasonable and practicable steps to avoid, remedy or mitigate actual and potential adverse effects on the environment.

3. The consent holder shall ensure that any contractors engaged to undertake work authorised by this consent abide by the conditions of this consent. The person responsible for the work on site shall be familiar with the consent conditions and management plans. A copy of this consent and management plans shall be present on site or vessel at all times while the work is being undertaken.

Inadvertent Discharges

4. That where, for any cause (accidental or otherwise), contaminants associated with the consent holder's operations escape to water other than in conformity with the consent, the consent holder shall:

    a) Immediately take all practicable steps to contain and then remove the contamination from the environment,

b) Immediately notify the Hawke's Bay Regional Council of the escape,

c) Report to the Hawke's Bay Regional Council, in writing and within 7 days, describing the manner and cause of the escape and steps taken to manage it and prevent its reoccurrence.

Complaints Received

5. The consent holder shall notify the Hawke's Bay Regional Council of any complaints relating to the exercise of the consent within 7 days of being received by the consent holder.

Dredging and Disposal Management Plan (DDMP)

6. At least one month prior to commencing any dredging the consent holder shall submit a Dredging and Disposal Management Plan (DDMP) to the Council (Manager Compliance) for certification. Works shall not commence until the plan is certified. The objective of the DDMP is to ensure that all dredging and disposal activities are managed in a way that is in general accordance with the information referred to in Condition 1 and the detailed requirements of the DDMP.

   Any changes to an approved DDMP shall be discussed in advance with the Council and the change to be submitted and certified prior to any activity associated with the change commencing.

7. The DDMP shall include details of:

   a) A map and description of the area to be subject to capital dredging, the intended depth of dredging, and the estimated volume and nature of the dredged material,

   b) A description of the number and types of dredges to be used, the intended start date and the duration and expected hours of operation,

   c) A description of dredging and disposal methodology to be used,

   d) A description of how the location and quantities of disposed dredged material are recorded,

   e) A description of the maintenance of equipment and systems,

   f) A description of any other measures to avoid or mitigate bio-fouling, management of waste, and refuelling procedures,

   g) Staff and contractors' responsibilities,

   h) Training requirements for employees, contractors, any sub-contractors and visitors,

   i) Environmental incident and emergency management,

   j) Environmental complaints management,

   k) Compliance monitoring,

   l) Corrective actions, if necessary in specified circumstances (including, where necessary, relating to wildlife management).

   m) Stakeholder and communication management.

   n) The disposal strategy for dredged material (including the chosen location(s))

8. The DDMP shall be implemented during all maintenance dredging campaigns, including campaigns that may be undertaken consecutively with capital dredging.

Water Quality Management Plan

9. An updated Water Quality Management Plan (WQMP) for the integrated management of sediment plumes and turbidity, and monitoring of benthic ecological effects, shall be provided as an appendix to the DDMP. The WQMP shall be part of the documentation certified by Council prior to each dredging campaign.

10. The updated WQMP shall include, but not be limited to:

    a) Validation of modelled predictions included in the application documentation,

    b) Establishment of appropriate environmental limits (specified as turbidity at specified locations) in the water column during and immediately following dredging and disposal activities,

    c) Specifying methods of measuring and determining turbidity levels at any one time,

    d) Identification of sensitive localities, if any, at which longer-term ecological monitoring is required (other than Pania Reef (see (g) below)),

    e) Linking of the specified environmental limits to pre-determined response steps through trigger levels and environmental response levels.

    f) Establishing reporting of trigger exceedances, including any response if the exceedance is determined to be due to dredging or disposal of dredged material,

    g) A detailed programme of dive surveys relating to Pania Reef, to commence within six months of the commencement of consent, and to continue until completion of Stage 5 dredging,

    h) A detailed programme of benthic surveys in and around the disposal location,

    i) Reporting requirements for the various components of the WQMP,

    j) Sediment contaminant monitoring for the material being taken from inner port basin, and at the proposed disposal site,

    k) Sediment texture analysis and monitoring at the disposal site.

Records

11. The consent holder shall keep records detailing the timing, quantities and location of seabed material dredged, and also of the disposal location. These records shall be submitted to Council (Manager Compliance) within one month of completion of a dredging stage or at any time upon request from the Council.

Notice of Completion of Stages

12. After completion of each dredging campaign, the consent holder shall advise the Council (Manager Compliance) in writing of having finished the works. This notice shall be provided to the Council within five working days of the works having been completed.

Bathymetric Surveys

13. A bathymetric survey of the areas dredged in accordance with this consent shall be undertaken by the consent holder as soon as practicable after each dredging campaign has been completed.

14. The results of the survey required by **Condition 13 (above)** shall be submitted to the Council (Manager Compliance) within one month of the completion of the survey. At this time the consent holder shall also provide to the Council a map, identifying where the dredging occurred, and shall confirm the volume of material excavated.

Coastal Monitoring

15. The consent holder shall, in consultation with the Council, develop a monitoring programme for the beach to the east of Perfume Point and the adjacent nearshore area. The purpose of the monitoring programme is to identify any changes to and consistent trends in beach and foreshore volume east of the Ahuriri inlet. Measurements shall be by aerial and bathymetric survey.

16. The surveys shall commence within six months of commencement of consent, and shall be undertaken at least every six months until consented capital dredging activities are complete, and then annually for five years to monitor the effects of maintenance dredging authorised by this consent. The results shall be reported annually to the Council (Manager Compliance), with an accompanying report identifying and consistent trends, prepared by a suitably qualified and experienced person.

Disposal of Suitable Material for Beach Nourishment

17. The consent holder shall dispose of all suitable material within Area “R” Ext as authorised by CL970159D (or any subsequent consent).

18. The material used for beach nourishment must be disposed of in accordance with the current DDMP and WQMP prepared specifically for the current dredging (excavation) campaign.

19. Bathymetric surveys must be undertaken following each dredging campaign to monitor change in the beach profile. The surveys undertaken must allow for the future analysis of the effects of nourishment of the nearshore at Westshore Beach

Public Safety

20. During the exercise of this consent, the consent holder shall take all practicable precautions to protect public safety at all times.

Draft Conditions of Consent: CL180011E

Purpose: to undertake maintenance dredging within the areas for which capital dredging permits are sought (Stages 1 to 5).

General Accordance

1. The consent holder shall undertake all operations in accordance with any drawings, specifications, and statements of intent, proposed mitigation measures and other information supplied as part of the application for this resource consent. Except where modified in accordance with these conditions, the consent holder shall undertake all operations in accordance with the following documents and those provided in support of the application:

    a) Proposed Wharf and Dredging Project, Resource Consent Applications and Description and Assessment of Effects on the Environment (Volumes 1, 2 and 3 and supporting documentation).

    b) The Marine Cultural Health Programme (MCHP) certified under condition 9 of consent no. CL180008C, or any updated MCHP that is certified by the Council in the manner envisaged in that condition.

    c) The Marine Wildlife Management Plan (MWMP) certified under condition 7 of consent no. CL180008C, or any updated MWMP that is certified by the Council in the manner envisaged in that condition.

    d) The Biosecurity Management Plan (BMP) certified under condition 17 of consent no. CL180009E, or any updated BMP that is certified by the Council in the manner envisaged in that condition.

    e) The Avian Management Plan (AMP) certified under condition 22 of consent no. CL180008C, or any updated AMP that is certified by the Council in the manner envisaged in that condition.

    f) The Water Quality Management Plan (WQMP) certified under condition 9 of consent no. CL180009E, or any updated WQMP that is certified by the Council in the manner envisaged in that condition.

    If a conflict arises between any conditions of this consent and information in the application documentation, the conditions of consent shall prevail.

General Duty

2. The consent holder shall undertake all consented activities in a manner that applies all reasonable and practicable steps to avoid, remedy or mitigate actual and potential adverse effects on the environment.

3. The consent holder shall ensure that any contractors engaged to undertake work authorised by this consent abide by the conditions of this consent. The person responsible for the work on site shall be familiar with the consent conditions and management plans. A copy of this consent and management plans shall be present on site or vessel at all times while the work is being undertaken.

Inadvertent Discharges

4. That where, for any cause (accidental or otherwise), contaminants associated with the consent holder's operations escape to water other than in conformity with the consent, the consent holder shall:

    a) Immediately take all practicable steps to contain and then remove the contamination from the environment,

b) Immediately notify the Hawke's Bay Regional Council of the escape,

c) Report to the Hawke's Bay Regional Council, in writing and within 7 days, describing the manner and cause of the escape and steps taken to manage it and prevent its reoccurrence.

Complaints Received

5. The consent holder shall notify the Hawke's Bay Regional Council of any complaints relating to the exercise of the consent within 7 days of being received by the consent holder.

Dredging and Disposal Management Plan (DDMP)

6. At least one month prior to commencing any maintenance dredging the consent holder shall submit a Dredging and Disposal Management Plan (DDMP) to the Council (Manager Compliance) for certification. Works shall not commence until the plan is certified. The objective of the DDMP is to ensure that all dredging and disposal activities are managed in a way that is in general accordance with the information referred to in Condition 1 and the detailed requirements of the DDMP.

   Any changes to an approved DDMP shall be discussed in advance with the Council and the change to be submitted and certified prior to any activity associated with the change commencing.

7. The DDMP shall include details of:

   a) A map and description of the area to be subject to dredging, the intended depth of dredging, and the estimated volume and nature of the dredged material,

   b) A description of the number and types of dredges to be used, the intended start date and the duration and expected hours of operation,

   c) A description of dredging and disposal methodology to be used,

   d) A description of how the location and quantities of disposed dredged material are recorded,

   e) A description of the maintenance of equipment and systems,

   f) A description of any other measures to avoid or mitigate bio-fouling, management of waste, and refuelling procedures,

   g) Staff and contractors' responsibilities,

   h) Training requirements for employees, contractors, any sub-contractors and visitors,

   i) Environmental incident and emergency management,

   j) Environmental complaints management,

   k) Compliance monitoring,

   l) Corrective actions, if necessary in specified circumstances (including, where necessary, relating to wildlife management).

   m) Stakeholder and communication management.

n) The disposal strategy for dredged material (including the chosen location(s))

8. The DDMP shall be implemented during each maintenance dredging campaign.

Water Quality Management Plan

9. An updated Water Quality Management Plan (WQMP) for the integrated management of sediment plumes and turbidity, and monitoring of benthic ecological effects, shall be provided as an appendix to the DDMP. The WQMP shall be part of the documentation certified by Council prior to each maintenance dredging campaign.

10. The updated WQMP shall include, but not be limited to:

    a) Validation of modelled predictions included in the application documentation,

    b) Establishment of appropriate environmental limits (specified as turbidity at specified locations) in the water column during and immediately following dredging and disposal activities,

    c) Specifying methods of measuring and determining turbidity levels at any one time,

    d) Identification of sensitive localities, if any, at which longer-term ecological monitoring is required (other than Pania Reef (see (g) below)),

    e) Linking of the specified environmental limits to pre-determined response steps through trigger levels and environmental response levels.

    f) Establishing reporting of trigger exceedances, including any response if the exceedance is determined to be due to dredging or disposal of dredged material,

    g) A detailed programme of dive surveys relating to Pania Reef, to commence within six months of the commencement of consent, and to continue until completion of Stage 5 dredging,

    h) A detailed programme of benthic surveys in and around the disposal location,

    i) Reporting requirements for the various components of the WQMP,

    j) Sediment contaminant monitoring for the material being taken from inner port basin, and at the proposed disposal site,

    k) Sediment texture analysis and monitoring at the disposal site.

Records

11. The consent holder shall keep records detailing the timing, quantities and location of seabed material dredged, and also of the disposal location. These records shall be submitted to Council (Manager Compliance) within one month of completion of a dredging stage or at any time upon request from the Council.

Notice of Completion of Campaigns

12. After completion of each maintenance dredging campaign, the consent holder shall advise the Council (Manager Compliance) in writing of having finished the works. This notice shall be provided to the Council within five working days of the works having been completed.

Bathymetric Surveys

13. A bathymetric survey of the areas dredged in accordance with this consent shall be undertaken by the consent holder as soon as practicable after each maintenance dredging campaign has been completed.

14. The results of the survey required by **Condition 13 (above)** shall be submitted to the Council (Manager Compliance) within one month of the completion of the survey. At this time the consent holder shall also provide to the Council a map, identifying where the dredging occurred, and shall confirm the volume of material excavated.

Coastal Monitoring

15. The consent holder shall, in consultation with the Council, develop a monitoring programme for the beach to the east of Perfume Point and the adjacent nearshore area. The purpose of the monitoring programme is to identify any changes to and consistent trends in beach and foreshore volume east of the Ahuriri inlet. Measurements shall be by aerial and bathymetric survey.

16. The surveys shall commence within six months of commencement of consent, and shall be undertaken at least every six months until consented capital dredging activities are complete, and then annually for five years to monitor the effects of maintenance dredging authorised by this consent. The results shall be reported annually to the Council (Manager Compliance), with an accompanying report identifying and consistent trends, prepared by a suitably qualified and experienced person.

Disposal of Suitable Material for Beach Nourishment

17. The consent holder shall dispose of all suitable material within Area “R” Ext as authorised by CL970159D (or any subsequent consent).

18. The material used for beach nourishment must be disposed of in accordance with the current DDMP and WQMP prepared specifically for the current dredging (excavation) campaign.

19. Bathymetric surveys must be undertaken following each dredging campaign to monitor change in the beach profile. The surveys undertaken must allow for the future analysis of the effects of nourishment of the nearshore at Westshore Beach

Public Safety

20. During the exercise of this consent, the consent holder shall take all practicable precautions to protect public safety at all times.

Draft Conditions of Consent: CD180012W

Purpose: to dispose of dredged material from capital and maintenance dredging within an offshore area shown in the application.

General Accordance

1. The consent holder shall undertake all operations in accordance with any drawings, specifications, and statements of intent, proposed mitigation measures and other information supplied as part of the application for this resource consent. Except where modified in accordance with these conditions, the consent holder shall undertake all operations in accordance with the following documents and those provided in support of the application:

    a) Proposed Wharf and Dredging Project, Resource Consent Applications and Description and Assessment of Effects on the Environment (Volumes 1, 2 and 3 and supporting documentation).

    b) The Marine Cultural Health Programme (MCHP) certified under condition 9 of consent no. CL180008C, or any updated MCHP that is certified by the Council in the manner envisaged in that condition.

    c) The Marine Wildlife Management Plan (MWMP) certified under condition 7 of consent no. CL180008C, or any updated MWMP that is certified by the Council in the manner envisaged in that condition.

    d) The current DDMP provided to Council prior to the commencement of the respective dredging campaign to which the deposition relates.

    e) The Biosecurity Management Plan (BMP) certified under condition 17 of consent no. CL180009E, or any updated BMP that is certified by the Council in the manner envisaged in that condition.

    f) The Water Quality Management Plan (WQMP) certified under condition 9 of consent no. CL180009E, or any updated WQMP that is certified by the Council in the manner envisaged in that condition.

    If a conflict arises between any conditions of this consent and information in the application documentation, the conditions of consent shall prevail.

Disposal of Dredged Material

2. Dredged material deposited under this consent shall only be sourced from capital dredging (stages 1 to 5) and maintenance dredging (within the areas where stages 1 to 5 capital dredging has been undertaken).

3. Other than material deposited in Area “R” Ext as authorised by CL970159D (or any subsequent consent) for the purpose of beach nourishment, the consent holder shall ensure that dredge spoil is only deposited within the ‘Offshore Disposal Area’ as illustrated Figure 1 (Attached).

4. Prior to the first discharge of dredged material under this consent, the consent holder shall provide the Regional Council (Manager Compliance) with the map co-ordinates representing each corner of the Offshore Disposal Area.

5. The consent holder shall ensure that the dredge spoil is spread as evenly as practicable over the Offshore Disposal Site by utilising so far as is practicable all of the area contained within this disposal site

General Duty

6. The consent holder shall undertake all consented activities in a manner that applies all reasonable and practicable steps to avoid, remedy or mitigate actual and potential adverse effects on the environment.

7. The consent holder shall ensure that any contractors engaged to undertake work authorised by this consent abide by the conditions of this consent. The person responsible for the work on site shall be familiar with the consent conditions and management plans. A copy of this consent and management plans shall be present on site or vessel at all times while the work is being undertaken.

Inadvertent Discharges

8. That where, for any cause (accidental or otherwise), contaminants associated with the consent holder's operations escape to water other than in conformity with the consent, the consent holder shall:

    a) Immediately take all practicable steps to contain and then remove the contamination from the environment,

    b) Immediately notify the Hawke's Bay Regional Council of the escape,

    c) Report to the Hawke's Bay Regional Council, in writing and within 7 days, describing the manner and cause of the escape and steps taken to manage it and prevent its reoccurrence.

Complaints Received

9. The consent holder shall notify the Hawke's Bay Regional Council of any complaints relating to the exercise of the consent within 7 days of being received by the consent holder.

Update of Marine Charts

10. The consent holder shall in consultation with Council's Harbourmaster and Maritime New Zealand, develop a proposal for how the disposal ground is to be identified on the marine charts. This should include but not be limited to any safety markers required on the charts and the need for any prior notice to mariners. The proposal shall be submitted to Council for certification prior to any material being deposited within the offshore disposal site.

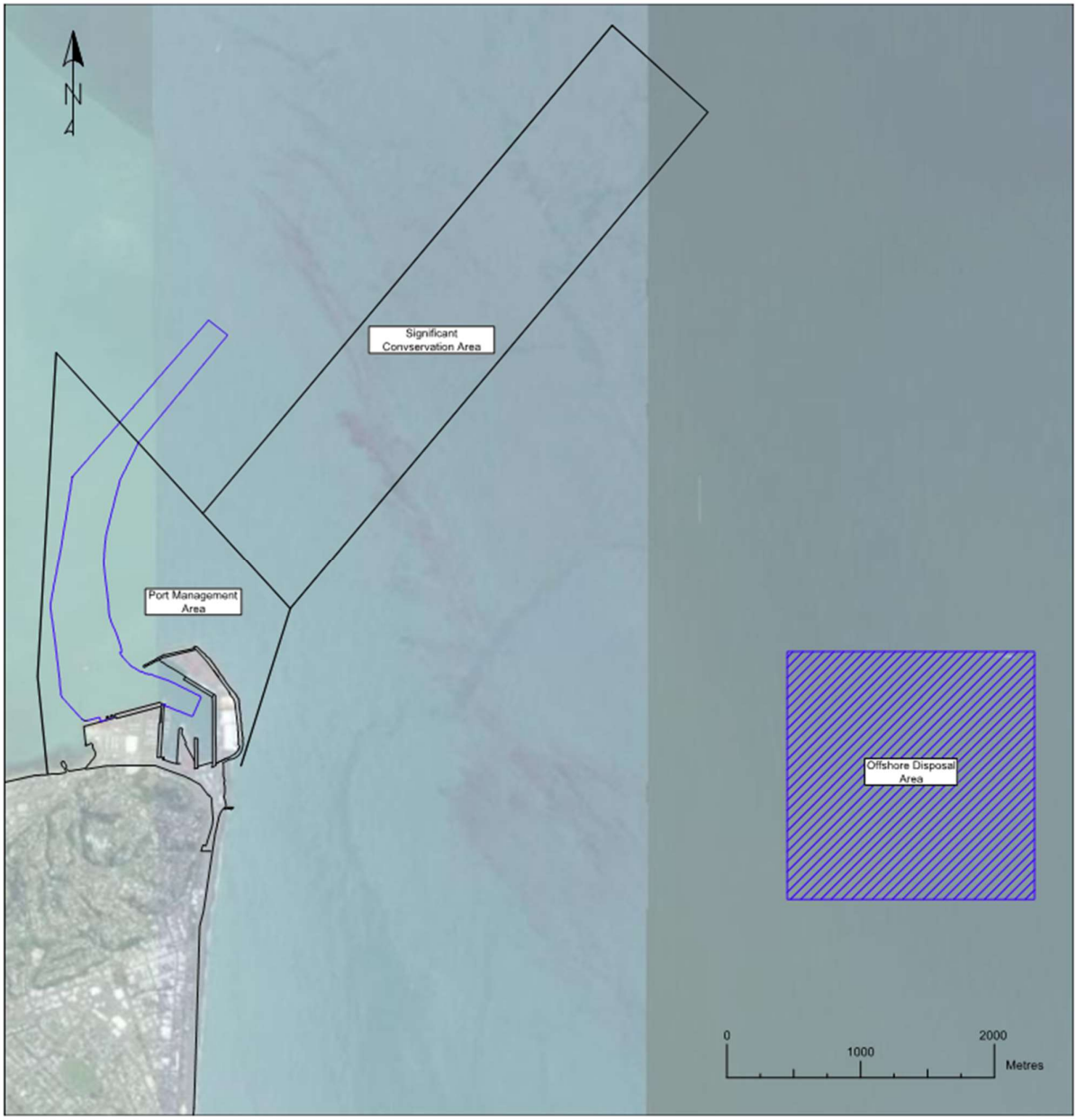
Public Safety

11. During the exercise of this consent, the consent holder shall take all practicable precautions to protect public safety at all times.

Notice of Completion of Campaigns

12. After completion of each maintenance dredging campaign, the consent holder shall advise the Council (Manager Compliance) in writing of having finished the works. This notice shall be provided to the Council within five working days of the works having been completed.

Figure 1: Location of Offshore Disposal Area



Draft Conditions of Consent: CL180013O

Purpose: to occupy the common marine and coastal area for existing Port activities (replacing the existing coastal permits held by Napier Port to occupy an area for port purposes), the proposed new wharf, the adjacent berth pocket including the areas on both sides of the dolphins, and the new swinging basin, as shown in the plan attached to the application.

General Accordance

1. The consent holder shall undertake all operations in accordance with any drawings, specifications, and statements of intent, proposed mitigation measures and other information supplied as part of the application for this resource consent. Except where modified in accordance with these conditions, the consent holder shall undertake all operations in accordance with the following documents and those provided in support of the application:

   a) Proposed Wharf and Dredging Project, Resource Consent Applications and Description and Assessment of Effects on the Environment (Volumes 1, 2 and 3 and supporting documentation).

   If a conflict arises between any conditions of this consent and information in the application documentation, the conditions of consent shall prevail.

2. All works and structures relating to this resource consent shall be designed and constructed to conform to the best engineering practices and at all times maintained to a safe and serviceable standard.

3. The area to which this occupation permit relates is illustrated by Figure 1 (Attached).

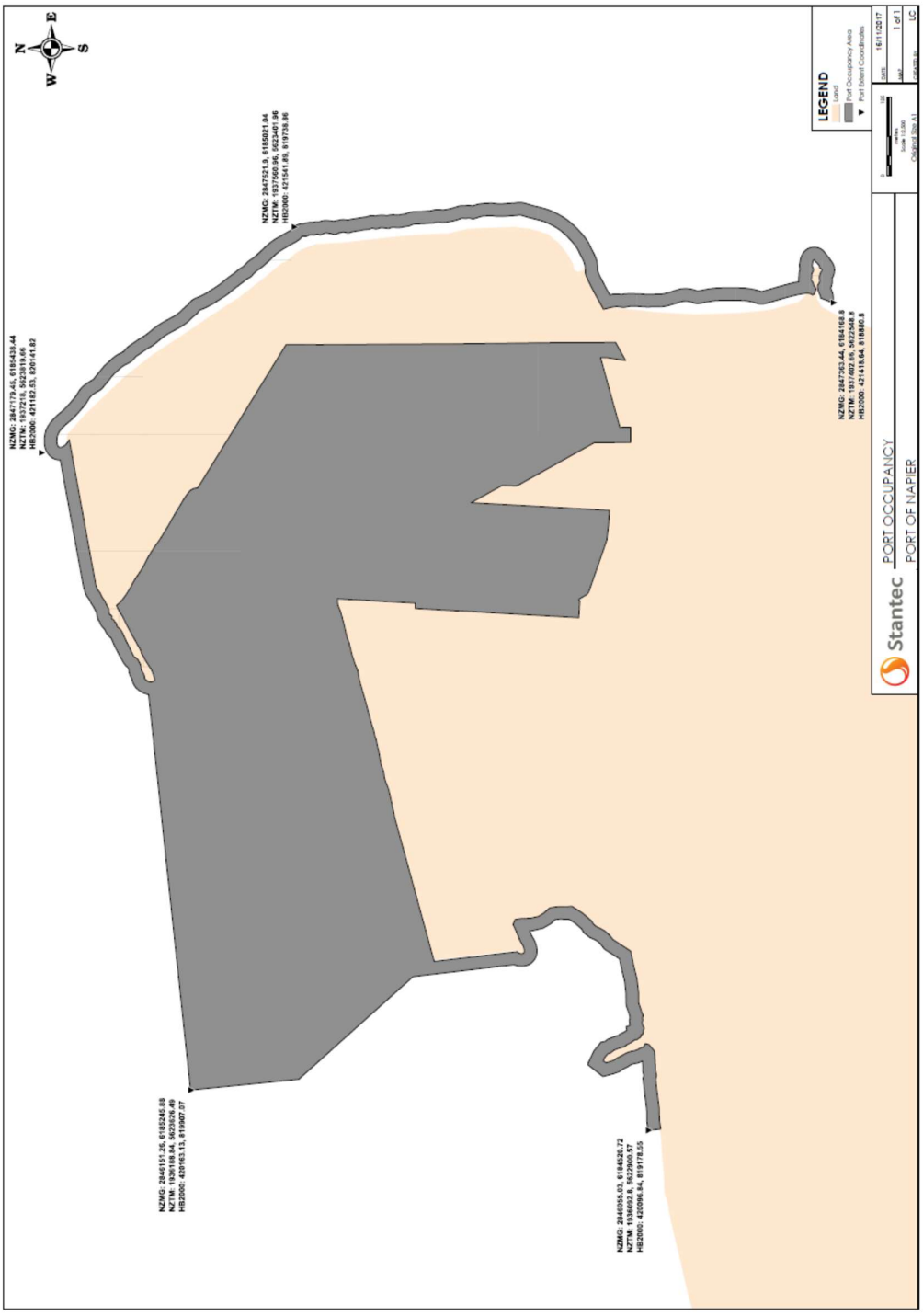
Update of Marine Charts

4. The consent holder shall in consultation with Council's Harbourmaster and Maritime New Zealand, develop a proposal for how the total area occupied by the Port is to be identified on the marine charts. This should include but not be limited to any safety markers required on the charts and the need for any prior notice to mariners. The proposal shall be submitted to Council for certification prior to works commencing on Wharf 6.

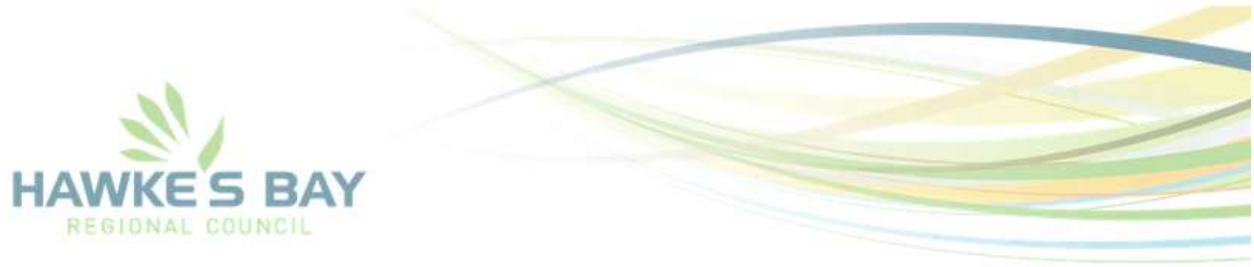
Public Safety

5. During the exercise of this consent, the consent holder shall take all practicable precautions to protect public safety at all times.

Figure 1: Area for which the Coastal Occupation Permit applies:



Appendix 2. Further Information Sought and Answers Provided



Our Ref: CL180008C & Others

26 February 2018

Port of Napier Limited
PO Box 947
Napier 4140

For the attention of: Michel de Vos (cc: Grant Russell & Sylvia Allan)

Dear Sir

Request for Further Information

I have reviewed your resource consent applications (CL180008C & Others) to undertake a wharf expansion and dredging project as restricted by Section 12(1) of the Resource Management Act. The application has also been peer reviewed by independent technical experts on behalf of Council. More information is needed so that I can better understand your proposed activities and their potential effects.

In accordance with Section 92 of the Resource Management Act (1991) (RMA) I request the following information:

Dr Shane Kelly provided a technical review of the marine ecology assessments that accompanied the resource consent application. Dr Kelly's assessments accompanies this letter for your information and reference. Following Dr Kelly's review, Council requests the following:

1. Please explain whether the historic ecological data (which in some cases is 13-14 years old) provides an accurate representation of current ecological condition and please provide information detailing the current ecological values and condition of the dredging and disposal areas.

2. Please provide confirmation of whether or not unwanted marine pests are currently present in the dredging areas, together with an assessment of their potential impacts. Furthermore, provide information on the proposed methods for detecting and responding to unwanted marine pests when exercising the consents (if granted) and for the duration of the proposed consents.

3. Please describe the nature of the cohesive dredge material that may be deposited as clumps with limited friability. For instance, will this material be in the form of substantial lumps that alter the physical characteristics of the seabed at the disposal site. If so, how persistent are these lumps likely to be and will their presence affect ecological recovery?

4. Please confirm whether, in relation to turbidity monitoring, the Environmentally Weighted Moving Average method of analysis referred to in Sneddon et al. (2017) is the same as the Exponentially Weighted Moving Average method of analysis.

Richard Reinen-Hamill and Dr Terry Hume provided preliminary technical reviews of the coastal processes assessments to determine if further information was required to understand the proposed activities and their potential effects. These reviews accompany this letter for your information and reference. Council requests the following:

5. Provide an assessment of effects that the proposed wharf and dolphins may have on coastal processes.

6. Please provide further information in relation to the effects from sea level rise and changes in storm surge/wave intensity on the proposed activities. The potential effect of the wharf, dredged channel and disposal should be considered/discussed. Furthermore, the possible changes to wave climate and tidal currents on sediment transport trends needs to be explained and discussed.

7. It is noted that no information has been provided on expected maintenance dredge volumes. Can you confirm the proposed dredge disposal area and the existing consented areas have sufficient capacity for both capital and maintenance dredging and that the effects of maintenance dredging disposal has been considered (i.e. presumably this results in an increased elevation of disposal mounds and/or it is expected that a proportion of the placed material will migrate.

8. Please provide a response and further information in relation Richard Reinen-Hamill's concerns relating to sediment transport and potential effects associated with the proposal (below in italics):

Mean changes in wave direction (Appendix D – Table 7.1) can result in changes in alongshore sediment transport and these results suggest increase alongshore transport from Westshore to Bayview and similarly from Port Beach to Ahuriri Inlet. While it is understood that these changes may be less than the natural variability, this constitutes a net change that moves the baseline that variability will occur. Appendix D – Figure 8-4 appears to suggest a realignment of the shoreline between Port Beach and Ahuriri in the order of 2 degrees. If this results in a change in the stable coast angle, this could result in lowering sea beds to the east and increased seabed/beach levels to the west that may have implications on existing revetment stability and/or overtopping frequency and quantity from storm events (not mean wave events) as well as increase sediment ingress into the lagoon.

There appears to be a similar, but lesser effect along Westshore Beach with a more subtle reorientation of the wave energy. While the findings set out in Section 9.3 of Appendix D and Section 4 of Appendix G discuss net changes, it does not fully extend to the implications of these effects. A more developed assessment of the potential effects of the identified changes would be useful taking into account present day and future sea level rise and whether these changes could contribute to existing erosion processes.

While Single (Appendix G) discusses the change in land elevation resulting from the earthquake there is no discussion of the uplift and subsequent down cutting of the seabed seaward of Westshore, both in terms of sediment budget, transport rates and likely sediment properties. This is material in that while sediment placed in Area R will move, the speed of removal and the effect the increased seabed elevation makes on gravel alongshore transport may be material.

I note Appendix G – Figure 2.5 appears to support the findings of some north easterly sand transport pathway off the Port. Figure 5-6 (for 125 micron of 70% of vibrocore) shows predominantly northerly transport for all but the NW scenario and this seems to be supported in Figure 6-7 (Appendix F). The mean transport vectors for 125 micron that show southerly transport therefore is largely due to the large rates of southerly transport during the NW wind which occur less than 13% of the time and during winds from these sectors, no significant wave heights are measured. What wind condition, combined with the NW wind results in the transport vectors shown in Figure 5-6 and are these combinations likely?[139]

9. In relation to effects on coastal processes, Please explain the use of the Boussinesq simulation and use of the calibrated and validated SWAN spectral wave model for the predictions. Furthermore, please explain the selection of the storm event measured in July 2016 on which to base the simulations.
10. Discuss the effect that the small changes in sediment transport predicted in Appendix D (Figure 8-4 and the realignment of the shoreline between Port Beach and Ahuriri in the order of 2 degrees) may have on the wave quality at the respective breaks.

11. In relation to the post disposal fate of dredged sediments, justify and explain the choice of critical shear stress for erosion of cohesive sediments and the choice of the 'erosion parameter.

[139] Tonkin & Taylor, Port of Napier Proposed Wharf and Dredging Project AEE - Preliminary coastal processes review. Prepared by Richard Reinen-Hamill, 24 January 2018

It is noted that the information requested above is technical in nature and if needed, Council's experts are happy to clarify any of the points above where further information has been requested.

You must respond in writing to this request, before the **19 March 2018** and do one of the following:
a) Provide the information.
b) Tell us that you agree to provide the information, but propose an alternative reasonable date (suggest a date).
c) Tell us that you refuse to provide the information.

It is important that you respond to this request, otherwise, your application can be declined for a lack of information. We may also decline your application if you refuse to provide the information.

Please use the attached form to respond to this information request. If you prefer you can email your response to reece.oleary@hbrc.govt.nz

I have put processing of your application on hold until we receive your response.

Please contact me on (06) 833 8071 if you have any questions.

Yours faithfully

Reece O'Leary
Senior Consents Planner
06 833 8071

HAWKE'S BAY
REGIONAL COUNCIL

NAPIER PORT

19 March 2018

Hawke's Bay Regional Council
Private Bag 6006
Napier 4142

Attention: Reece O'Leary

NAPIER PORT PROPOSED WHARF AND DREDGING PROJECT - RESPONSES TO RMA Section 92 FURTHER INFORMATION REQUEST

The purpose of this letter is to provide a response to the Council's request for further information dated 26 February 2018, relating to applications CL180008C and Others to undertake a wharf expansion and dredging project under the Resource Management Act 1991.

The full response is attached, including where appropriate, the name of the technical specialist which has provided the response.

It is noted that some of the responses are technical in nature and if needed, the Port's technical advisers would be happy to clarify any of the matters with you or Richard Reinen-Hamill, Dr Terry Hulme or Dr Shane Kelly.

We trust this response provides sufficient further information to help Hawke's Bay Regional Council better understand the proposed activities and the associated potential effects.

An erratum and explanation relating to wind speed units is also provided at the end of the attachment – this matter arose subsequently to the S92 request.

Yours sincerely,

Todd Dawson
Chief Executive Officer

NAPIER PORT

NAPIER PORT PROPOSED WHARF AND DREDGING PROJECT – RESPONSES TO RMA Section 92 FURTHER INFORMATION REQUEST

Further information requested

1. **Please explain whether the historic ecological data (which in some cases is 13-14 years old) provides an accurate representation of current ecological condition and please provide information detailing the current ecological values and condition of the dredging and disposal areas.**

Response

Cawthron Institute carefully considered the age of the ecological data, and whether it posed issues for the current assessment in the lead up to the work for this project. This matter was a key impetus for Cawthron's validation in 2016 of the benthos of the outer fairway with four additional triplicate samples and epifaunal dredge tows.

Dr Kelly has pointed out that the data suggests that temporal variability in benthic infaunal communities is as great, or greater, than inter-site variability. Such variability is however unlikely to materially affect the assessment. Dredging results in the complete loss of communities within the footprint of the activity. The assessment considers whether these communities have ecological value to the extent that their loss will impact the wider ecological functioning of the near-coastal area. While soft sediment communities may have changed in composition since 2005, it is extremely unlikely that this would involve an increase in ecological value which was not at the same time reflected in the very large area of similar benthic habitats outside the footprint, especially when one also considers that a significant proportion of the capital dredging footprint is already subject to periodic maintenance dredging. It must also be emphasised that any increase in ecological value as a result of existing temporal variability in such a dynamic inshore environment is intrinsically temporary.

The area of the proposed offshore dredge disposal ground is deeper and the soft sediment benthic communities may as a consequence be less perturbed by periodic storm and swell events. Hence they may be somewhat more stable. However, a similar rationale applies. There is no evidence to suggest that the proposed disposal area is (or may have become) ecologically distinct from the vast area of soft sediment habitat that exists locally in similar depths. While benthic communities may have changed slightly in community composition since 2005, it is extremely unlikely that:

1. Such change would not be reflected in all similar habitat to the north and south; and
2. Such change would exceed that which will be sustained over the short to intermediate term as a result of the deposition of dredged material (as assessed).

Together with the benthic surveys carried out for the inshore Westshore disposal grounds over the last 20 years, the compiled data provides a robust insight into the soft sediment benthos of the Port vicinity and its variability. This in turn leads to a sound level of confidence in the assessment conclusions as a whole.

(Commentary provided by Cawthron Institute)

2. **Please provide confirmation of whether or not unwanted marine pests are currently present in the dredging areas, together with an assessment of their potential impacts. Furthermore, provide information on the proposed methods for detecting and responding to unwanted marine pests when exercising the consents (if granted) and for the duration of the proposed consents.**

Response

Analyses of both the 2005 and 2016 epifaunal and macrofaunal samples did not identify the presence of any unwanted marine pests or harmful marine organisms (HMOs) in the vicinity of the dredging proposal. The absence of such pests from the Westshore disposal grounds in 2012 and Jan 2018 are a strong indication that they are also absent from soft sediment areas of the Port and its approaches (Smith 2013, Sneddon 2018).

Populations of non-indigenous species living in the dynamic sediment environments of exposed coastal sites (such as those of the proposed project) are unlikely to remain contained in small areas but are instead likely to spread with sediment and water movement. Examples of this include the recent spread of the Mediterranean fanworm (*Sabella spallanzanii*) and Asian paddle crab (*Charybdis japonica*) around soft-sediment habitats in Waitemata and Whangarei Harbours. Non-indigenous species identified in sediments from the 2004 and 2016 Napier surveys include the small bivalve *Theora lubrica* and the capitellid polychaete *Barantolla lepte*, both of which were also identified from the earlier baseline biosecurity survey for Port of Napier (Inglis et al. 2006).

The Mediterranean fanworm (*S. spallanzanii*) and clubbed tunicate (*Styela clava*) have a high affinity for hard substrata, but are also known to occur in soft sediment habitats, especially where shell material is present (e.g. Grange et al. 2011; pers comm. J. Atalah, Cawthron Institute). These species have not yet been recorded from Napier (https://www.marinebiosecurity.org.nz/), but given their substrate preference and principal introduction vector (shipping), it would be unlikely for them to establish exclusively in soft sediments (where chances of early detection would also be very low).

In addition to *Sabella* and *Styela*, New Zealand's list of designated marine pests includes a number of species that can be associated with soft-sediment habitats, namely: two species of soft-sediment bivalves (*Arcuatula senhousia* and *Potamocorbula amurensis*); three crab species (*C. japonica*; Chinese mitten crab, *Eriocheir sinensis*; European shore crab, *Carcinus maenas*); the northern Pacific seastar (*Asterias amurensis*); and a green seaweed (*Caulerpa taxifolia*)[1]. All have a high capacity for natural dispersal once established locally. Only *A. senhousia* (Bay of Plenty to Northland) and *C. japonica* (Coromandel to Northland) have been recorded in New Zealand.

For there to be a risk of dredge material transfer of HMOs, they need to be present in the dredged material, but not the disposal area, and not only survive the transfer process but also establish self-sustaining populations in the disposal area. Sessile species such as *Styela* and *Sabella* would be unable to reattach to hard substrates and would be very unlikely to survive.

The significance of this biosecurity risk furthermore relies on dredged material transfer being the principal pathway by which HMO spread and establishment in the disposal area could occur. For the assessment of risk, the overall proximity of the disposal area to the dredging areas (~5 km) is a key mitigating factor, since such distance would generally be covered by HMO propagules in natural

[1] https://www.marinebiosecurity.org.nz/what-are-marine-pests/

dispersion processes; that is, the transfer of pests in dredge spoil would not appreciably expedite such spread as would occur naturally. In regard to the spread of encrusting species, the nearest hard substrate to the disposal area is Pania Reef (3.3 km), but the Reef is also just approximately 1.5 km from the Port itself and closer again to the existing shipping channel. Sinner et al. (2012) concluded that short distance translocation of HMOs by the disposal of dredged material is of little consequence considering the natural dispersal ability of most marine species. The species on the MPI unwanted list that have not yet been recorded in Napier are certainly capable of natural spread across the relatively small distances involved and there are considered to be no oceanographic processes or habitat conditions that would act as barriers to such dispersal.

Theoretically, physical disturbance and alteration of sediment textural properties as a result of dredging and disposal could provide habitat conditions that are more suited to certain non-indigenous species. While it is generally accepted that the small bivalve *Theora lubrica* can be more abundant under conditions of moderate disturbance or pollution (Inglis et al. 2006), this NIS is already well established in Hawke Bay and is not considered an HMO. Short-term locally enhanced abundances would therefore be of negligible significance. Disturbed conditions from dredging and spoil disposal are not expected to markedly favour any of the HMOs noted above. In addition, the dredging proposal represents the expansion of an existing periodic activity and the spoil ground has generally lower exposure to shipping vectors than the Port and its immediate approaches.

(The above commentary has been prepared by Cawthron Institute, taking into account the footnoted references[2])

Port of Napier also notes that the proposed Regional Pest Management Plan 2018 – 2038 indicates that two unwanted marine pests of concern - Mediterranean fanworm (*Sabella spallanzanii*) and the Clubbed Tunicate (*Styela clava*) are currently not present in Hawke Bay.

The Port has recently undertaken (following discussion with the Council's Pest Management Team) to:

- increase awareness of the two pests though internal education;
- undertake public education through its web page about those pests; and
- ensure that identification of those pests is included in various procedures such as underwater pile inspections, underwater hull inspections of Napier Port owned vessels, navigation buoy removal and turbidly buoy maintenance.

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[2] Grange K, Carney D, Carter M. 2011. Waikato marine finfish farming: site investigation. Draft NIWA client report no. NEL2011-004. 17p.

Inglis G, Gust N, Fitridge I, Floerl O, Woods C, Hayden B, Fenwick G. 2006. Port of Napier Baseline survey for non-indigenous marine species (Research Project ZBS2000/04). Biosecurity New Zealand Technical Paper No: 2005/13. Prepared for BNZ Post-clearance Directorate. 52p plus appendices.

Sinner J, Berkett N, Forrest B, Hopkins G. 2012. Harmful aquatic organisms - recommendations for the Auckland unitary plan. Cawthron Report 2232. Prepared for Auckland Council. 71p plus appendices.

Smith S. 2013. Monitoring of benthic effects of dredge spoil disposal at sites offshore from the Port of Napier: 2012 Survey, Triplefin Environmental Consulting. 41p plus appendices.

Sneddon R. 2018. Monitoring of benthic effects from dredge spoil disposal offshore from the Port of Napier: 2018 Survey. Report prepared for Port of Napier Ltd. Napier, Cawthron Institute: In prep.)

To avoid a duplication of regulations or regional rules under of the Biosecurity Act 1993 or those proposed under the Regional Pest Management Plan 2018 – 2038 respectively, Napier Port would be comfortable with a condition involving monitoring for detection and a managed response to unwanted marine pests when undertaking capital and maintenance dredging. Such condition could best be developed in close co-ordination with HBRC.

3. **Please describe the nature of the cohesive dredge material that may be deposited as clumps with limited friability. For instance, will this material be in the form of substantial lumps that alter the physical characteristics of the seabed at the disposal site. If so, how persistent are these lumps likely to be and will their presence affect ecological recovery?**

Response

It is difficult to determine the exact nature or persistence of cohesive material which may result from the dredging operation. This was considered in section 7.1.3 of Appendix H to the applications. As explained there, it is very likely that the deposition of dredge spoil will result in some change to sediment texture within the disposal area, and this change may persist, at least over the short to intermediate term. The presence of clumps of stiff silt material will not impede ecological recovery; however, the end-point of such recovery will be dependent upon the existing physical conditions of the substrate.

To arrive at a benthic community structure indistinguishable from that existing before deposition (or that which continues to exist in similar depths locally) would require a complete return to pre-existing physical conditions. Rapid 'recovery' of this nature is unlikely, since even the grading effect of deposition and subsequent winnowing of the "mound" by dispersive processes will result in textural changes that persist over the intermediate term. Accepting this, the more important question becomes that set out in the last part of the further information request, which can be encapsulated as: "Is this change likely to be adverse in terms of near-shore ecology in the wider area?"

No features of the disposal area mark it out as supporting a habitat or benthos that is unique or spatially limited in the wider area. Any increase in the structural complexity of the seabed will result in an eventual increase in local diversity, even if only at the discontinuities between differing substrates. Concomitant changes in ecological productivity are very unlikely to be negative. Such changes have been observed elsewhere in otherwise fairly uniform expanses of soft sediment seabed and the potential implications of this were considered in the assessment. The conclusion remains that, following ecological recovery, any persistent effects will be at worst ecologically neutral.

(Commentary provided by Cawthron Institute)

4. **Please confirm whether, in relation to turbidity monitoring, the Environmentally Weighted Moving Average method of analysis referred to in Sneddon et al. (2017) is the same as the Exponentially Weighted Moving Average method of analysis.**

Response

Where it appeared in Appendix H, the term "environmentally weighted moving average" was used in error. Exponentially weighted moving average is the correct term.

5. **Provide an assessment of effects that the proposed wharf and dolphins may have on coastal processes.**

Response

Wave energy incident on coastal structures along the alignment of the proposed wharf development will be dependent upon:

- Wave height, period and direction incident at the tip of the existing breakwater immediately north of the proposed development;
- Diffraction of wave energy past the breakwater tip; and
- Refraction of incident wave energy by the navigation channel adjacent to the Port entrance.

In this assessment the refraction of wave energy can be ignored as the navigation channel will either remain the same depth, in which case the degree of wave refraction will remain the same, or the navigation channel will be deepened, causing wave energy to be refracted to the eastern side of the revetment, which is more effectively sheltered by the breakwater, and the angle of incidence relative to the revetment will tend to reflect energy to the interior of the breakwater rather than to the wider marine environment.

Wave diffraction

Figure 1 shows a SPM nomogram (USASCE, 1984) of the wave height coefficient of a wave diffracting past the breakwater. To provide a conservative estimate the wavelength has been scaled to that of a 16s wave in 8m water depth. The incident wave direction considered is that of a wave approaching from due east at the Triaxis wave buoy.

The wave height coefficient due to diffraction (K_{diff}) at the toe of the replacement revetment (red line in figure) varies from 0.15 to 0.7 – that is, the wave height at the toe of the revetment is in the region of 20% to 70% of the wave height at the tip of the breakwater.

This compares with the wave height coefficient for the present port structure (blue line) of 0.6 to ~0.18.

Wave reflection

The reflection coefficient for various types of coastal structures is given in Figure 2, below. The reflection coefficient (K_{refl}) for a vertical quay wall with crow above water ranges from 1.0 (perfect

4. **Please confirm whether, in relation to turbidity monitoring, the Environmentally Weighted Moving Average method of analysis referred to in Sneddon et al. (2017) is the same as the Exponentially Weighted Moving Average method of analysis.**

Response

Where it appeared in Appendix H, the term "environmentally weighted moving average" was used in error. Exponentially weighted moving average is the correct term.

5. **Provide an assessment of effects that the proposed wharf and dolphins may have on coastal processes.**

Response

Wave energy incident on coastal structures along the alignment of the proposed wharf development will be dependent upon:

- Wave height, period and direction incident at the tip of the existing breakwater immediately north of the proposed development;
- Diffraction of wave energy past the breakwater tip; and
- Refraction of incident wave energy by the navigation channel adjacent to the Port entrance.

In this assessment the refraction of wave energy can be ignored as the navigation channel will either remain the same depth, in which case the degree of wave refraction will remain the same, or the navigation channel will be deepened, causing wave energy to be refracted to the eastern side of the revetment, which is more effectively sheltered by the breakwater, and the angle of incidence relative to the revetment will tend to reflect energy to the interior of the breakwater rather than to the wider marine environment.

Wave diffraction

Figure 1 shows a SPM nomogram (USASCE, 1984) of the wave height coefficient of a wave diffracting past the breakwater. To provide a conservative estimate the wavelength has been scaled to that of a 16s wave in 8m water depth. The incident wave direction considered is that of a wave approaching from due east at the Triaxis wave buoy.

The wave height coefficient due to diffraction (K_{diff}) at the toe of the replacement revetment (red line in figure) varies from 0.15 to 0.7 – that is, the wave height at the toe of the revetment is in the region of 20% to 70% of the wave height at the tip of the breakwater.

This compares with the wave height coefficient for the present port structure (blue line) of 0.6 to ~0.18.

Wave reflection

The reflection coefficient for various types of coastal structures is given in Figure 2, below. The reflection coefficient (K_{refl}) for a vertical quay wall with crow above water ranges from 1.0 (perfect

reflection) to 0.7. The reflection coefficient for a rubble revetment breakwater with slope 1V:3H ranges from 0.6 to 0.3.

Comparison of change in wave energy reflected from new W6 revetment, compared to existing vertical sea wall:

- Existing: Assume best-case reflection coefficient in range, Kr = 0.7.
- W6: Assume worst-case reflection coefficient in range, Kr = 0.6.
- Consider 2m wave height at Triaxis wave buoy:

Comparison of relative change in energy reflected to the wider marine environment:

Wave height reflected from toe of structure and dispersed to wider marine environment:
$Hm0_{refl} = Hm0_{incoming} \times K_{diff} \times K_{refl}$

- For 2m incident wave and range of diffraction coefficients along the existing vertical wall, $Hm0_{refl}$ = 2.0 x 0.18 x 0.7 *to* 2.0 x 0.6 x 0.7 = 0.25m *to* 0.84m.

- For 2m incident wave and range of diffraction coefficients along the W6 development, $Hm0_{refl}$ = 2.0 x 0.2 x 0.6 *to* 2.0 x 0.7 x 0.6 = 0.24m *to* 0.84m

That is, the wave energy reflected to the wider marine environment for the proposed wharf and revetment will be the same or less than is reflected by the present port structure.

The analysis and commentary above was provided by Advisian. In addition, comment was also sought from Shore Processes and Management Ltd. This reviewed and confirmed the Advisian interpretation of the effects of the proposed wharf and dolphins on coastal processes. It also noted that very localised and minor disturbance of the seabed may occur adjacent to the piles of the dolphins due to turbulent currents, but this will not have an adverse effect on the stability of the piles or on wider coastal processes.

Figure 1: Diffraction nomogram scales to wavelength of 16s wave diffracting past tip of existing breakwater (nomogram from SPM (USACE, 1984)). The red line corresponds to the toe alignment of the revetment below the proposed new wharf

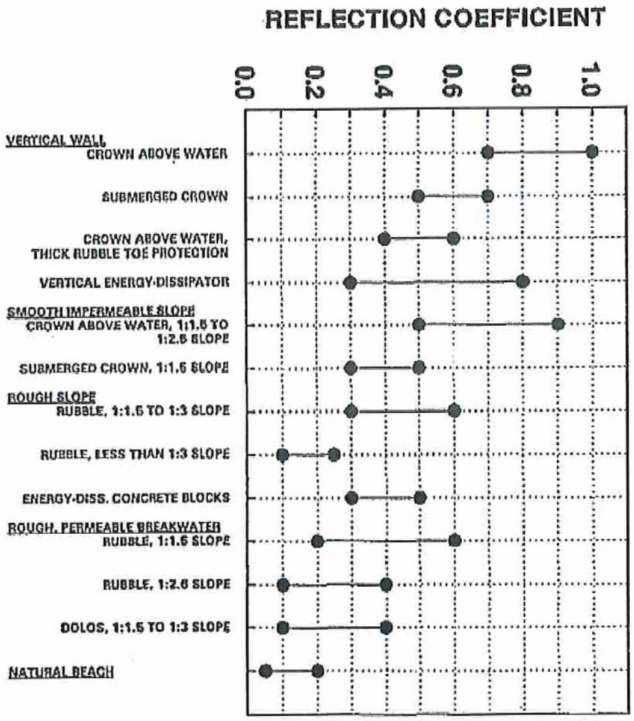


Figure 2: Reflection coefficients for common types of reflective coastal structures. DHI (2011).

6. **Please provide further information in relation to the effects from sea level rise and changes in storm surge/wave intensity on the proposed activities. The potential effect of the wharf, dredged channel and disposal should be considered/discussed. Furthermore, the possible changes to wave climate and tidal currents on sediment transport trends needs to be explained and discussed.**

Response

The project was developed and designed taking into account the former MfE guidance (July 2008) for coastal hazards and climate change. It is noted that the new MfE Guidance[3] was published only in December 2017. The main difference in the new guidance is a recommendation to test proposals against slightly more extreme weather conditions and sea level rise. In terms of NZCPS policy relating to development in areas of coastal hazard risk (NZCPS policy 25), the key consideration is to avoid increasing the risk of "social, environmental and economic harm", and any change in land use that would increase the risk of adverse effects from coastal hazards. This has been considered in relation to port infrastructure, as outlined later.

[3] Coastal Hazards and Climate Change – Guidance for Local Government, MfE, December 2017

In general terms, sea level rise has been considered in the assessment of effects of the dredged channel and wharf design. With regard to the channel, a higher sea level will be to reduce the effects of the deeper channel on the wave field and associated currents. Similarly, higher sea level will result in deeper water over the disposal area, and a reduction in the effect of the disposal mound on the wave field, and a reduction in bottom current speeds that may entrain sediment particles. The proposed work by Port Napier will not increase the level of coastal risk exposure in relation to sea level rise and climate change.

With regard to possible changes in storm frequency and intensity, the effects of the proposed work have been modelled under extreme wave conditions, and found to be minor or less than minor in relation to effects of the existing environment. There are no projections as to how more extreme future wave conditions may be, but an increase in frequency of storm events will not result in a different effect of the proposed work than has been identified.

(The commentary in the two paragraphs above has been provided by Shore Processes and Management Ltd)

In relation to the design of the wharf structure, a 1m rise in sea level was taken into account and provided for, as is noted in the Assessment of Effects. This is provided for and still enables the wharf and the adjoining reclamation area to operate as a continuous surface. Sea level rise beyond this will become a port-wide problem and simply constructing the new wharf higher than the current wharf levels will not provide any security against the effects of sea level rise. In particular the main operating areas of the port will remain susceptible regardless of the height of construction of the new wharf.

Napier Port intends over time to develop its overall strategy to tackle sea level rise in a holistic manner and has a number of potential strategies which it can use in the future. These include raising the existing wharves, either by lifting the decks, by applying overlays, or by providing external barriers. Such wharf modifications would need to be done in conjunction with a strategy for the land assets, which also can be in many forms including raising land levels, dewatering pumps and the like. Such an approach is in line with the NZCPS policy relating to strategies for protecting significant existing development from coastal hazard risk (NZCPS policy 27) and the DAPP (dynamic adaptive pathways planning) approach espoused in the new MfE coastal guidance.

Finally, it is noted that the wharf and dolphin structures will also require consents under the Building Act, which will address the detail of the design.

7. **It is noted that no information has been provided on expected maintenance dredge volumes. Can you confirm the proposed dredge disposal area and the existing consented areas have sufficient capacity for both capital and maintenance dredging and that the effects of maintenance dredging disposal has been considered (i.e. presumably this results in an increased elevation of disposal mounds and/or it is expected that a proportion of the placed material will migrate).**

Response

Napier Port historically requires maintenance dredging every 2-3 years, with an annualised volume of approximately 25,000m^3 per annum. Areas that require dredging are typically the eastern boundary of the main channel, in particular after large swell events, and in-filling of finer material from the

west. Although the channel will be somewhat wider and deeper it is not expected that the level of in-filling will increase significantly where the development overlaps the existing channel and swinging basin, and will only be increased proportionally for the additional length of channel. The expected maintenance dredging volumes are significantly less than the capital volumes, and will not significantly alter the bathymetry of the disposal area. These volumes have been allowed for in assessing the effects of the overall disposal of dredged material.

Maintenance dredge material is expected to have dispersion characteristics depending on the grain size distribution, as described in the application documentation.

8. **Please provide a response and further information in relation Richard Reinen-Hamill's concerns relating to sediment transport and potential effects associated with the proposal (below in italics):**

Mean changes in wave direction (Appendix D – Table 7.1) can result in changes in alongshore sediment transport and these results suggest increase alongshore transport from Westshore to Bayview and similarly from Port Beach to Ahuriri Inlet. While it is understood that these changes may be less than the natural variability, this constitutes a net change that moves the baseline that variability will occur. Appendix D – Figure 8-4 appears to suggest a realignment of the shoreline between Port Beach and Ahuriri in the order of 2 degrees. If this results in a change in the stable coast angle, this could result in lowering sea beds to the east and increased seabed/beach levels to the west that may have implications on existing revetment stability and/or overtopping frequency and quantity from storm events (not mean wave events) as well as increase sediment ingress into the lagoon.

There appears to be a similar, but lesser effect along Westshore Beach with a more subtle reorientation of the wave energy. While the findings set out in Section 9.3 of Appendix D and Section 4 of Appendix G discuss net changes, it does not fully extend to the implications of these effects. A more developed assessment of the potential effects of the identified changes would be useful taking into account present day and future sea level rise and whether these changes could contribute to existing erosion processes.

While Single (Appendix G) discusses the change in land elevation resulting from the earthquake there is no discussion of the uplift and subsequent down cutting of the seabed seaward of Westshore, both in terms of sediment budget, transport rates and likely sediment properties. This is material in that while sediment placed in Area R will move, the speed of removal and the effect the increased seabed elevation makes on gravel alongshore transport may be material.

I note Appendix G – Figure 2.5 appears to support the findings of some north easterly sand transport pathway off the Port. Figure 5-6 (for 125 micron of 70% of vibrocore) shows predominantly northerly transport for all but the NW scenario and this seems to be supported in Figure 6-7 (Appendix F). The mean transport vectors for 125 micron that show southerly transport therefore is largely due to the large rates of southerly transport during the NW wind which occur less than 13% of the time and during winds from these sectors, no significant wave heights are measured. What wind condition, combined with the NW wind results in the transport vectors shown in Figure 5-6 and are these combinations likely?[4]

Responses

[4] Tonkin & Taylor, Port of Napier Proposed Wharf and Dredging Project AEE - Preliminary coastal processes review. Prepared by Richard Reinen-Hamill, 24 January 2018

Response to Paragraph 1

Please refer to Appendix D to the application documentation, Figure 7-1 and Table 7-1. The net direction of longshore transport between HDR02 and PB01 is eastward, as is evidenced by the orientation of Port Beach and sand accumulating against the western edge of the groyne close to point HDR01 (see also Figure 3, on the following page). The clockwise rotation of wave activity between PB01 and HDR02 will therefore reduce overall littoral transport, as the change in wave direction will reduce eastward transport rather than increase westward transport.

Somewhere between HDR02 and HDR03 the net direction in littoral drift changes to become westward. Therefore between HDR03 and AI01 littoral drift would increase, although noting that the change in wave direction along this section of the beach is equal to or less than 1°. This rotation can only be realised if there is sufficient wave energy on the beach to drive morphological change.

The beach at the eastern mole of Ahuriri Inlet is in close alignment with the incident wave direction and would require a clockwise beach rotation of about 4 degrees before the MSL contour moved seaward of the Ahuriri Inlet eastern training wall. That is, any adjustment of the beach is likely to be minor and contained within the bounds of the Ahuriri Inlet eastern training wall and the rubble shore at Spriggs Park.

The commentary above has been provided by Advisian, and reviewed and confirmed by Shore Processes and Management.

In addition, proposed conditions 12 and 13 (Coastal Monitoring) in section 26.3 of the Description and Assessment of Effects document have been put forward to assess the actual change to this section of shore, and can additionally provide for recommendations of mitigation actions if required. Shore Processes and Management considers that potential necessary mitigation (if needed) is likely to be limited to occasional additional maintenance dredging of the Ahuriri Inlet channel.

Response to Paragraph 2

Previous analysis by WorleyParsons has shown that the present beach plan alignment at Westshore is 'out of equilibrium' relative to the prevailing wave direction climate. This situation may have also been affected by the 1931 earthquake. The 2005 analysis suggested that the equilibrium shoreline position at Westshore is landward of its present position. The predicted 1° clockwise rotation at Westshore due to the extended navigation channel (the geometry of which has been optimised as much as possible to mitigate impacts) will not significantly influence the underlying trend of shoreline readjustment at Westshore.

Any SLR will reduce the relative change in wavelength (and therefore celerity) for a wave of given period propagating from deep to shallow water. This will tend to reduce the degree of wave refraction by the navigation channel.

The commentary above has been provided by Advisian, and reviewed and confirmed by Shore Processes and Management. Shore Processes and Management also notes that the effects of the proposal will not be discernible as separate from the existing variability of coastal processes and coastal change along Westshore.

Figure 3: Beach alignment between Port Beach and Ahuriri Inlet.

Response to Paragraph 3

Shore Processes and Management has commented as follows:

The 1931 earthquake effects at Westshore and the subsequent adjustment of the seabed and shore since 1931 are part of the existing environment. Although there is scope for placement of suitable dredged sediment in Area R, the volumes of such sediment are not foreseen to be more than have been placed historically, and are done so to provide possible nourishment for the beach. If HBRC monitoring shows this to not be beneficial, then that activity could be stopped.

Response to Paragraph 4

The simulations shown in Appendix F, Figure 6-7 were run assuming extremely severe conditions that were not observed in wind data between 2005 and 2015.

These extremely severe conditions were selected to show where silt at the offshore disposal site might move to under a hypothetical, extremely severe, storm event that (a) has wave orbital velocities strong enough to suspend coarse silt at a depth of 20 meters, and (b) has wind driven currents strong enough at the bottom of the water column to move coarse silt a significant distance before it is able to settle out of the water column.

The purpose of the simulations were to show if, under an almost impossibly conservative scenario, there might be any potential for silt at the offshore disposal site to be suspended over and deposited upon Pania Reef.

The wave condition selected was Hm0 = 3.3m (Tp = 13s). Figure 4 shows that this particular wave height has not been observed in combination with NW winds of any speed (as derived from hourly-averaged wind speed and direction) in over 10 years of data.

The wind speeds used in the simulations presented in Appendix F, Figure 6-7 were the hourly-averaged wind speeds that, on average, are not exceeded for more than a total of 24 non-contiguous hours throughout the year (Table 1). These wind speeds were then assumed to blow continuously for 72 hours. That is, wind conditions that have not yet been observed in available wind measurements at Napier but might happen under a very rare storm event.

The pathways for each wind scenario shown in Appendix F, Figure 6-7 are therefore not intended to be additive to produce a 'mean annual' pathway, as has been done in Appendix F, Figures 5-5 to 5-8.

The simulations presented in Appendix F, Figures 5-5 to 5-8 assumed more moderate wind and wave conditions to assess sediment transport pathways: Simulations assumed a wave height of 2.2m (Tp = 13s), which is a storm wave that has been observed in combination with all hourly-averaged wind directions measured at Napier Port anemometer. This was applied in combination with the hourly-averaged wind speed not exceeded more than 24 hours per year (Table 1). The simulations were run for a prototype time of 24 hours to allow the water column to 'spin-up'.

Table 1: Hourly-averaged wind speed not exceeded for more than 24 hours per year (99.7th percentile), for the 6 most important wind directions.

Sector	NE	E	SE	SW	W	NW
Speed (m/s)	10.4	12.3	12.6	11.4	15.8	15.2

The relatively high wind speeds applied for the NW reflects that this sector tends to have a higher percentage of strong winds than, say, the more frequently occurring south-west (as shown in the wind rose in Appendix F, Figure 2-2).

Higher percentile winds (>90th Percentile), which are disproportionately responsible for transporting sediment due to promoting stronger wind-driven currents (sediment transport proportional to [current speed]^3), preserve the relative magnitude of wind speeds between each sector shown in Table 1.

One-hour averaged wind speeds were used as it is considered a more realistic measure of wind activity relative to the response time of the water column, compared to 1-minute gust speeds. However it is worth noting that the wind speeds in Table 1 compare to between the 90th and 99th percentile 1-minute wind speed given in Appendix D, Figure 2-4, so whilst high they are not 'extremal' in magnitude – the duration is likely also important.

What matters in deriving the sediment transport vector maps shown in Appendix F, Figures 5-5 to 5-8, is that the relative strength of wind speed between sectors is preserved, which is the case if one

considers wind events corresponding to the same percentile across the compass bearings. The circulation patterns for a lower wind speed will be the same, but with a lower current.

The high transport rates for wind approaching from the NW (relative to that realised for the other directions) is a function of wind speed, but even more so the plan alignment of the coastline and bathymetric contours. This effect is shown in Appendix D, Figure 8-7, where, for the same wind speed and event duration, winds from the NW resulted in a much higher depth-averaged current speed around Napier Port than for the other compass bearings.

The commentary above has been provided by Advisian, and reviewed and confirmed by Shore Processes and Management.

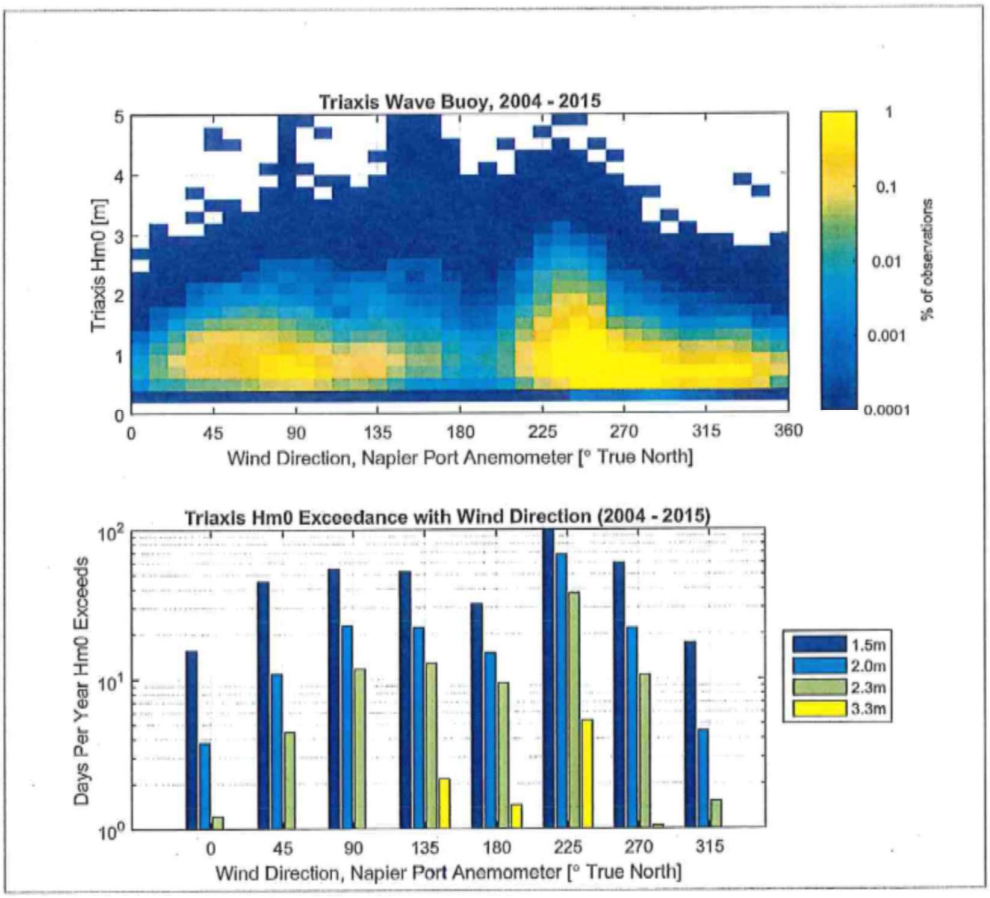


Figure 4: Statistical comparison between wave height measured at Triaxis buoy and hourly averaged wind direction, as measured at Napier Port anemometer.

9. **In relation to effects on coastal processes, Please explain the use of the Boussinesq simulation and use of the calibrated and validated SWAN spectral wave model for the predictions. Furthermore, please explain the selection of the storm event measured in July 2016 on which to base the simulations.**

Response

Use of SWAN model vs Boussinesq model

Where applicable the calibrated SWAN model is applied to assess coastal processes around Napier Port. However in the immediate vicinity of the Port, along Port Beach and the eastern section of Hardinge Road, wave diffraction is an important process, as is strong wave refraction by very sharp bathymetric changes due to the navigation channel. Here the Boussinesq model is applied to illustrate the relative change in wave height expected for a specific wave condition relevant for surfing.
It is not feasible to run the Boussinesq model for a large number of wave conditions and analyse time-series output for each one to assess changes in wave height and directionality. Hence, the SWAN wave model is applied for this larger number of wave conditions and analysed to calculate the relative change in wave height and direction.

Swan model calibration

As Appendix D, Section 4.2.1 and Figure 4-2 clearly describe, two storm events were used to calibrate the wave model using friction and directional spreading as independent variables, with water level as an additional sensitivity test. The storms selected provided a total of 150 data points on which to calculate error metrics and calibrate the model. The storms encompassed Hm0 from 0.5 to 1.5m, Tp from 5s to 15s, and incident wave direction from 80° TN to 135° TN. That is, the calibration data encompassed most of the generally observed wave conditions described statistically from the long term wave climate in Appendix F, Figure 4-4.

The calibrated model was subsequently validated against three further storm events that together included an even wider range of wave conditions, with Hm0 ranging to 3m, Tp ranging from 5 to 20 seconds, and MWD ranging from 90° to 135° TN.

As shown from the calibration error metrics presented in Appendix 4-3 to 4-5, and the time series at the validation locations in Figure 4-9 to 4-10, the performance of the wave model was judged against a total of five wave events (not one as suggested by the reviewer), encompassing most of the wave climate variability shown in Appendix F, Figure 4-4, and was found to be entirely satisfactory.

(The commentary above has been provided by Advisian)

10. Discuss the effect that the small changes in sediment transport predicted in Appendix D (Figure 8-4 and the realignment of the shoreline between Port Beach and Ahuriri in the order of 2 degrees) may have on the wave quality at the respective breaks.

Response

The small changes in sediment transport described in Appendix D (Figure 8-4) and the predicted realignment of the shoreline would only occur if there is sufficient wave energy to drive morphological change. Any sediment transport changes that would occur in the vicinity of the breaks would therefore affect the finer sediment transport fractions, with the wave energy being insufficient to cause any morphological changes to the coarser, cobble/gravel fractions. The bathymetric levels at the respective surf breaks would likely not change, therefore, for the portions of the break that are on cobbles.

As described in our response to Q8 (Para 1) above, the net direction of longshore transport along the eastern half of Port Beach is eastward, as evidenced by the orientation of Port Beach and sand accumulating against the western edge of the groyne at Battery Road (refer Figure 3). The clockwise rotation of wave activity in this area will therefore reduce overall littoral transport, as the change in wave direction will reduce eastward transport rather than increase westward transport. Further west along the beach at Hardinge Road, the change in wave direction along this section of the beach is equal to or less than 1°. The clockwise change in wave angle would reduce the tendency at the eastern half of the beach, where the surf break is located, for sediment to be transported eastward towards Port Beach, but sediment transport potential will still be toward the east in this location. Thus the mean local sediment transport patterns at the Hardinge Road surf break would likely remain unchanged from the existing pattern and there would be little or no change to the bathymetry at the surf break at Hardinge Road.

As described also in our response to Q8, the beach at the eastern mole of Ahuriri Inlet is in close alignment with the incident wave direction and would require a clockwise beach rotation of about 4 degrees before the MSL contour moved seaward of the Ahuriri Inlet eastern training wall. That is, any adjustment of the beach is likely to be minor and contained within the bounds of the Ahuriri Inlet eastern training wall and the rubble shore at Spriggs Park. Therefore, there would be little or no additional sediment supply to the City Reef break from east of Ahuriri Inlet that would affect the bathymetry at the City Reef break.

As discussed in Section 6 of Appendix D, the peel angle at the breaks is defined as the angle between the crest of an unbroken wave and the trail of the broken wave (white water). As the trail of the broken water is parallel to the bottom bathymetry contours at the breaking location, any rotation in the bathymetric contours at either City Reef or Hardinge Road that may occur over time in response to a rotation in wave approach angle would tend to counteract the changes in peel angle that would occur – i.e. the peel angle at the breaks would initially be slightly larger than existing but would tend to return toward their existing values over time as the seabed bathymetric contours rotate.

Any realignment of the shoreline as described in Appendix D would, therefore, not be expected to have any noticeable effect on the wave quality at the respective breaks.

The commentary above has been provided by Advisian, and reviewed and confirmed by Shore Processes and Management.

NAPIER PORT

11. In relation to the post disposal fate of dredged sediments, justify and explain the choice of critical shear stress for erosion of cohesive sediments and the choice of the 'erosion parameter'.

Response

The critical shear stress is normally a site specific quantity best measured *in situ*. However in the absence of site specific data a value was selected on the basis of values described in engineering literature, and referenced within Appendix F. Reviews of other studies report a similar range of values.

The critical shear stress chosen for erosion of cohesive sediments has been chosen based on the assumption that the bed sediments in the dredged areas comprise "partly consolidated mud" in accordance with the range of values presented in Table 4.2 of Appendix F.

We have chosen a critical shear stress of 0.2 N/m^2, which is at the lower bound of the values recommended for partly consolidated mud in Partheniades (1965) and Parchure & Mehta (1985). A lower threshold value tends to indicate that the sediment would be more likely to be re-suspended, which provides for a conservative analysis. The chosen value is conservative for the natural underlying cohesive sediments which have undergone natural consolidation over time, making it less likely that these sediments would be resuspended.

Note that the modelling is representative of the processes during and immediately after the dredging. The value is considered appropriate for the softer sediments which have been deposited, partly consolidated and resuspended solely from the dredging works at the project site.

As the goal of the simulations was to maximise sediment mobility for a given magnitude of wave stirring and current speed in the overlying water column, the specific value selected was chosen at the lower bounds for partially consolidated mud, which is considered reasonably approximate to the silty clay matrix described in geotechnical borehole data. If sediments were considered to be hard mud, for example, the corresponding critical erosion sear stress would be much higher and sediment mobility commensurately less.

The selected value of 0.2 N/m^2 compares to a critical erosion value of ~0.15 N/m^2 for non-cohesive fine sand and coarse silt (**http://www.leovanrijn-sediment.com/papers/Thresholderosion2016.pdf**, Figure 1.5). That is, it is expected that the silt material deposited at the offshore disposal ground will have a degree of cohesion that will slightly increase the shear stress required to initiate mobility.

The 'erosion parameter' governs the rate at which material is entrained to the water column once the critical erosion shear stress is exceeded. The higher the number, the greater the sediment mass injected into the water column per unit area and unit time.

For numerical modelling of 'pseudo-cohesive' sediments (muddy silt), transport is typically limited by sediment availability (which is certainly the case at the proposed off-shore disposal area) and by the erosion rate, which is governed in the simulations by the 'erosion parameter'. Other authors report using erosion parameter in the range of $1E^{-5}$ and $1E^{-6}$ for short-term, 'engineering type' studies for erosion of partially consolidated bed sediment. The erosion parameter used in this study lies above the upper limit of this reported value. That is, the simulations reported in Appendix F Section 6.3 provide a conservative estimate of sediment mobility. Note that the 'erosion parameter' is a parameter that can be tuned during the model calibration process.

(The commentary above has been provided by Advisian)

ERRATUM

It has been drawn to the Port's attention that Appendix D, Figures 2-3, 2-4 and 2-5, give wind speed in m/s but in fact show the 1-minute wind speed in knots. This was however not carried through to the modelling undertaken by Advisian and reported in Appendix D and F – the wind speeds were converted to m/s prior to use as a boundary condition.

Figure 2-3 is repeated in section 7.6 of the Description and Assessment of Effects. Replacement diagrams are attached.

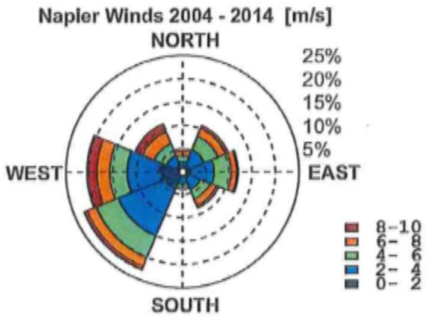


Figure Error! No text of specified style in document.-5: Rose plots of 1-minute average wind speed measured at Napier Port. Directions given as 'coming from'.

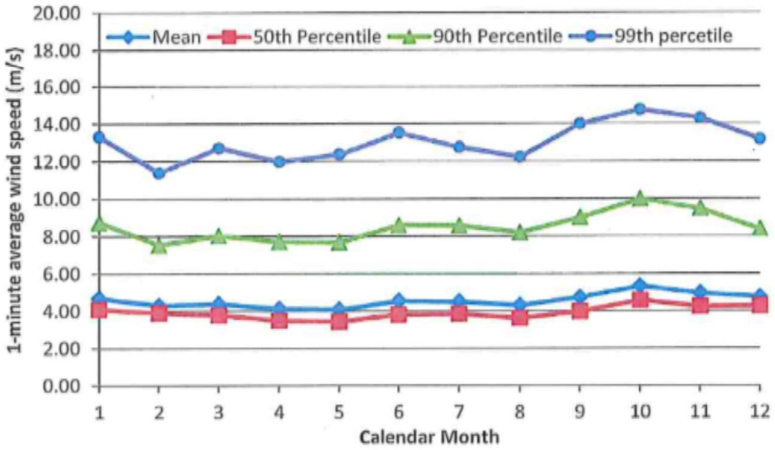


Figure Error! No text of specified style in document.-6: Monthly statistics of 1-minute average wind speeds at Napier Port anemometer.

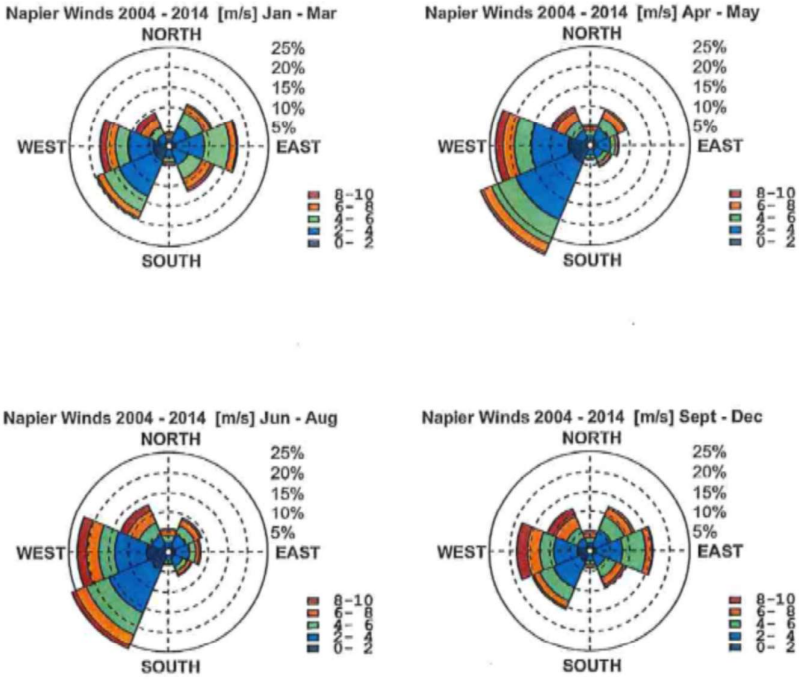


Figure Error! No text of specified style in document.-7: Seasonal wind roses of 1-minute average wind speed and directions at Napier Port anemometer. Directions given as 'coming from'.

Following the Hawke's Bay Regional Council peer review meeting held on 5June 2018, a number of minor matters raised by the peer reviewers were recorded. These are noted and clarified below where necessary.

Key points of discussion and aspects of proposal requiring further information: Proposed 'offshore' disposal site:	**Question(s) to applicant & request for further information:**	**Clarification provided by Napier Port**
The proposed offshore disposal site shows potential for an effect on Pania Reef (Significant Conservation Area). A number of submitters have raised the issue of potential effects on Pania Reef. See Advisian Report (Figure 29, Page 48 Appendix E). The proposed offshore disposal site is at a depth of 20 metres.	a) Why was the offshore disposal site selected when there is a potential for the reef to be affected by additional sedimentation as a result of the activity? b) Has re-suspension of the dredged material been considered? If the material will move and be re-suspended, what effects could this have on Pania Reef? c) The deposition of the material at the offshore site increases the height of the sea floor by approximately 1 metre. If this is not expected to be re-suspended, is there sufficient room within the offshore site for maintenance dredging material to be placed in	a) As noted in the AEE (page 63, para 5);*'the site 5 locality has been identified as the preferred option on the basis of past and more recent investigations'*. The recent investigations are included in Appendices D, E and F within Volume 3 of the supporting information for the applications. As noted in Section 9 of the AEE, any potential sedimentation is considered to be less than minor. More detail is provided in Appendix E. Potential effects are limited to the extreme eastern end of the Pania Reef SCA, and appear not to extend into the reef area. It is important to note that the diagrams provided are based on conservative modelling and show worst-case potential percentile exceedances over a 1-month period for Campaigns 1 (by far the largest in volume and longest in duration) and 5, silt and clay fractions. Replacement figures 29 and 35 in Appendix E which may give a clearer picture are provided. This indicates the risk of sedimentation reaching the reef is very low and very small in volume and depth. This potential has been thoroughly examined in Appendix H in terms of its ecological implications. The RMA is not a "no effects" statute, and it is not necessary to demonstrate a nil effect when applying for a resource consent.

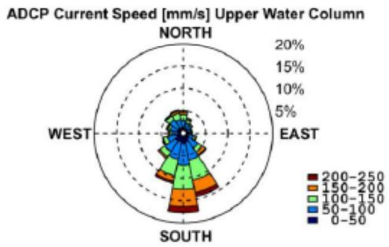
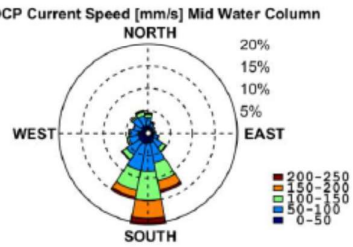
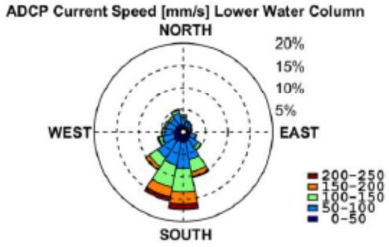
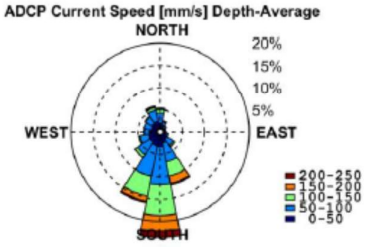
	the area? This could eventually lead to an overall increase in the height of the sea floor of more than 1 metre if the material is not re-suspended.	b) Appendix F provides a comprehensive analysis of potential for re-suspension of sediment, including at the off-shore disposal area. Note that the modelling is described as an "extremely conservative analysis" being based on a strong period, and with a mound 2m in height above a 20m sea bed level. Any long-term effects would be *de minimis*. The effects on reef ecology have been addressed in detail on p113 to 127 of Appendix H. c) The proposed disposal area has sufficient capacity for capital dredging, including allowance for settlement between campaigns. It is possible that the small component of maintenance dredging will increase the height of some areas above the 1m described. It should be noted that the modelling was assumed a depth of 20m over the whole site. Whereas 20m is assumed to be the minimum depth for modelling purposes, parts are at up to 23m. Further the modelling for resuspension has assumed that the disposal involves a 2m high pile of deposited material over the whole area at all times.
	Appendix E and F provide information on re-suspension. However, material finer than coarse silt has not been modelled. Why has this material not been modelled? What are the effects associated with the re-suspension of this material?	Clay and silt fractions are included in the deposition modelling shown in Figs 29 and 35 of Appendix E (see Sections 5.3 to 5.5). This addresses initial deposition. The explanation of why clay and fine silt are not included in the resuspension analysis is given in Section 4.2.2 of Appendix F. The assumptions relating to resuspension at the offshore disposal grounds are set out in Section 6 of Appendix F.
	Please provide modelling of the potential effects on Pania Reef and the subsequent effects on other reef systems if the dredged material is disposed of at a greater depth. Please model a disposal site in 25m of water and 30m of water. This work should be done in response to the concerns raised by submitters and to ensure that alternative	The discussion and nature of investigations of alterative disposal areas is set out under Section 5.4.1 of the AEE. As the effects are considered to be less than minor, and avoid all effects of the types set out in NZCPS Policy 11(a), they must be evaluated primarily in terms of NZCPS Policy (b)(iv). Conditions to address these aspects have been proposed. A full policy analysis will be provided in evidence for the hearing.

	disposal sites have been addressed adequately.	
Maintenance dredging records:	**Request for further information:** Please provide information and records regarding previous maintenance dredging campaigns. When has this maintenance dredging been carried out, what quantities were dredged, where was the material deposited, what material was dredged (grain/sediment size)? The application provides some of this information but not all required information.	The information held by the Port is provided in table form in an attachment to this. It was analysed and summarised in Section 2.9 of Appendix G and Table 2.2. The Particle Size Distribution (PSD) Laboratory results from the last 2 campaigns are attached.
	Submitters raise concerns about sedimentation of Pania Reef. Has grain/sediment size sampling been undertaken across Pania Reef to understand the source of the sedimentation issue and the particle size of material that gets deposited there?	This matter will be addressed in evidence at the hearing. No sediment sampling has been undertaken on Pania Reef. However multi-beam and ecological surveys have, as described in Appendix H. It has been observed during the dive surveys and supported by feedback from stakeholders that the sediment at Pania Reef is typically very fine in nature and is easily re-suspended when disturbed. Cawthron provide further clarification and notes that the concerns relate mainly to a perceived increase in fine sediment covering shellfish beds and adversely affecting Pania Reef. These concerns were an explicit consideration in siting the proposed disposal site. Data collection of currents and modelling of sediment dispersal from proposed disposal sites was carried out to identify potential adverse effects of sediment deposition and movement of fine sediment from the site. Advisian have presented the findings of this work in detail, and Cawthron has also provided the findings of research on Pania Reef and the benthic ecology. Cawthron notes that the modelling by Advisian is appropriate, and the findings have been used to provide a suitable location for the disposal of the dredged sediment. The identification of the background turbidity and potential effects of

		fine sediment settling on Pania Reef by Cawthron is consistent with the results from the models. The effects on ecological values have been assessed in the Cawthron Report, Appendix H.
	Provide opinion on the potential for material deposited at Pania Reef to be resuspended given the shallowness of location and the roughness of the reef/seabed surface at Pania.	See earlier answers. This matter will be further addressed in evidence at the Hearing.
Maps showing fishing activity: Figure 11-1 shows the commercial fishing restrictions in place for central and southern Hawke's Bay.	**Request for further information:** Please provide a map detailing the location of the proposed and existing disposal sites and the common fish trawling paths within Hawke Bay.	Information on the common fish trawling paths is not available from any official source.
Ongoing commitment to re-nourishment/disposal of dredged material at existing 'in-shore' locations: Submitters note that 'reverse flow conditions' apply for less than 24 hours each year (Denis Pilkington & others). HBRC experts agree with this statement. The use of the dredged material for re-nourishment is consistent with the NZCPS, RCEP and HB Coastal Strategy.	**Question/Request for further information:** In response to submissions received, what is the position of the Napier Port in relation to disposal of dredged material that is suitable for beach re-nourishment and disposal at the existing 'in-shore' sites? HBRC experts believe that all suitable material should be deposited at the existing 'in-shore' sites unless there is evidence to show that this would be detrimental to the environment. What will be the effect on beach processes at Westshore of NOT continuing to dump dredging's at R (question from	As a result of written submissions, the Port is willing to provide dredged material to renourish Westshore Beach should it be suitable and that any deposition consent for this activity is held by others (i.e. Napier City Council and/or Regional Council, or others). A draft Memorandum of Understanding (MoU) has been discussed at a high level with Napier City Council and the Regional Council, and a similar statement is expected to be presented by Napier Port at the hearing. It is however, the Port's view based on its recent investigations that the adverse effects on the environment of the proposed capital dredging (and associated maintenance dredging over the period of capital dredging) are best addressed by the use of an offshore disposal site. It was noted in the AEE that the existing deposition coastal permit (CL970159D) may be surrendered should consent be granted for this proposal. The monitoring and reporting regime under CL970159D is set out in that consent and will continue while the consent is 'in effect'. The records are made available and held by the Regional Council.

	#32 NCC). If dumping is stopped or continued at R, then how will the effects on the beach be monitored.	This does not include beach monitoring, which we understand is a responsibility of HBRC. (Note that the draft conditions put forward in 26.3, items 12 and 13, do include limited coastal monitoring in conjunction with HBRC. This relates primarily to possible surfing implications, rather than to overall beach nourishment) There is no RMA requirement to continue such monitoring if a consent has been surrendered or expired (unless explicitly included in a consent condition).
Statement regarding the historic ecological data used: This matter was raised in the s.92 request sent to Napier Port prior to notification of the application. HBRC experts would like to re-iterate that the use of historic ecological data is not considered best practice. We believe that more recent ecological data would better represent the current ecological values and condition of the dredging and disposal areas:		The point raised by HBRC experts that they *"would like to re-iterate that the use of historic ecological data is not considered best practice"* is noted. Cawthron provided a robust reply to this matter in the section 92 letter response lodged on 19 March 2018. It concludes that: *"Together with the benthic surveys carried out for the inshore Westshore spoil grounds over the last 20 years, the compiled data gives us a robust insight into the soft sediment benthos of the Port vicinity and its variability. This in turn leads to a sound level of confidence in the assessment conclusions as a whole."*
General Question: Based on submissions received, are there any proposed conditions that the Napier Port would amend?		At this stage the applicant is not proposing any additional conditions. Any amendments to the draft conditions lodged with the application or additional conditions based on submissions received will be provided in writing and/or presented evidence at the Hearing.

Furthermore, are any additional conditions proposed by Napier Port?		Napier Port is not averse to an extension of conditions 10 and 11 in 26.3 requiring bathymetric surveys of the disposal location and nearby areas to an extent and at a frequency to be agreed with HBRC.
		Ongoing ADCP current data at the proposed offshore disposal ground is being collected and has been aggregated in **Error! Reference source not found.** figure below across the following contiguous deployments: • 8th Dec 2016 – 3rd Feb 2017 • 1st March 2017 – 1st June 2017 • 29th July 2017 – 18th Sept 2017 It can be seen from the figure below that the currents are predominantly toward the south, indicating that the fine sediments would be carried away from Pania Reef.

		 ADCP Current Speed [mm/s] Upper Water Column NORTH WEST EAST SOUTH 20% 15% 10% 5% 200–250 150–200 100–150 50–100 0–50  ADCP Current Speed [mm/s] Mid Water Column NORTH WEST EAST SOUTH 20% 15% 10% 5% 200–250 150–200 100–150 50–100 0–50  ADCP Current Speed [mm/s] Lower Water Column NORTH WEST EAST SOUTH 20% 15% 10% 5% 200–250 150–200 100–150 50–100 0–50  ADCP Current Speed [mm/s] Depth-Average NORTH WEST EAST SOUTH 20% 15% 10% 5% 200–250 150–200 100–150 50–100 0–50

Appendix 3. Joint Witness Statement

BEFORE THE HAWKE'S BAY REGIONAL COUNCIL

IN THE MATTER	of the Resource Management Act 1991
AND	
IN THE MATTER	of an application by Port of Napier Limited for resource consents to construct a new wharf, and to undertake dredging at Napier Port

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JOINT WITNESS STATEMENT FOLLOWING CONFERENCING OF COASTAL EXPERTS

20 July 2018

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1. This joint witness statement has been prepared as part of expert conferencing on the topic of coastal science, in relation to the application for resource consents made by Port of Napier Limited (**Port**) to Hawke's Bay Regional Council (**HBRC**). The application relates to the Port's proposal to construct a new wharf, and to undertake dredging at Napier Port.

2. The expert conference was held on 20 July 2018 at the Tonkin & Taylor Auckland office (and via conference call).

3. The coastal experts who attended the conference were:

   (a) Ben Williams on behalf of the Port (by phone);

   (b) Chris Adamantidis on behalf of the Port (by phone);

   (c) Martin Single on behalf of the Port;

   (d) Richard Reinen-Hamill on behalf of HBRC; and

   (e) Terry Hume on behalf of HBRC.

   (f) Peter Cowell on behalf of NCC

4. Dr Shane Kelly, who is an ecological expert engaged by HBRC, attended the expert conference in an observer capacity with the agreement of the Port, whose ecological expert was unavailable for the expert conferencing.

5. This joint witness statement is prepared in accordance with section 4.7 of the Environment Court Practice Note 2014.

6. It is confirmed that all attendees have read the Environment Court Practice Note 2014, and agree to abide by the Code of Conduct.

7. This joint witness statement sets out:

   (a) those matters which are agreed between the experts;

(b) those matters which need to be addressed prior to the hearing that require further information; and

(c) those matters which are not agreed and the reasons in each case.

Dated 23 July 2018

Ben Williams

Chris Adamantidis

Martin Single

Richard Reinen-Hamill

Terry Hume

Peter Cowell

(b) those matters which need to be addressed prior to the hearing that require further information; and

(c) those matters which are not agreed and the reasons in each case.

Dated 23 July 2018

Ben Williams

Chris Adamantidis

Martin Single

Richard Reinen-Hamill

Terry Hume

Peter Cowell

(b) those matters which need to be addressed prior to the hearing that require further information; and

(c) those matters which are not agreed and the reasons in each case.

Dated 23 July 2018

Ben Williams

Chris Adamantidis

Martin Single

Richard Reinen-Hamill

Terry Hume

Peter Cowell

(b) those matters which need to be addressed prior to the hearing that require further information; and

(c) those matters which are not agreed and the reasons in each case.

Dated 23 July 2018

Ben Williams

Chris Adamantidis

Martin Single

Richard Reinen-Hamill

Terry Hume

Peter Cowell

	Issue/question	Matters agreed	Further information required prior to the hearing	Matters not agreed (with each expert's view and reasons)
1.	Was the hydrodynamic model accurately calibrated with the correct wind speed information?	Yes. All agree correct wind speeds were used in the calibration. Unit's error (knots vs m/s) was not carried through to the model for the calibration period. Model behaviour has been consistent with what has been measured (ADCP data).	No.	Nil.
2.	What is the nature and magnitude of the actual and potential effects on coastal processes of the activities for which the Port seeks resource consent:			
	a) In the location of the proposed dredging?	Potential affect, due to sediment removed from the littoral system. Existing dredge volumes likely to be a lower bound of what we would expect in terms of future maintenance dredging volume and would expect proportionally larger maintenance dredging volumes due to increased	No.	Nil.

	Issue/question	Matters agreed	Further information required prior to the hearing	Matters not agreed (with each expert's view and reasons)
		size of channel area.		
	b) At Westshore Beach?	We agree that there is a small change in wave angle that could increase the northerly drift tendency but that this is likely to be difficult to distinguish from existing natural variability. Monitoring is an adequate response.	No.	Nil.
	c) At Pania Reef and the associated Significant Conservation Area?	Scenarios modelled are campaigns 1 and 5 and are larger/ worst case scenarios as they had the longest periods of suction dredging. Modelling shows no deposited sand migrates directly to the reef. Modelling initial silt plus clay dispersal predicts probably 1 mm deposition in conservation zone but not on reef itself. Any material that might settle on the reef would be transient due to bed roughness and wave energy and will end up being deposited in seabed	There appears to be an anomaly in Fig 6-7 (appendix F) with westerly winds showing strong westerly transport). Can this situation be reviewed and what appears to be counter intuitive, explained.	Nil.

	Issue/question	Matters agreed	Further information required prior to the hearing	Matters not agreed (with each expert's view and reasons)
		areas of similar sediment characteristics.		
	d) In the location of the proposed deposition site?	While there is a small effect on wave height there is no likely effect on coastal process or on Town Reef. Agreed with the information provided.	No.	Nil
	e) In any other location?	Due to changes in wave angle and direction along Hardinge Road and Pandora Reserve there may be increases in alongshore transport affecting beach plan form. Monitoring as proposed is an adequate response.	No	Nil
3.	Is there any link between the activities for which the Port seeks resource consent and the sediment deficit at Westshore? If so: (a) What is that link? (b) How strong is that link?	There will be increased (unquantified but likely to be small) loss of fine sands from the Westshore Beach nearshore system due to the increased trapping efficiency of the larger channel. It is likely to be a subordinate factor with regard to the sediment deficit	No	Nil

	Issue/question	Matters agreed	Further information required prior to the hearing	Matters not agreed (with each expert's view and reasons)
		and the disequilibrium at Westshore compared with: 1) the seabed adjustment in response to the 1931 uplift, and 2) the gravel nourishment programme.		
4.	Would nearshore nourishment adjacent to Westshore have any impact (positive or negative) on any effects of the activities for which the Port seeks resource consent?	Larger nourishment volumes have a greater potential for adding to maintenance dredging requirement, but maintenance dredging still required.	No.	
5.	Would adjusting the deposition location or the nature of the material deposited impact (positive or negative) any effects of the activities for which the Port seeks resource consent?	a) Southerly extension of R has potential benefits regarding nearshore sand placed closer to the southern end of Westshore, but also negative potential effects regarding inundation of reef, impacts on the surf quality and increased sedimentation of Ahuriri Lagoon. None of these effects	No.	Ben Williams, Chris Adamantidis and Martin Single believes that whilst they agrees that dredged sand deposited within southerly extension of R will add volume to nearshore beach system, there remains considerable uncertainty on the longevity (and therefore potential benefit) of any

	Issue/question	Matters agreed	Further information required prior to the hearing	Matters not agreed (with each expert's view and reasons)
		have been considered or quantified. Previous studies conclude that coastline and associated seabed probably retain residual disequilibrium effects of 1931 uplift. Previous applications of fine to very fine sand within Dump zone R are generally thought to have had a stabilising effect on beachface in the vicinity of this disposal site. However, the placed material is expected to move from the placed location over time. b) Further seaward locations haven't been assessed, would be more costly and takes sand out of the system.		nourishment placed at Westshore due to the measured incompatibility of sediment grain size distributions of the dredged and native material. Calculated overfill ratio suggests uncertain but limited longevity. Peter Cowell, Terry Hume and Richard Reinen-Hamill believe that nourishment overfill principles are of diminished applicability under these circumstances because the sub tidal nearshore will continue to deflate, with negative consequences for the beachface even if nourishment is not applied to the fine-sand nearshore region.
6.	Could nourishment at Westshore	Placement of fine sand in Area R is	No.	Nil

	Issue/question	Matters agreed	Further information required prior to the hearing	Matters not agreed (with each expert's view and reasons)
	have an impact (positive or negative) on the nature or magnitude of effects on the Pania Reef Significant Conservation Area?	unlikely to have an effect on Pania Reef SCA.		
7.	Could sand of a certain grain size (likely sourced from maintenance dredging only) be deposited at Westshore Beach without having adverse effects on coastal ecology?	Not a question for coastal experts, but the concept would be to largely place like on like regarding grain size.	No.	Nil
8.	Is it fair to conclude that finer material deposited near Westshore Beach from previous capital dredging campaigns was more likely to affect coastal ecology (migration of material to Pania and Town Reefs) as opposed to sandy material.	We agree that placement of material with significant fines is not desirable at R due to potential adverse effects (unquantified).	No.	Nil
9.	How do the interpreted model results fit within the framework of previous studies.	Broad agreement. Modelling and results fit the observations of the past studies.	No.	

Appendix 4. Statements of Evidence supplied by respective experts

BEFORE THE HAWKE'S BAY REGIONAL COUNCIL

IN THE MATTER	**of the Resource Management Act 1991**
AND IN THE MATTER	of an application by Port of Napier Limited for resource consents to construct a new wharf, and to undertake dredging at Napier Port

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STATEMENT OF EVIDENCE (COASTAL PROCESSES)

RICHARD REINEN-HAMILL

For Consent Authority

30 July 2018

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1. INTRODUCTION

1.1 My name is Richard Anthony Reinen-Hamill. I am a senior coastal engineer, a director of Tonkin & Taylor Limited (T&T) and a Fellow of Engineering New Zealand (previously known as the Institute of Professional Engineers New Zealand). I have a Bachelor of Engineering (Hons) and a Master of Engineering from the University of Auckland, which included a thesis studying the coastal processes of Mission Bay, Auckland and focussed on transport of sediments under tide and wave conditions. I also have a certificate of competency in multi-hazard risk assessment from the University of Twente. I have more than 28 years experience as a coastal engineer. In my role as a consulting engineer I have authored more than 800 technical assessments, design and review reports; I have 15 published papers; and have assisted in the preparation of four regional and national guidance notes.

1.2 From 1990 to 1993 I was a research and project engineer in the Harbours and Coast division of the Specialist Coastal and Hydraulic Consultants, Delft Hydraulics Centre (now named Deltares) in the Netherlands. In this role I developed particular skills in evaluating sediment transport and coastal processes, including the use of physical and numerical models where appropriate. I carried out assessment of the effects of dredged channels and assessed sedimentation rates of harbour and access channels for major harbours in Holland, India and the United Kingdom.

1.3 Since joining Tonkin + Taylor in 1994 I have been responsible for numerous technical and management studies of the effects of changes to coastal processes resulting from modifications to the coastal environment. I have also carried out numerous studies and investigations within the Hawke's Bay region, primarily for the Hawke's Bay Regional Council, since 1997. This has included detailed analysis of coastal processes and shoreline evolution as part of the development of coastal erosion and inundation hazard risk zones along the entire region and the detailed hazard and risk assessment recently completed for the shoreline from Tangoio to Clifton.

1.4 Dredging projects of particular relevance to this present assessment and my role in them include:

(a) **Refining NZ crude shipping project, NZ (2018):** Coastal process specialist assessing effects of a proposed 3.7 Mm^3 channel dredging and marine disposal on adjacent environment.

(b) **Centreport dredging effects assessment, NZ (2017):** Technical reviewer of the hydrodynamic studies (completed by MetOcean Solutions Ltd) and a detailed technical assessment of the effects of proposed channel deepening at the entrance to Wellington Harbour on the shorelines adjacent to the Proposal.

(c) **Westgate Transport Ltd Dredging and Spoil Disposal Consent, NZ (2002):** Technical assistance in the field of hydrodynamics and sedimentation with respect to Westgate Transport Ltd's proposed application to annually dredge 100,000 cubic metres of sand for maintenance and dispose of it in the nearshore.

(d) **Port of Tauranga Dredging and Spoil Disposal Consent, NZ (1998):** Technical assistance in the field of hydrodynamics and sedimentation with respect to the Port of Tauranga's proposed application to dredge 650,000 cubic metres of sand for part enhancement and ongoing maintenance and disposal in the nearshore, including dispersal and diffusion assessments.

1.5 I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014 and have complied with that practice note in preparation of this evidence. I agree to comply with it in presenting evidence at this hearing. The evidence that I give is within my area of expertise, except where I have stated my reliance on other identified evidence. I have considered all material facts that are known to me that might alter or detract from the opinions that I express in this evidence.

2. SCOPE OF EVIDENCE

2.1 My input on these consent applications has involved reviewing the application documents in relation to coastal process effects. In relation to my evidence the key documents I have considered are:

(a) Advisian (2017a). Napier Port Proposed Wharf and Dredging Project: Coastal Process Studies, 301015-03651-Rep-CS-002-E, June 2017.
(b) Advisian (2017b). Napier Port Proposed Wharf and Dredging Project: Dredge Plume Modelling, 301015-03651-003, June 2017.
(c) Advisian (2017c). Napier Port Proposed Wharf and Dredging Project: Pos Disposal Fate of Dredged Sediment, 301015-03651-CS-004, May 2017.
(d) Single, M. (2017). Port of Napier proposed wharf and dredging project: physical coastal environment, May 2017.
(e) Beca (2016) 6 Wharf Development – Geotechnical Factual Report, 3 October 2016.
(f) Beca (2017) 6 Wharf Development: 3D Geological Model and Dredge Volumes, 15 May 2017.

2.2 In addition, I have read and considered:

(a) The various submissions;
(b) Reports by Komar (2007) and Kirk and Single (1999);
(c) The pre-hearing meetings reports of the Chairperson (dated 29 June and 2 July 2018);
(d) The information supplied by the applicant as s 92 information requests relating to coastal processes (of 19 March and 11 July 2018); and
(e) The joint witness statement following conferencing I attended along with the other coastal experts on 20 July 2018.

3. GENERAL COMMENTS

3.1 In general the technical assessment reports and modelling studies that have been carried out to support the application are to a high standard. Additional

information, including the Kirk and Single report of 1999[1] and the Worley Parsons report of 2005[2], have provided useful context.

3.2 Overall I agree that:

(a) The existing coastal system is dynamic and is out of equilibrium. It is likely to still be responding to the 1931 earthquake response and anthropogenic drivers.

(b) The proposed channel dredging is likely to have minor effects on the waves and currents operating in this area and while the modelling indicates slight changes in rates of alongshore drift capacity resulting from the increased depth and changes to bathymetry, it is of a magnitude that might be difficult to distinguish from normal shoreline variability. I support the proposed requirement to monitor and respond (if required) to observed erosion issues that affect land assets and amenity.

(c) The dredged channel will provide greater trapping efficiency due to its increased size and depth. Based on the results of the applicants modelling, the channel will infill both from the seabed between Westshore and the channel as well as from sediment transported from the east and this will result in an increased loss of sediment from the subtidal area of seabed off Westshore. Insufficient detail has been provided by the Applicant to provide a proportion of the possible sedimentation volumes, however they are expected to be larger than presently occurs due to the larger area of occupation of the dredged channel and its greater depth, but in the same order.

(d) The quantity of suspended sediments at the areas of ecological significance resulting from dredged disposal within the proposed offshore disposal area are small.

4. ISSUES OF CONCERN

4.1 While there have been some errors of detail in the reports provided, particularly with regard to the incorrect units applied to windspeed, these errors do not appear to have been carried through to the hydrodynamic models and the models calibrate reasonably well to the field measurements carried out. There

[1] Kirk, R.M. and M.B. Single (1999) Coastal change at Napier with special reference to erosion at Westshore: a review of causative factors, March 1999.
[2] Worley Parsons (2005) Port of Napier No. 6 Berth Dredging Effects Study, 302/00384/a48, 19 September 2005.

appear to be some anomalies in the sediment transport derived from wind driven currents, with westerly winds showing strong westerly transport. I understand that this will be reviewed and explained in evidence by the Port's coastal experts.

4.2 There is a lack of detail and analysis of the nearshore disposal effect on coastal processes included in the application as it is focussed on a single offshore disposal location around the 20 m depth contour. The potential benefit and durability of fine sand placed in the existing nearshore location is the main area of disagreement between the coastal experts. Based on my review of the beach profile data sets that exist in the vicinity of the Westshore nourishment area (Site R) and what the results indicate over the period of historic nearshore disposal, I am confident that ongoing nearshore disposal of fine sandy material would continue to provide a temporal benefit manifest by higher nearshore seabed levels that will reduce wave action at the intertidal beach face while the placed sediment remains in the system. Retaining suitable sediment within the Westshore embayment will reduce the additional loss of sediment from the system that would occur if all dredged sediment was removed to the proposed offshore location. In my opinion, this would partially offset the effects of the proposed dredging.

4.3 While I understand the concern of the Port company that the deeper capital dredging may well be decades away, there will still be the requirement to carry out maintenance dredging and based on limited information provided by the Port company, this material appears to have a reasonable proportion of fine sands. Placement of this material as far shoreward as practicable within Site R will assist both the usefulness of this resource for slowing the inevitable changes to the seabed while reducing the risk for transport seaward.

5. OTHER MATTERS

5.1 There are polarised views expressed by the submitters with regard to the disposal of dredgings, with either a continuation of nearshore disposal or disposal to a far offshore location preferred to the proposed disposal location. As discussed above neither of these alternative options has been investigated in detail as part of this application, but there is knowledge from the historic nearshore placement both based on the long term data set of beach and nearshore profiles as well as less regular bathymetric surveys, that shows an

increase in nearshore seabed elevations adjacent to areas where nearshore disposal has occurred.

5.2 With regard to offshore disposal, in principle the removal of dredged material from a nearer shore location to an offshore location, where that material cannot return to the coastal system, results in a net loss of sediment from the nearshore. This can be explained using the concept of a sediment budget within the Westshore embayment. At present there are no significant sources of new sediment entering the nearshore system while there are ongoing losses that are greater due both to the readjustment of the seabed from the effects of the 1931 earthquake and uplift and to a lesser degree, anthropogenic effects of interruptions and modification of alongshore sediment transport by the existing dredged channel and breakwater. Therefore any removal of sediment reduces the overall volume of material on the seabed and this will result in a lowering of the seabed and potentially increased wave energy on the shoreline. The actual reduction in levels could be quite small, so the effect considered in relation to ongoing natural processes and the potential effects of sea level rise might be hard to identify.

6. CONSENT CONDITIONS

6.1 If a consent were granted I agree with the inclusion of proposed consent conditions related to:

(a) Managing the potential adverse effect of the proposed channel deepening on the sediment budget that would add to the existing natural processes of sediment loss from the system resulting from the 1931 earthquake changes, along with anthropogenic losses associated with historic dredging and port breakwater development by placement of suitable dredged material within the Westshore embayment by the nearshore nourishment within Site R.

(b) Profile surveying of the beach and nearshore be continued along with records of dredged properties (volume and sediment type) and disposal locations (bathymetric survey) to monitor change, and so that future analysis of the potential effects of nourishment of the nearshore at Westshore are available for assessment.

(c) Monitoring of shoreline/beach planform in the vicinity of the surfing breaks and at Pandora/Hardinge Road where modelling suggests more significant changes in net wave angle could occur.

(d) Collection of wave and current direction data, and studies on Pania Reef itself to investigate the relationship between migration of finer materials deposited in the disposal areas and potential effects on Pania Reef.

Richard Reinen-Hamill
30 July 2018

BEFORE THE HAWKE'S BAY REGIONAL COUNCIL

IN THE MATTER	**of the Resource Management Act 1991**
AND IN THE MATTER	of an application by Port of Napier Limited for resource consents to construct a new wharf, and to undertake dredging at Napier Port

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STATEMENT OF EVIDENCE (COASTAL PROCESSES)

DR TERRY HUME

For Consent Authority

30 July 2018

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1. INTRODUCTION

Qualifications and experience

1.1 My name is Terry Martyn Hume. I am a Director of Hume Consulting Ltd which I established in 2015. Prior to that I was employed by the National Institute of Water and Atmosphere Research (**NIWA**) from 1992 to 2014 where I was a Principal Scientist in Coastal Geomorphology and National Projects Manager.

1.2 I have a BSC in geology from the University of Auckland and a MSc (Hons) and DPhil in Earth Sciences from the University of Waikato. I am a member of the Royal Society of New Zealand, a Life Member of the NZ Coastal Society, an Honorary Associate Professor (Environmental Sciences) at the University of Auckland, and an Honorary Lecturer (Earth Sciences) at the University of Waikato. I am certified as an RMA Hearings Commissioner. I have worked on projects as a team member, project manager and project director. I have undertaken environmental research and consulting for government departments, local authorities and private companies and led NIWA's coastal and estuarine research programmes and science teams. I have more than 40 years' experience as a scientist and consultant. I have authored or co-authored over 80 publications in refereed journals and over 150 technical reports for various clients.

1.3 I have expert knowledge as a marine geologist, coastal geomorphologist and coastal oceanographer. I have experience in applying numerical models to inform the understanding of coastal processes. Because of my role in NIWA as a Principal Scientist and Project Director I undertook technical reviews and evaluations of work by other specialists where models were used. Of particular relevance to my role as an expert witness in this matter are the following:

(a) Familiarity with the site and surrounding environment - having undertaken field and analytical studies and preparing 5 reports for Port of Napier Limited (**PONL**) between 1988 and 1994 relating to the assessment of the effects of capital dredging and disposal at the offshore disposal grounds I and R, stormwater runoff from reclamation areas and designing a plan for coastal research and monitoring;

(b) Investigations of coastal sand movement and the effects of sand extraction on the Pakiri – Mangawhai coast for Auckland Regional Council;

(c) Investigations of sand transport and storage and the effects of large scale sand extraction in the entrance of Kaipara Harbour for Winstone Aggregates;

(d) Studies of the sediment process and bedform generation on the Coromandel inner shelf;

(e) Participation in a 3-year long study of surf breaks of national and regional significance and preparing guidelines for their management for MBIE;

(f) Reviews of technical reports relating to the potential effects on coastal processes of the proposed deepening of the Wellington Harbour entrance shipping channel for Greater Wellington Regional Council;

(g) Assessments of the effects on coastal processes of large scale seabed mining for iron sand on the inner continental shelf, South Taranaki Bight by Trans Tasman Resources Ltd;

(h) Research on sand storage and transfers in tidal deltas and stability at tidal inlets.

Code of conduct

1.4 I confirm that I have read the Code of Conduct for Expert Witnesses as contained in the Environment Court Practice Note dated 1 December 2014. I agree to comply with this Code. This evidence is within my area of expertise, except where I state that I am relying upon the specified evidence of another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

2. SCOPE OF EVIDENCE

2.1 My input to these consent applications and preparation of my evidence has involved reviewing documents in relation to coastal processes. In particular, I have read and relied on information from the following documents:

(a) Advisian 2017. Napier Port Proposed Wharf and Dredging Project – Appendix D - Coastal process studies. 95p + Glossary.

(b) Advisian 2017. Napier Port Proposed Wharf and Dredging Project: Appendix F - Post-disposal fate of dredged sediment. 76p + Glossary.

(c) Single, M. 2017. Port of Napier proposed wharf and dredging project: Appendix G - Physical coastal environment. Report prepared for Port of Napier Ltd by Shore Processes and Management Ltd. 63p.

2.2 In addition to the above, I have taken into account discussions with technical experts acting for the Hawke's Bay Regional Council (**HBRC**) about coastal processes and ecological implications of these assessments. I have read and considered:

(a) The various submissions;
(b) Reports by Hume et al. (1989), Komar (2007) and Kirk and Single (1999);
(c) The pre-hearing meetings reports of the Chairperson (dated 29 June and 2 July 2018);
(d) The information supplied by the applicant as s92 information requests relating to coastal processes (of 19 March and 11 July 2018); and
(e) The joint witness statement following conferencing I attended along with the other coastal experts on 20 July 2018.

2.3 The citations for these sources are included in **Appendix A**.

3. ASSESSMENT OF EFFECTS

3.1 Overall, I found the Advisian reports (Appendices D and F) and Single report (Appendix G) to be comprehensive and of a high standard, taking account of information from previous studies and reviews and containing clear statements of limitations. I agree with many of the conclusions arising out of them. However, I wish to present my opinion in relation to the matters that I describe below.

Potential effects of proposed channel dredging at Westshore

3.2 It is my opinion that channel dredging will result in an increased loss of sediment from the nearshore at Westshore.

3.3 Wave modelling of pre and post-dredging bathymetries undertaken by Advisian (2017, Appendix D, Section 7) has shown that the changes in wave energy at the shore resulting from the lengthening, deepening and widening of the channel through capital works dredging will cause only very small changes to wave height and direction at Westshore Beach. The predicted changes to wave height (no greater than $\pm$ 0.02 m) and the change in wave angle at the shore (no greater than $\pm$ 0.7 degrees) are less than what is expected to occur due to natural variability in the wave climate between different seasons and years. This will

cause a slight clockwise rotation of the equilibrium shoreline angle and increase in the radius of beach curvature. It may result in sediment moving north along the beach face, but to the south in the littoral zone and the nearshore (Single 2017, Section 4.2.1).

3.4 However, dredging the channel will interrupt the transport of sand to the nearshore at Westshore. Modelling of annual mean sediment transport pathways on the basis of wind driven currents and wave refraction patterns (Advisian 2017, Appendix D, Section 8.4, Figure 8-7) has shown that fine sand is driven both to the north and south in the nearshore of Marine Parade and Bay View depending on the wave and wind conditions prevailing at the time. Maintenance dredging records show that the channel requires dredging every 2-3 years, with an annualised volume of 25,000 m^3. Maintenance dredgings are mostly fine sand. Areas that require dredging are typically the eastern boundary of the main channel, in particular after swell events, and infilling of finer material from the west, supporting the contention that the channel is infilling from both sides[1]. A plot of the channel cross section (presented in the 13 July submission of L Dallimore on page 1) suggests that infilling of the channel is primarily from the west and therefore mostly from fine sand sourced from the nearshore off Westshore.

3.5 Capital works dredging to increase the channel length by 130 m will see a greater potential for the channel to trap longshore transport from both the east and west. Decreased wave orbital currents at the seabed in a deeper channel (Advisian 2017, Appendix D, Section 5.4, Figure 5-5) and potentially lower current velocities in a wider and deeper channel will contribute to an increased trapping efficiency and the need for larger maintenance dredging volumes in future. As a consequence, the nearshore seabed off Westshore will undergo a greater of sediment, through both a direct loss of sediment to the channel from the west and an indirect loss of sediment from the channel intercepting littoral drift that could otherwise have made its way from the Marine Parade nearshore north to Westshore.

[1] See s92 response from PONL of 19 March 2018.

Potential effects of proposed channel dredging on the surfing amenity?

3.6 In my opinion the proposed channel dredging will not have a significant effect on the surfing amenity.

3.7 Advisian (2017, Appendix D, Section 6) have undertaken a comprehensive analysis using accepted modelling techniques, including a calibrated and validated SWAN spectral wave model and Boussinesq model simulations. Assessment in terms of peel angle, wave height and wave breaker type and surfing amenity are in accordance with the methods described by Mead (2003), Lewis et al (2015), Walker (1974) and Hutt et al. (2001). The findings were that the impact of the proposed dredging on surfing amenity at the two regionally important surf breaks City Reef (including left-hand and right-hand surfing paths, and "inner" break) and Hardinge Road, would be minimal.

3.8 An unknown might be how sediment transport through the site 'grooms' the reef/beach breaks and therefore whether the small changes in sediment transport predicted in Appendix D (Figure 8-4 and the realignment of the shoreline (a change in beach planform) between Port Beach and Ahuriri in the order of 2 degrees) will make a difference to the wave quality at the breaks. In my opinion any change would very likely be hidden in the background of natural fluctuations, undetectable, and unlikely to affect surf quality.

Disposal of dredgings at Westshore to remedy or mitigate erosion

3.9 In my opinion it will be beneficial to place all suitable dredgings at Westshore to remedy or mitigate coastal erosion.

3.10 Komar (2010) reported that the net sediment loss from the Bay View Littoral Cell was about 15,000 m^3/yr, wherein the loss of 27,000 m^3/yr primarily due to abrasion of the greywacke gravels in the beach was offset by nourishment of the beach of 10,000 m^3/yr and input from the Esk River of 2,000 m^3/yr. Sand is lost from the nearshore at Westshore to the south as evidenced by the channel requiring dredging of 25,000 m^3/yr (the total dredgings of infilling from both north and south littoral drift). Monitoring of the beach and nearshore by HBRC has shown there to be a large sediment deficit in the nearshore, defined as net seabed erosion in the nearshore (to c. 400 m offshore and c. 6m depth), over

the 21-year period 1991-2012, of 406,000 m^3. The seabed sediment in the nearshore off Westshore consists primarily of medium-fine sand (Single 2017, Section 2.6 and Figure 2.11) and is of a similar grain size to maintenance dredgings which are largely fine sand[2]. There is no reason to expect that future maintenance dredgings will be a different grain size to that dredged from the channel in the past, as the channel infill sediment derives from longshore transport, and will therefore be mostly fine sand that is suitable for the purpose of nourishment at R (as in the past). It is possible that a small amount of the capital dredgings from the outer end of the fairway may be fine sand[3] and also suitable for nourishment.

3.11 Disposing maintenance dredging (mostly fine sand), and capital works dredgings where the grain size is suitable, in the nearshore of Westshore, will build up the level of fine sand that makes up the seabed, offset the sediment deficit and mitigate the effects of dredging. Building up the seabed level will initiate wave breaking further offshore, thereby reducing wave energy at the shore and offset the loss of sediment and coastal erosion. The dredgings are best placed as close to shore as practical within Area R to optimise this benefit. This nourishment will not be a permanent fix to shoreline erosion at Westshore, as the effect will only be sustained by continuing to add sand. Increased sea level and increasing storminess associated with climate change will work against this benefit. I would not expect the level of nourishment that is likely to be available from the maintenance dredgings to be great enough to change the beach sediment from its existing mixed gravel/sand state to predominantly sand.

Potential effects of nourishment at Westshore on Pania Reef Significant Conservation Area (SCA)

3.12 In my opinion, and from a coastal processes (not ecological) perspective, disposing of dredgings of fine sand in the nearshore at Westshore would not have an impact on Pania Reef SCA.

3.13 Nourishment in the nearshore at Westshore comprises largely fine sand from channel maintenance dredgings. Fine sand settles quickly (compared to silt) in the water column following disturbance and would not travel seawards to any

[2] See s92 response from PONL of 3 July 2018 - Graphs of sieve analyses of fairway seabed reference tests.
[3] See Advisian (2017) Appendix F, Section 4, Figures 4-1 and 4-3 – Sediment size graph and vibrocore locations in dredge channel.

great degree, but rather stay in the nearshore, moving north and south alongshore depending on prevailing wave/wind conditions, where the seabed is of a similar grain size. There have not been any specific studies at Westshore to substantiate this opinion. However, modelling of storm wave total load and mean annual total load sediment transport patterns for fine sand (Advisian 2017, Appendix F, Section 5.3 Figures 5-5 – 5-8) suggest fine sand moves mostly alongshore rather than cross shore and towards Pania Reef. Numerical modelling could be used to provide more certainty about the potential for the transport of fine sand from Area R to Pania Reef SCA.

Potential effects of dredgings disposal at the proposed site off Marine Parade on Pania Reef SCA

3.14 In my opinion, and from a coastal processes (not ecological) perspective, disposing of dredgings at the proposed site in 20-23m water depth off Marine Parade would not have a significant effect on Pania Reef SCA.

3.15 The data-driven and model-driven approaches used to assess sediment transport processes around the disposal areas are based on good bathymetry, wind, wave and current data. The 6-layer model appears to calibrate well with currents and waves (heights), is validated to direction and for storm events and selected an appropriate range of particle sizes (selected from surface sediment and vibrocore data). The Applicant has confirmed in the s92 response of 11 July 18 that the plume modelling used 6 size classes in the mud (silt + clay) fraction[4]. They report that very conservative values were chosen for:

(a) critical shear stress for erosion of cohesive sediments (corresponding to the lower bound value of shear stress required to mobilise partly consolidated mud); and

(b) the 'erosion parameter' (they chose the model default value to give a conservative estimate of fine sediment (silt) entrained into the water column).

3.16 Model simulations for Campaigns 1 and 5 and disposal in 20-23m water depth, show that mud (silt + clay) deposition is predicted to be very small and in the order of only 1 mm off the northeast tip of the Pania Reef system. While the

[4] Advisian (2017), Appendix E, Figures 29 and 25.

grain size of the existing seabed sediment at the reef is not confirmed, divers report that it is fine sand and mud. Model simulations of turbidity plumes generated from the resuspension of coarse silt from the proposed offshore site under 6 main wind directions show that: under extremely conservative assumptions, the maximum suspended sediment concentration expected over parts of Pania Reef are 2 mg/l above ambient in the surface of the water column, and 4–6 mg/l above ambient at the bottom of the water column. While it is possible for sediments to be suspended and transported over the reef, deposition will not occur because the shear stress at Pania Reef will be high and inhibit deposition.

Potential effect of the proposed dredgings disposal offshore from Marine Parade on coastal processes at the shore

3.17 In my opinion the proposed dredgings disposal mound offshore from Marine Parade will not have a significant effect on waves and sediment transport processes at the shore or on Town Reef.

3.18 Mounds on the seabed affect waves by refraction (bending the wave path) and diffraction (lateral dispersion of energy) and locally by shoaling waves (changing wave height) as they pass over the modified seabed. Any changes in the wave field at the mound will be propagated shoreward, leading to changes in wave conditions nearshore and potentially to the patterns of sand transport and erosion and accretion at the shore.

3.19 Placement of 3.2 m^3 of dredge spoil in the proposed offshore spoil disposal area off Marine Parade will increase the seabed elevation in the order of 1 m [5]. Numerical modelling of wave refraction for a worst-case scenario of a modified seabed bathymetry of a mound of 2 m height was used to predict change in energy-weighted mean wave height and energy-weighted mean wave direction for this increase in seabed level[6]. The modelling showed the changes at the shoreline were very small - a maximum change in energy-weighted wave height of $\pm$4 cm and localised to a distance of 1 km south of Town Reef.

3.20 I agree with the interpretation of Single (2017, p40) that the change in seabed level due to the dredgings disposal will not result in measurable or significant

[5] Single 2017, p40.
[6] Advisian 2017(Section 7.3, Figures 7-1 and 7-2).

changes to the patterns of sand transport and erosion and accretion at the shore.

4. RESPONSE TO SUBMISSIONS

Dredgings disposal in deep water further offshore

4.1 In my opinion, and from a coastal processes perspective, the disposal of dredgings further offshore represents a loss of sediment from the coastal sediment system.

4.2 The capital works and maintenance dredgings are a mixture of muds and fine-very fine sands. Some submitters have proposed that the dredgings be transported further offshore to the edge of the 'drop off' and in 500 m water depth.

4.3 From a coastal processes perspective disposal in deep water will completely avoid any potential impact of transport of fine sediment to Pania Reef or changes in wave energy and sediment transport patterns at the shore due to the spoil mound. On the other hand, this means that fine-very fine sand, which is a major component of sediments in the nearshore (Single 2017, Fig 2.11) will be lost from the coastal sediment system.

4.4 It would be 'best practice' from a coastal processes perspective to, where practical, dispose of the fine-very fine sand component of the dredgings in a place where the sediment is retained in the coastal sediment system. This could be at the proposed site off Marine Parade, or preferably in the nearshore off Westshore Beach. I note that while the New Zealand Coastal Policy Statement 2010 (**NZCPS**) is silent on the matter of where or how to dispose of dredged material, there are relevant policies relating to the maintenance of natural defences to coastal erosion (policies 25 and 26) and restoration of natural character (policy 14). That is to say, if clean suitable sediment was available from dredging then those would be positive uses of it and supported by the NZCPS.

5. CONSENT CONDITIONS

5.1 If a consent were granted I agree with the inclusion of proposed consent conditions related to:

(a) Profile surveying of the beach and nearshore be continued along with records of dredgings extraction and disposal to monitor change, and so that future analysis of the potential benefits (or otherwise) of nourishment of the beach and nearshore at Westshore are available for assessment.

(b) Using dredging's of suitable particle size characteristics to mitigate erosion at Westshore.

(c) Monitoring of shoreline/beach planform in the vicinity of the surfing breaks.

(d) Collection of wave and current direction data, and studies on Pania Reef itself to investigate the relationship between migration of finer materials deposited in the disposal areas and potential effects on Pania Reef.

Dr Terry Hume
30 July 2018

APPENDIX A: REFERENCES

Advisian 2017. Napier Port Proposed Wharf and Dredging Project – Appendix D - Coastal process studies. 95p + Glossary.

Advisian 2017. Napier Port Proposed Wharf and Dredging Project – Appendix E – Dredge plume modelling. 61p.

Advisian 2017. Napier Port Proposed Wharf and Dredging Project: Appendix F - Post-disposal fate of dredged sediment. 76p + Glossary.

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Lewis, J., S. Hunt, T. Evans 2015. Quantification of Surfing Amenity for Beach Value and Management. Proceedings NSW Coastal Conference, 2015.

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Komar, P. D. 2007. Summary Report The coast of Hawke's Bay: processes and erosion problems Hawke's Bay Regional Council Report No. AM 07/02. 32p.

Kirk, R. M.; M. B. Single 1999. Coastal Change at Napier with Special Reference to Erosion at Westshore: A Review of Causative Factors Unpublished report to Port of Napier Ltd. Land and Water Studies International Ltd., Christchurch, 55p. + diagrams.

Mead, S. 2003. Keynote address: Surfing Science, Proceedings of the 3rd International Surfing Reef Symposium, Raglan, New Zealand, June 22-25, 2003. P.1-36.

Single, M. 2017. Port of Napier proposed wharf and dredging project: Appendix G - Physical coastal environment. Report prepared for Port of Napier Ltd by Shore Processes and Management Ltd, 63p.

Walker, J.R., 1974. Recreational Surfing Parameters. Honolulu, Hawaii: University of Hawaii, Department of Ocean Engineering, LOOK Laboratory Technical Report 30, 311p.

BEFORE THE HAWKE'S BAY REGIONAL COUNCIL

IN THE MATTER	**of the Resource Management Act 1991**
AND IN THE MATTER	of an application by Port of Napier Limited for resource consents to construct a new wharf, and to undertake dredging at Napier Port

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STATEMENT OF EVIDENCE (MARINE ECOLOGY)

SHANE KELLY

For Consent Authority

30 July 2018

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1. INTRODUCTION

1.1 My full name is **Shane Kelly**. I have a BSc in zoology (1994) and PhD in biological science (1999), both from the University of Auckland. I have a relatively diverse range of research experience, with a strong emphasis on applied science, environmental assessment, marine conservation and resource management. I completed my PhD on marine reserves and lobster ecology at the University of Auckland, and then spent my early career studying mussel recruitment processes, reef ecology and sponge aquaculture during two post-doctoral fellowships. Over my career I have been involved in underwater marine surveys in regions throughout much of New Zealand, including Auckland, Northland, Taranaki, Waikato, Bay of Plenty, Hawke's Bay, and Southland.

1.2 For 5 ½ years I was Project Leader/Principal Advisor in Environmental Research and Monitoring at the Auckland Regional Council (**ARC**). In this capacity I managed a number of major research, monitoring, and strategic projects. These included State of the Environment monitoring programmes for water quality, sediment quality and ecosystem health. While at the ARC, I also led the development of the Benthic Health Model (which was developed to assess the health of intertidal communities), co-authored a blueprint for monitoring stormwater effects in urban receiving environments, and managed the development of contaminant accumulation models for Auckland's harbours.

1.3 In 2008 I established Coast and Catchment Ltd, and since that time have provided technical advice on the effects of a numerous coastal and landuse activities including: the effects of stormwater, wastewater and industrial discharges; reclamation; dredging; aquaculture; and, pollution spills. This includes providing advice to Hawke's Bay Regional Council (**HBRC**) on a range of coastal issues.

1.4 Among other things, my work has also included preparing catchment plans and environmental assessments for stormwater management covering much of Auckland's urban area and acting as a technical expert and advisor for Greater Wellington Regional Council in relation to city-wide stormwater discharge consents. I was the lead author of the 2011, 2014 and 2017 "State

of the Hauraki Gulf" reports, and I designed and report on harbour monitoring for New Zealand's largest wastewater treatment plant at Mangere.

1.5 I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014 and have complied with that practice note in preparation of this evidence. I agree to comply with it in presenting evidence at this hearing. The evidence that I give is within my area of expertise, except where I have stated my reliance on other identified evidence. I have considered all material facts that are known to me that might alter or detract from the opinions that I express in this evidence.

2. SCOPE OF EVIDENCE

2.1 My input on these consent applications has involved reviewing the application documents in relation to effects on marine ecology. In relation to my evidence, the key documents I have considered are:

(a) Sneddon, R., Dunmore, R., Berthelsen, A., Barter, P. (2017) Assessment of effects on benthic ecology and fisheries resources from proposed dredging and dredge spoil disposal for Port of Napier. Cawthron Report 2895, Cawthron Institute, Nelson. 158 p. (plus appendices).

(b) Clement, D. (2017) Assessment of effects on marine mammals from proposed capital dredging and spoil disposal for the Port of Napier. Cawthron Report 2907, Cawthron Institute, Nelson. 38 p. (plus appendix).

2.2 In addition, I have considered information provided in the application (and in relation to subsequent information requests) on coastal processes, hydrodynamics and sediment dispersal, and conferred with technical experts acting for the HBRC about the ecological and water quality implications of those assessments. I also attended the coastal expert conferencing on 20 July 2018 in an observation capacity, and have taken the resulting joint witness statement into account in preparing my evidence.

3. GENERAL COMMENTS

3.1 In general, I consider the scope of the marine ecology and marine mammal assessments to be relatively comprehensive, and I agree with many of the key conclusions arising from them. However, I have concerns about a reliance on limited amounts of historical data for assessing the potential ecological effects on the proposed offshore disposal site, and I am uncertain about some local fisheries effects (particularly in relation to flatfish).

3.2 Overall, I agree:

(a) That dredging will result in the loss of benthic biota within the dredging footprint. Ecological recovery will occur through recolonisation, but disturbance will periodically be repeated during maintenance dredging.

(b) That disposal in the offshore spoil ground is likely to:

(i) alter the physical characteristics of seabed through the deposition of novel off-site material (such as clumps of cohesive material[1]); and

(ii) cause the loss of biota buried beneath deposited material; and following recovery, result in a benthic community that is likely to have a different mix of species.

While it needs to be treated with caution, I find the context provided on page 105 of Sneddon et al (2017) useful in terms of understanding the potential magnitude of disposal effects. That states:

> *The total area of the proposed offshore spoil ground, located 4 km east of the Port, is approximately 346 ha. Assuming the full projected volume of dredged material from the project (3.2 million cubic metres) is spread evenly over this area, a nominal deposited layer thickness of 0.93 m will result. In reality, a number of factors will influence this value (including dispersion during deposition and*

[1] See response to Section 92 request for further information dated 18 March 2018.

consolidation of deposited material); hence this calculated value should be treated as contextual only.

I note that spoil will be deposited over an extended period and be subject to redistribution. It is also unlikely to be deposited in a uniform mound. I therefore agree that the deposition depth value calculated by Sneddon et al (2017) should be treated as contextual only. However, it highlights that the depositional impact on the disposal site is likely to be significant.

(c) That the results of sediment dispersal modelling indicate that project related increases in suspended sediment concentrations are unlikely to significantly exacerbate the adverse ecological effects of sediment on Pania, Town, and Rangitira Reef or the Western embayment.

(d) That the likelihood of impacts on marine mammals is low and overall effects on marine mammals are likely to be *de minimis* with the recommended mitigation actions to minimise the potential for: vessel strike, behavioural and physical responses to underwater noise, and entanglement.

4. ISSUES OF CONCERN

Offshore Disposal Area

4.1 The assessment of benthic epifauna[2] in the 346 Ha disposal area is based on four dredge samples obtained in 2005 (i.e. 13 years ago). While I acknowledge that an additional 18 infaunal[3] cores were obtained at that time, and that a side scan survey was also carried out, I note that neither of these are a substitute for epifaunal sampling. This is because epifauna are commonly large and patchily distributed, meaning they may not be represented in core samples. Examples of such species include large shellfish (e.g. horse mussels and scallops), sponges, starfish and sea cucumbers. Epifauna such as large shellfish and sponges are particularly

[2] Epifauna are fauna (animals) that grow on top of the seabed.
[3] Infauna are fauna (animals) that live in seabed sediments.

important when they form biogenic habitats. Such features increase physical complexity, biological diversity, and ecological functions.

4.2 HBRC sought further information from the Applicant about whether the 2005 ecological data provided an accurate representation of the current ecological condition. Additional information was also sought on the current ecological values and condition of the dredging and disposal areas. The response to that request concluded:[4]

> *Together with the benthic surveys carried out for the inshore Westshore disposal grounds over the last 20 years, the compiled data provides a robust insight into the soft sediment benthos of the Port vicinity and its variability. This in turn leads to a sound level of confidence in the assessment conclusions as a whole.*

4.3 I disagree with the above statement. In my opinion, insufficient contemporary information is provided to adequately characterise the current epifaunal community of the disposal site. I have conducted numerous benthic surveys and experience has shown me that the occurrence and composition of epifaunal assemblages can be patchy over relatively small spatial scales. For an application of this nature (i.e. one that is likely to have a significant impact on around 350 ha), I would typically advise carrying out a detailed, up-to date (nominally within the past 5 years) epifaunal survey to provide certainty about what is going to be impacted. The lack of such information makes it difficult to determine the significance of disposal impacts on benthic ecology in that area and more broadly.

4.4 Despite this, Sneddon et al. (2017) concluded that:[5]

> *The observed uniform nature of the seabed in the vicinity of the disposal area, together with similarities to substrate and communities sampled from other inshore sites, indicates the relative ubiquity of this benthic habitat in the wider area. None of the benthic fauna sampled from the site have been identified as being of special scientific or conservation interest.*

4.5 Even with the limited information available, this appears to be inconsistent with the substantial differences in epifaunal species recorded among samples

[4] See response to Section 92 request for further information dated 18 March 2018.
[5] Sneddon et al (2017) pg. 105.

from: the dredged channel area[6]; an area around the inshore disposal site (area CS)[7]; and, the offshore disposal site[8]. The latter site was notable for having relatively few epifaunal species, but relatively large numbers of the small sea cucumber *Heterothyone ocnoides*. High numbers of that species appear to occur south of Pania Reef (e.g. around the Napier wastewater outfall[9]), but I am not familiar the local distribution of this species beyond that general area. Nor do I understand its local ecological significance or whether impacts in the disposal site would have broader ecological implications for Hawke's Bay.

4.6 While none of the species reported appear uncommon, and similar habitats are likely to be present in the broader area, the reliance on a limited amount of old data leads to uncertainty about likely effects and outcomes. In my opinion, questions remain about: what will be lost; the local importance of that loss; what it will be replaced by and how quickly; and whether indirect effects could extend the local footprint of ecological impacts.

Fisheries

4.7 In relation to fisheries, the key issue appears to be the potential effects of dredge spoil disposal on the finfish fishery, particularly on the flatfish fishery. Ministry of Primary Industries (**MPI**) data reported in Sneddon et al (2017) indicates that the highest flatfish catches in the Hawke's Bay are obtained from the coastal area around Napier and towards the south[10]. However, Sneddon et al (2017) conclude that the small size of the disposal site, limited and temporary nature of impacts on benthic macroinvertebrates, and fish mobility means that the disposal of dredge material is likely to have a minimal impact on the general populations of fish such as flatfish and gurnard[11].

4.8 In principle the conclusions reached by Sneddon et al (2017) appear to be reasonable. However, concerns about effects on fishing have been raised in submissions, including those of the New Zealand Angling and Casting Association, Napier Fisherman's Association, Fisheries Inshore NZ, and a

[6] Sneddon et al (2017) pg. 49.
[7] Sneddon et al (2017) pg. 61.
[8] Sneddon et al (2017) pg. 70.
[9] Haggitt, T., Wade, O. (2016) Hawke's Bay marine information: Review and research strategy Report prepared for Hawke's Bay Regional Council, eCoast, Leigh. 113 p.
[10] Sneddon et al (2017) Figure 7, pg. 31.
[11] Sneddon et al (2017) pg. 130.

local commercial fisher, Mr Karl Warr. A number of issues are raised by these submitters, such as:

(a) the potential for disposal to exacerbate the effects of catchment sediment loads on "*the seabed, ecological chain and fish stocks*[12]";
(b) the potential for adverse effects on the marine environment have not been adequately recognised[13]; and
(c) general concerns about environmental impacts on the ecology of fisheries in the vicinity of disposal site[14].

4.9 I note that the spatial resolution of the MPI data does not allow the relative contribution of the disposal area to surrounding catches to be determined. As such, it is not possible to determine how important the offshore disposal area is for local catches. Information provided by submitters may assist with this matter, if specific details on catches can be provided.

5. OTHER MATTERS

5.1 A number of submitters are seeking to either:

(a) continue disposal at the existing inshore disposal sites; or
(b) dispose of dredge spoil at a more remote offshore site.

5.2 Given the lack of information and uncertainties associated with both of these options, I have not considered their potential ecological implications. Additional data is likely to be required to inform such assessments. In my opinion the key information requirements for assessing potential effects on the existing inshore site would be data on the volume, timing and characteristics of spoil being dumped. It could also be necessary to gather further ecological information if the volumes or the characteristic of spoil differed from those previously dumped at inshore areas.

5.3 Information requirements for an alternative offshore site would include basic details on the proposed location, its physical and biological characteristics, and potential effects on existing values.

[12] Submission of Napier Fisherman's Association.
[13] Submission of Fisheries Inshore NZ.
[14] Submission of Karl Warr.

6. CONSENT CONDITIONS

6.1 If consent were granted I agree with the inclusion of proposed consent conditions related to:

(a) The development and implementation of a Marine Wildlife Management Plan.

(b) The development and implementation of a Construction Noise Management Plan, which includes provisions related to underwater noise.

(c) The development and implementation of a Water Quality Management Plan.

(d) Monitoring for marine pests and responding to any detections[15].

6.2 I have also reviewed the Draft Water Quality Management Plan included with the application, and generally agree with its content. However, I recommend the inclusion of:

(a) Sediment contaminant monitoring for the material being taken from inner port basin, and at the proposed disposal site. At a minimum, contaminants should include the heavy metals/metalloids arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc.

(b) Sediment texture at the disposal site, because it has a strong influence on benthic communities.

Shane Kelly

30 July 2018

[15] See response to Section 92 request for further information dated 18 March 2018.

MEMO

Coast & Catchment Ltd
Environmental Consultants
PO Box 193, Clevedon
Auckland 2248

Attention	Reece O'Leary
cc	Malcolm Miller
From:	Shane Kelly
Date:	30 January 2018
Regarding	Consent application for Napier Port wharf and dredging project: Technical review of marine ecology assessments.

1 Background

Napier Port are seeking to obtain resource consent from the Hawkes Bay Regional Council to:

- construct a new 350m long by 35m wide wharf (Wharf 6), consisting of a 700 mm thick continuous concrete deck supported on piles at approximately 6.5 m grid spacing in both offshore and shore-parallel directions.;
- carry out capital and maintenance dredging to deepen and maintain depths in their existing swing basin and harbour entrance, and progressively extend a larger channel out from the Port. These activities will involve 5 stages and generate in excess of 4 million cubic meters of capital dredge material, and have a total footprint area of approximately 117 ha. Dredging is expected to be carried out using a combination of backhoe dredging and trailer suction hopper dredging; and,
- dispose of capital and maintenance dredging material within a new 342 ha dumping ground approximately 3.3 km south-east of Pania Reef, and 4 km to 6 km east of the port in water depths of 20 to 23 m.

Among other things, the assessment of environmental effects (AEE) that accompanied the application included specialist studies of:

- coastal processes (Advisian 2017a);
- dredge plume modelling (Advisian 2017b);
- post-disposal fate of dredged sediments (Advisian 2017c);
- the physical coastal environment (Single 2017);
- the effects of dredging and disposal on benthic ecology and fisheries resources (Sneddon et al. 2017); and,
- effects on marine mammals (Clement 2017).

Hawkes Bay Regional Council have requested assistance with the technical review of the application. As part of the review, I was asked to consider effects on marine ecology. The key reports in relation

to this review are Sneddon et al. (2017) and Clement (2017). Other reports listed above, and in some cases material cited in the key reports, were also referred to in relation to my assessment.

2 Approach taken with the review

The application and associated impact assessment reports comprise a substantial body of work. In this review, I have not attempted to summarise that work in detail. Nor do I state whether, or not I agree with the conclusions reached by the Applicant's experts. Rather I have focussed on assessing whether, the technical assessments provide sufficient information to allow the potential marine ecological effects of the proposed activities to be determined, or whether further information is needed. I have used the following framework to guide my assessment:

- **Level of detail**: are the details provided in the assessments commensurate with the nature and scale of the proposed activities?
- **Background and environmental context:** do the assessments:
  - provide sufficient information to understand the nature of the proposal?
  - identify and describe the marine habitats, communities and/or species potentially affected by the proposed activities? and,
  - identify potential ecological effects of concern?
- **Assessment methods and results:**
  - are methods used to assess the ecological effects of concern suitable?
  - are the methods carried out appropriately?
  - is information analysed and presented appropriately?
  - are there any important gaps or uncertainties that should be addressed?

These matters are considered in the following sections.

3 Level of detail

The scope of the assessments of ecological effects is suitably aligned to the nature and scale of the proposed activity. The ecological assessments provide significant detail on habitat values, and the marine communities and species potentially affected by the activities. The ecological assessments are supported by complimentary studies on coastal processes, hydrodynamics and sediment dispersal.

4 Background and environmental context

The AEE and supporting material provides significant detail on the proposed activities and the ecological values of the area. However, I note that the ecological assessment of Sneddon et al. (2017) largely relies on historic data obtained between 2004 and 2006 for the assessment of effects on benthic macrofaunal communities in sediment habitats.

Key matters of concern in relation to potential ecological effects are identified and considered by Sneddon et al. (2017) and Clement (2017). These include:

- the loss of benthic biota and communities within the dredging footprint;
- the burial of (and effective loss of) benthic communities in the spoil ground;
- toxic effects;
- effects associated with the generation and propagation of turbidity plumes associated with suspended sediments;
- effects on fish and fisheries; and,
- collision, disturbance, noise, and habitat effects on marine mammals.

I agree that these are key matters that should be assessed. However, I would also include marine biosecurity as a matter that needs to be considered (see below).

5 Assessment methods and results

The ecological assessments by Sneddon et al. (2017) and Clement (2017) are based on a combination of desktop studies, and field surveys carried out over a number of years. Information is provided on:

- sediment characteristics and contamination;
- infaunal and epifaunal communities in sediment habitats in and around the proposed dredging, disposal and wharf development sites;
- the extent of Pania Reef, and descriptions of its habitats and communities;
- background turbidity and suspended sediment measurements taken beside Pania Reef;
- other habitats including intertidal and subtidal habitats with mixed substrates;
- fishing for fish and invertebrates, including: summaries that describe the characteristics of key species; information on fisheries regulations, and information on commercial catches;
- potential effects on marine mammals.

For most matters, I consider the issues identified and detail provided to be appropriate. However, I believe further information is required to address three concerns:

- whether the historic ecological data (which in some cases is 13-14 years old) provides an accurate representation of current ecological condition;
- whether unwanted marine pests are currently present in the proposed dredging areas. In relation to this matter, I believe the regulatory and ecological implications should be considered if they are currently present, or if they have the potential to colonise the area during the term of the dredging and disposal consents; and,
- the nature and potential effects of cohesive dredge material.

5.1 Representativeness of historic data

The ecological assessment of benthic effects (Sneddon et al. 2017) in the dredging and disposal areas largely relies on historic data obtained between 2004 and 2006. This is supplemented by:

- four infaunal samples and obtained from the outer fairway in 2016;

- four epifaunal dredge samples obtained from the outer fairway (2 samples) and surrounding area (2 samples) in 2016; and,
- data from Smith (2008) and Smith (2013) obtained from inshore disposal and associated reference sites.

Analyses of those data suggests that temporal variability in benthic infaunal communities is as-great or greater than inter-site variability in the inshore disposal sites (and associated reference sites) and in the fairway. I note that the only available data for the proposed disposal site was obtained between 2004 and 2006, and most of the data obtained from the proposed dredging area was collected in 2004-05. Given the degree of temporal variability at the inshore sites, it is unclear whether 2004-06 data provide an accurate depiction of current ecological values and condition in the proposed dredge and disposal sites.

5.2 Unwanted marine pests

A matter that is not addressed in the assessment is the potential occurrence of unwanted marine pests within the footprint of the proposed dredging areas. Ports are known to be high-risk activities for marine biosecurity, acting as gateways for the entry of exotic marine species and stepping stones for their spread to new areas. Dredging and disposal could exacerbate the local spread of marine pests.

A number of unwanted species could potentially be present in the proposed dredging areas, including the clubbed tunicate *Styela clava* and Mediterranean fan worm *Sabella spallanzanii*. These species are relatively recent arrivals to New Zealand and could have established themselves in the proposed dredging areas after the 2004-06 surveys.

On this matter, I note that a permit under Section 52 of the Biosecurity Act 1993 may be required for dredging and disposal if unwanted marine pests are present in the area.

5.3 Cohesive dredge material

Section 7.1.3 of Sneddon et al. (2017) indicates that a significant proportion of cohesive dredge material may be deposited as clumps with limited friability, but little information is provided on the nature of these clumps, their potential to alter the physical characteristics of the seabed, and their potential to effect benthic biota.

6 Further information

Based on the matters discussed above, I recommend that further information be sought on the following matters:

- the current ecological values and condition of the dredging and disposal areas.
- confirmation of whether or not unwanted marine pests are currently present in the dredging areas, together with an assessment of their potential impacts.
- proposed methods for detecting and responding to unwanted marine pests now or in the future;

- the nature of the cohesive dredge material that may be deposited as clumps with limited friability. For instance, will this material be in the form of substantial lumps that alter the physical characteristics of the seabed at the disposal site. If so, how persistent are these lumps likely to be and will their presence affect ecological recovery?

6.1 Other

- Please confirm whether, in relation to turbidity monitoring, the Environmentally Weighted Moving Average method of analysis referred to in Sneddon et al. (2017) is the same as the Exponentially Weighted Moving Average method of analysis.

7 References

Advisian (2017a) Napier Port proposed wharf and dredging project: Coastal process studies. Client report fo Napier Port, Advisian, Sydney, Australia. 106 pp.

Advisian (2017b) Napier Port proposed wharf and dredging project: Dredge plume modelling. Client report fo Napier Port, Advisian, Sydney, Australia. 62 pp.

Advisian (2017c) Napier Port proposed wharf and dredging project: Post-disposal fate of dredged sediments. Client report fo Napier Port, Advisian, Sydney, Australia. 85 pp.

Clement, D. (2017) Assessment of effects on marine mammals from proposed capital dredging and spoil disposal for the Port of Napier. Cawthron Report prepared for Port of Napier Ltd. 2907, Cawthron Institute, Nelson. 38 plus appendix pp.

Single, M. (2017) Port of Napier proposed wharf and dredging project: Physical coastal environment. Shore Processes and Management Ltd, Christchurch. 63 pp.

Smith, S. (2008) Monitoring of benthic effects of dredge spoil disposal at sites offshore from the Port of Napier: 2007 Survey. Client report for Napier Port, EAM Environmental Consultants Ltd, Napier.

Smith, S. (2013) Monitoring of benthic effects of dredge spoil disposal at sites offshore from the Port of Napier: 2012 survey

plus appendices. Client report for Napier Port, Triplefin Environmental Consulting, Napier. 41 pp.

Sneddon, R., Dunmore, R., Berthelsen, A., Barter, P. (2017) Assessment of effects on benthic ecology and fisheries resources from proposed dredging and dredge spoil disposal for Napier Port. Cawthron Report prepared for Napier Port 2895, Cawthron Institute, Nelson. 158 plus appendices pp.

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HCL
Hume Consulting Ltd

Memo - DRAFT

From	**Dr Terry Hume, Hume Consulting Ltd**
To	Reece O'Leary
CC	Richard Reinen-Hamill
Date	7 February 2018
Subject	**Port of Napier Proposed Wharf and Dredging Project AEE - Preliminary coastal processes review**
File path ***(right click to update)***	*C:\NRPortbl\IWDOCS\MGC\30933710_1.docx*

Port of Napier have submitted a resource consent application to construct a new wharf and undertake capital dredging in the Port's fairway and swing basin to accommodate deeper draft and wider vessels in the future. Dredgings will widen the current dredged channel, extending it seaward by about 1.3 km, and deepening it in stages to a depth of 14.5 m below chart datum. The project will result in the dredging and disposal of approximately 3.2 million m^3 of material that will be deposited in a new 346 ha disposal area located approximately 3.3 km southeast of Pania Reef, approximately 5 km offshore of Town Reef in water depths of about 20 to 23 m.

This memo summarises key findings and issues from a preliminary review of the following technical reports that support the consent application to identify matters where additional information is required. The technical reports include:

- Appendix D – Advisian (21 June 2017) Napier Port Proposed Wharf and Dredging Project – Coastal process studies. 95p + Glossary.
- Appendix F - Advisian (19 May 2017) Napier Port Proposed Wharf and Dredging Project: Post-disposal fate of dredged sediment. 76p + Glossary.
- Appendix G – Single (27 May 2017) Port of Napier proposed wharf and dredging project: Physical coastal environment. 63p.

Appendix D Coastal processes studies

The report is of a high standard, incorporating/taking account of information from previous studies and reviews and with clear statement of limitations (e.g., acknowledges that processes on mixed sand gravel beaches are less well understood than those for sandy shores, that losses from abrasion that are difficult to quantify).

The consideration of surfing amenity provides a comprehensive analysis using accepted techniques. Assessment in terms of peel angle, wave height and wave breaker type and surfing amenity is in accordance with the methods described by Mead (2003), Lewis et al (2015), Walker (1974) and Hutt et al. (2001). It reports that the impact of the proposed dredging on surfing amenity at the two regionally important surf breaks City Reef (including left-hand and right-hand surfing paths, and "inner" break) and Hardinge Road, would be minimal. I would suggest that if anything comes into question it will be: (1) whether there is sufficient confidence in the use of the Boussinesq simulation and use of the calibrated and validated SWAN spectral wave model for the predictions, and (2) the validity of selection of the storm event measured in July 2016 on which to base the simulations. With respect to the latter it may be necessary, if challenged, to have a strong argument that this was the best wave

situation to model or be prepared to model some other events. I note that the storm peaked with waves from the E whereas the optimum wave direction is from the NE and Hardinge and from the E at City Reef. Another unknown might be how sediment transport through the site 'grooms' the reef/beach breaks and therefore whether the small changes in sediment transport predicted in Appendix D (Figure 8-4 and the realignment of the shoreline between Port Beach and Ahuriri in the order of 2 degrees) will make a difference to the wave quality at the breaks.

With respect to shoreline change I would agree with the review comments by Richard Reinen-Hamill that mean changes in wave direction can result in changes in alongshore sediment transport, and therefore the predicted change in mean wave direction and beach alignment of 2 degrees along the shore from Port Beach to Ahuriri Inlet, could cause a net change in the baseline and be significant (even though the predicted changes are within the range of natural variability). The knock-on effects of the change in alignment on shoreline progradation/recession and erosion and accretion processes accompanying the net sediment transfer from the east to the west needs to be quantified to some degree.

There needs to be consideration of how climate change may affect the predictions. The possible changes to wave climate and tidal currents on sediment transport trends with sea level rise need to be considered and addressed, along with allowance of sea level rise and changes in storm surge/wave intensity as recommended in the Ministry for Environment guideline of December 2017.

Appendix F Post disposal fate of dredged sediment

The report is of high standard. The data-driven and model-driven approaches used to assess sediment transport processes around the port and the disposal areas are based on good bathymetry, wind, wave and current data, and the 6 layers in the model are appropriate for depth of area. The model appears to calibrate well with currents and waves (heights), is validated to direction and for storm events and selected an appropriate range of particle sizes (from surface sediment and vibracore data. The interpretation that there will be no change to longshore sediment transport or shoreline orientation at Marine Parade Beach as a consequence of spoil placement seems reasonable given that the modelling predicts there will be no change to the energy-weighted mean wave direction at the shoreline and that the change in the energy-weighted wave height is small (±4 cm) and localised to a distance of 1 km south of Town Reef.

I would suggest that if anything comes into question it will be: 1) the choice of critical shear stress for erosion of cohesive sediments (although conservative values were chosen corresponding to the lower bound value of shear stress required to mobilise partly consolidated mud) and 2) also the choice of the 'erosion parameter' (although they chose the model default value to give a conservative estimate of fine sediment (silt) entrained in to the water column). The choice of these parameters should be checked by an expert in the field.

I would agree with the review comments by Richard Reinen-Hamill that there needs to be information on expected maintenance dredge volumes and whether the proposed dredge disposal area and existing consented areas have sufficient capacity for both capital and maintenance dredging and the effects of maintenance dredgings disposal.

Appendix G Physical coastal environment

No issues with this report which contains a lot of material from other reports. The Executive Summary could be improved to make it more useful.

Memo

To:	**Reece O'Leary**	**Job No:**	**1005677**
From:	**Richard Reinen-Hamill**	**Date:**	**24 January 2018**
Subject:	**Port of Napier Proposed Wharf and Dredging Project AEE - Preliminary coastal processes review**		

1. Purpose

Port of Napier have submitted a resource consent application to construct a new wharf an undertake dredging to provide a save and navigable approach channel for larger vessels in the future. This memo summarises key findings and issues from a preliminary review of the following technical reports that support the consent application to identify matters where additional information is required:

Appendix D – Advisian (2017) Napier Port Proposed Wharf and Dredging Project – Coastal process studies

Appendix G – Single (2017) Port of Napier proposed wharf and dredging project: physical coastal environment

It also considers/provides some observations and comments on:

Appendix A - Beca (2016) Napier Port 6 Wharf: Preliminary Design Report

Appendix F - Advisian (2017) Napier Port Proposed Wharf and Dredging Project: Post-disposal fate of dredged sediment.

2. Key matters requiring additional information or responses

In general the technical assessment reports and modelling studies that have been carried out to support the application are to a high standard.

The technical reports in Appendix D and G focus on the dredged channel and disposal area and not the potential effects of the wharf and dolphins that also form part of the application. The AEE (Section 8.1) identifies that the wharf and dolphins will not have any effects on coastal processes, but this matter does not appear to have been considered in the technical reports. While it would appear that there is a limited increase in occupation and potential effects of increased wave reflection are confined to the port area, it would be good for this to be confirmed by the coastal process experts.

While it is recognised that Napier Port has effectively undertaken the responsibility for its own natural hazard management (AEE, Section 20.2), the possible changes to wave climate and tidal currents on sediment transport trends with sea level rise are not considered. Although it is identified in the AEE (Section 20.3) that climate change poses risk to the proposed development. The potential effect of the wharf, dredged channel and disposal should be considered/discussed including for allowance of sea level rise and changes in storm surge/wave intensity as recommended in the Ministry for Environment guideline published in December 2017.

It is noted that the Wharf deck will cater for 1.0 m of additional sea level rise (AEE, Section 20.3), but it is unclear if the wave loads (Appendix A, Section 6.3.2) include an allowance for sea level rise and increased storminess. Please confirm/clarify.

Mean changes in wave direction (Appendix D – Table 7.1) can result in changes in alongshore sediment transport and these results suggest increase alongshore transport from Westshore to Bayview and similarly from Port Beach to Ahuriri Inlet. While it is understood that these changes may be less than the natural variability, this constitutes a net change that moves the baseline that variability will occur. Appendix D – Figure 8-4 appears to suggest a realignment of the shoreline between Port Beach and Ahuriri in the order of 2 degrees. If this results in a change in the stable coast angle, this could result in lowering sea beds to the east and increased seabed/beach levels to the west that may have implications on existing revetment stability and/or overtopping frequency and quantity from storm events (not mean wave events) as well as increase sediment ingress into the lagoon.

There appears to be a similar, but lesser effect along Westshore Beach with a more subtle reorientation of the wave energy. While the findings set out in Section 9.3 of Appendix D and Section 4 of Appendix G discuss net changes, it does not fully extend to the implications of these effects. A more developed assessment of the potential effects of the identified changes would be useful taking into account present day and future sea level rise and whether these changes could contribute to existing erosion processes.

While Single (Appendix G) discusses the change in land elevation resulting from the earthquake there is no discussion of the uplift and subsequent down cutting of the seabed seaward of Westshore, both in terms of sediment budget, transport rates and likely sediment properties. This is material in that while sediment placed in Area R will move, the speed of removal and the effect the increased seabed elevation makes on gravel alongshore transport may be material.

I note Appendix G – Figure 2.5 appears to support the findings of some north easterly sand transport pathway off the Port. Figure 5-6 (for 125 micron of 70% of vibrocore) shows predominantly northerly transport for all but the NW scenario and this seems to be supported in Figure 6-7 (Appendix F). The mean transport vectors for 125 micron that show southerly transport therefore is largely due to the large rates of southerly transport during the NW wind which occur less than 13% of the time and during winds from these sectors, no significant wave heights are measured. What wind condition, combined with the NW wind results in the transport vectors shown in Figure 5-6 and are these combinations likely?

No information on expected maintenance dredge volumes are provided in the AEE and supporting technical documents. Can you confirm the proposed dredge disposal area and the existing consented areas have sufficient capacity for both capital and maintenance dredging and that the effects of maintenance dredging disposal has been considered (i.e. presumably this results in an increased elevation of disposal mounds and/or it is expected that a proportion of the placed material will migrate.

31-Jul-18
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