
RESOURCE CONSENT CRC176030

Pursuant to Section 104 of the Resource Management Act 1991

The Canterbury Regional Council (known as Environment Canterbury)

GRANTS TO:	Lyttelton Port Company Limited
A COASTAL PERMIT (S15):	To discharge sediment associated with the reclamation of the seabed and construction of a wharf
COMMENCEMENT DATE:	23 Jan 2018
EXPIRY DATE:	08 Dec 2052
LOCATION:	Coastal marine area at Lyttelton Port, Lyttelton

SUBJECT TO THE FOLLOWING CONDITIONS:

0 DEFINITIONS

“Active Construction” means where the following activities are performed at any time within a calendar year:

- The construction of any bund;
- Reclaiming land during Stage One reclamation works;
- The decanting of any seawater during the infill of the Stage Two reclamation paddock;
- The removal of part of the Cashin Quay breakwater;
- But **excludes** any subsequent maintenance or repair work following completion of bund construction or the reclaiming of land.

“BMP” means the Biosecurity Management Plan;

“BPEZ” means the Battery Point Exclusion Zone, as shown on Map 10.11 of the Regional Coastal Environment Plan for the Canterbury Region;

“Best Practicable Option” has the meaning given under section 2 of the Resource Management Act 1991;

“CEMP” means the Construction and Environmental Management Plan;

“Certification” means that the CEMP meets all the requirements set out in the conditions of the relevant resource consent(s);

“Consent Authority” means the Canterbury Regional Council;

“Consent Authority Manager” means the Canterbury Regional Council, Attention: Regional Leader Monitoring and Compliance;

“Demolition Debris” means materials that result from the demolition of buildings and structures, and only includes those materials set out in Appendix CRC175507B which forms part of this consent.

“Eco-engineered” means the attempt to combine engineering principles with ecological processes to enhance the ability of coastal infrastructure to provide ecological benefits and **“eco-engineering”** has the same meaning;

“KMP” means the Kaimoana Management Plan;

“MPMP” means the Marine Piling Management Plan;

“Pile Driving” means the period when a hydraulic impact hammer or vibro-piling is being used to install a tubular steel pile into the seabed. It excludes the positioning and placement of piles, welding or any other ancillary activity.

“RRP” means the Reclamation Rehabilitation Plan;

“Summer” means the period commencing 1 November and ending 30 April.

“Tangata Whenua” means Te Hapū o Ngāti Wheke (Rāpaki) and Te Rūnanga o Ngāi Tahu.

“Winter” means the period commencing 1 May and ending 31 October

General

- 1 The activities in the coastal marine area shall be limited to:
 - a. The construction of a reclamation and wharf with a combined area of up to 24 hectares in the coastal marine area;
 - b. The excavation and removal of part of the Cashin Quay Breakwater;
 - c. The deposition of material associated with (a) and (b);
 - d. The disturbance of the coastal marine area associated with (a) and (b); and
 - e. The discharge of sediment associated with the activities specified by (a) to (c).
- 2 The location of the works authorised in Condition (1) shall be at Te Awaparahi Bay, Lyttelton, as shown on Plan CRC175507, attached to and forming part of this consent, and as follows:

- a. The reclamation area above Mean High Water Springs and the wharf structures shall only be located within Area A on Map 10.10 of the Regional Coastal Environment Plan for the Canterbury Region, attached to and forming part of this consent; and
 - b. No part of the reclamation or batter slope shall be located within the Battery Point Exclusion Zone, as shown on Map 10.11 of the Regional Coastal Environment Plan for the Canterbury Region, attached to and forming part of this consent.
- 3 The works referred to in Condition (1)(a) shall be undertaken in two stages, with the extent of each stage in general accordance with Plan CRC175507 and as follows:
 - a. Stage One works shall only consist of:
 - i. Construction of a southern bund;
 - ii. Reclamation of up to six hectares of land;
 - iii. Construction of a wharf along the southern edge of the reclamation; and
 - iv. Associated works, including trial work required by this consent
 - b. Stage Two works shall only consist of:
 - i. Construction of a perimeter bund, which includes the second stage of the southern bund;
 - ii. Infilling of bulk material into the reclamation paddock enclosed by the perimeter bund;
 - iii. Construction of a wharf along the southern edge of the reclamation; and
 - iv. Associated works, including trial work required by this consent.

Advice note: The excavation and removal of part of the Cashin Quay breakwater may occur during either Stage One or Stage Two works.

Construction and Environmental Management Plan (CEMP)

- 4
 - a. At least one month prior to the exercise of this consent, the Consent Holder shall submit in writing a CEMP to the Consent Authority Manager. A copy of the CEMP shall be forwarded to Tangata Whenua.
 - b. Condition (4)(a) does not apply to the Marine Piling Management Plan (MPMP) section of the CEMP required under Condition (5)(c) and Condition (8)(K). The MPMP shall be submitted in writing to the Consent Authority Manager for certification, required under Condition (9), at least one month prior to commencement of Piling Driving for Stage One wharf construction
- 5 The CEMP shall be prepared by a suitably qualified person(s) and its purpose shall be to set out the measures to avoid or mitigate adverse effects resulting from construction activity on the coastal marine environment. The CEMP shall include but not be limited to:
 - a. A Construction Management Plan in accordance with Condition (6);

- b. A Biosecurity Management Plan to reduce the risk of a biosecurity incursion from any vessel to be used in the construction of the reclamation that is imported from overseas, or sourced from an area in New Zealand outside of Canterbury, to the greatest extent practicable, in accordance with Condition (7); and
- c. A Marine Piling Management Plan to reduce the risk of harm to marine mammals from the noise and vibration associated with piling to the greatest extent practicable, in accordance with Condition (8).

6 The Construction Management Plan shall include but not be limited to:

- a. Methods for assessing the stability of the proposed reclamation during construction;
- b. Details of the construction methods proposed for the reclamation;
- c. Details of the construction methods proposed for the wharf structures;
- d. A description of a proposed construction timetable that identifies the sequence and duration of works;
- e. Methods to manage the discharge of contaminants including the screening of reclamation material prior to final placement;
- f. Details on the actions to be taken to ensure the conditions of this consent are satisfied;
- g. Identifying the persons responsible for carrying out all actions in relation to meeting the requirements of this consent;
- h. An Erosion and Sediment Control section in accordance with the conditions of Consent CRC175509;
- i. A Decanting Discharge section in accordance with the conditions of Consent CRC175508;
- j. A Dust Management section in accordance with the conditions of Consent CRC175510; and
- k. Procedures for managing hazardous substances and preventing hazardous spills.

7 The Biosecurity Management Plan (BMP) shall be prepared by a suitably qualified person who is experienced in managing the risk of biosecurity incursions. The BMP shall include but not be limited to:

- a. A description of the vessel and its attributes that affect risk, including key operational attributes (e.g. voyage speed, periods of time idle), maintenance history (including prior inspection and cleaning undertaken), and voyage history since last dry-docking and antifouling (e.g. countries visited and duration of stay);
- b. A description of the key sources of potential marine biosecurity risk from ballast water, sediments and biofouling, including the hull, niche areas, and associated equipment, and shall consider both submerged and above-water surfaces;

- c. Findings from previous inspections;
- d. If Lyttelton is the first New Zealand destination, a description of the risk mitigation undertaken prior to arrival in New Zealand, including but not limited to:
 - i. Routine preventative treatment measures and their efficacy, including the age and condition of the antifouling coating, and marine growth prevention systems for sea chests and internal sea water systems;
 - ii. Specific treatments for submerged and above-water surfaces that will be undertaken to address Import Health Standard (IHS) and CRMS (Craft Risk Management Standard) requirements prior to departure for New Zealand. These could include, for example, in-water removal of biofouling, or above-water cleaning to remove sediment;
 - iii. Additional risk mitigation planned during transit to New Zealand, including expected procedures for ballast water management; and
 - iv. The expected desiccation period of above-water surfaces on arrival to New Zealand (i.e. period of air exposure since last dredging operations);
- e. If Lyttelton is the first New Zealand destination, the nature and extent of pre-border inspection that will be undertaken (e.g. at the overseas port of departure) to verify compliance with IHS and CRMS requirements; and
- f. If Lyttelton is the first New Zealand destination, record keeping and documentation of all mitigation undertaken (i.e. prior to and during transit to New Zealand) to enable border verification if requested by Ministry for Primary Industries or its successor, and to facilitate final clearance.

Marine Mammals and Pile Driving

8 8A

- a. The Consent Holder shall carry out acoustic monitoring of Pile Driving to measure the one hour cumulative Sound Exposure level (SEL_{cum}(1h)) at the point shown on Plan CRC175507B, attached to this consent. The SEL_{cum}(1h) shall be derived from the maximum combined noise at all water depths, from the impact driven and vibro-driven piling operations over a one hour period.
- b. The acoustic monitoring required under Condition (8A)(a) shall include, but not be limited to, measurement work undertaken as soon as practicable and during normal operating conditions on each of the different pile diameters used in the operation for a minimum of three days each; and shall be undertaken at least once during Winter and at least once during Summer, at the point shown on Plan CRC175507B, attached to this consent.
- c. Within two weeks after each period of measurement work referred to in Condition 8A(b), an acoustic monitoring report shall be prepared by the Consent Holder, and a copy of the reports shall be provided immediately to the Consent Authority and the Department of Conservation. Each report shall describe in detail the acoustic monitoring methodology and the results of the monitoring undertaken for that period of measurement work.

- d. The one hour cumulative Sound Exposure level (SEL_{cum}(1h)) measured and assessed under Conditions (8A)(a) and (b) shall not exceed:
 - i. 146 dB re 1µPa2s at the measurement point shown on Plan CRC175507B, attached to this consent, during Winter; and
 - ii. 144 dB re 1µPa2s at the measurement point shown on Plan CRC175507B, attached to this consent, during Summer.
- e. If Pile Driving continues into a second consecutive Summer, the one hour cumulative Sound Exposure level (SEL_{cum}) measured and assessed under Conditions (8A)(a) and (b) shall not exceed 135 dB re 1µPa2s at the measurement point shown on Plan CRC175507B, attached to this consent, during Summer.

8B

- a. At least six months prior to the commencement of Pile Driving for the Stage One wharf construction, the Consent Holder shall conduct and report on a worldwide survey of methods to reduce pile driving noise associated with wharf construction that are currently in use or under investigation by reputable professional and/or contracting organisations
- b. Following the completion of the survey under Condition (8B)(a), the Consent Holder shall conduct an analysis of at least two of the methods identified in the survey to determine their efficacy, practicality and cost for reducing pile driving source noise during Pile Driving to determine the Best Practicable Option for reducing source noise.
- c. The Consent Holder shall complete a trial of the Best Practicable Option identified under Condition (8B)(b) to establish the efficacy, practicality and cost of that option when applied to a Pile Driving operation in Lyttelton Harbour/Whakaraupo. This trial shall be completed:
 - i. on a Pile Driving project that uses tubular steel piles undertaken by the Consent Holder at Lyttelton Port; and
 - ii. no later than three months after commencement of Pile Driving for the Stage One wharf construction.
- d. Within one month of completion of the trial under Condition (8B)(c), the Consent Holder shall provide a report to the Consent Authority on the outcomes of the investigation and trial completed under Conditions (8B)(a) and (8B)(c), including an assessment of whether the option trialled represents the Best Practicable Option to reduce pile driving source noise when compared with the methods detailed in the consent application.
- e. The Best Practicable Option as identified in Condition (8B)(d) shall be implemented:
 - i. As soon as practicable, and within three months of completion of the report under Condition (8B)(d) if the trial under Condition (8B)(c) is completed during Stage One wharf construction; OR

- ii. At the commencement of Stage One pile driving, where the trial under Condition (8B)(c) is completed prior to commencement to Stage One wharf construction.
- a. If the survey and report prepared under Condition (8B)(a) is completed more than ten years prior to the commencement of the Stage One wharf construction, the Consent Holder shall undertake the requirements of Condition (8B) again, and determine the Best Practicable Option for reducing pile driving source noise when compared to other methods available at that time, and submit a report to the Consent Authority on the outcomes of the investigation.

8BB

- a. At least six months prior to the commencement of the Stage Two wharf, the Consent Holder shall repeat the worldwide survey and analysis of methods available at that time to reduce the source noise from Pile Driving associated with wharf construction required under Condition (8B)(a), and shall prepare a report to the Consent Authority assessing whether the methods identified under Condition (8B) still represent the Best Practicable Option.
- b. If the report prepared under Condition (8BB)(a) finds that the methods identified under Condition (8B) for the Stage One wharf no longer represent the Best Practicable Option, the Consent Holder shall either:
 - i. Complete a trial of the new Best Practicable Option as identified under Condition (8BB)(a) and implement that method for Stage Two pile driving if the subsequent trial verifies that the method is preferable in terms of efficacy, practicality and cost to the method identified under Condition (8B)(c); OR
 - ii. Implement the new Best Practicable Option identified under Condition (8BB)(a) for Stage Two Pile Driving.

8C

A Marine Mammal Observation Zone (MMOZ) shall be established during Pile Driving. The MMOZ shall be defined as a radius from the unit(s) carrying out Pile Driving of:

- a. 600m for any marine mammal, excluding pinnipeds; and
- b. 200m for pinnipeds.

The details of the MMOZ shall be included in the MPMP prepared under Condition (8K). The MMOZ shall be continuously monitored during pile driving activity by at least two observers using a combination of shore based and non-shore based methods.

8D

The radius of the MMOZ in Condition (8C) may be reduced in size to the measured 146 dB re 1 μ Pa²s contour where the acoustic monitoring carried out in accordance with Condition (8A) establishes that the 146 dB re 1 μ Pa²s SEL_{cum(1h)} contour is less than 600m from the Pile Driving unit. Any reduction in the size of the MMOZ must be approved in writing by the Consent Authority Manager acting in a technical Certification capacity, on the basis of provision of the results of representative acoustic monitoring in accordance with Condition (8A).

8E

- a. The Consent Holder shall designate suitably trained and experienced marine mammal observers to provide a continuous lookout for marine mammals within the MMOZ during Pile Driving.
- b. Prior to the start of Pile Driving for the day, the marine mammal observers shall undertake a search of the MMOZ to assess whether any marine mammals are present.

8F

- a. Pile Driving shall cease or shall not commence if any marine mammal is located by the trained observers within the MMOZ.
- b. Soft start Pile Driving may commence or recommence after the marine mammal observers have undertaken a search of the MMOZ and have assessed there are unlikely to be any marine mammals present.

8G

Pile Driving shall be limited to daylight hours only and only one unit may carry out hydraulic impact hammering at any one time.

8H

Pile Driving start-ups shall employ soft-starts in which Pile Driving energy is gradually increased to normal operating levels over a period of ten minutes at the commencement of Pile Driving operations each morning, or following shut downs required under Condition (8F), or if Pile Driving has otherwise been shut down for at least an hour.

8I

A marine mammal sighting log to record any marine mammal sighted, and actions taken, shall be prepared and maintained as specified in the MPMP under Condition (8K). These records and a summary report shall be provided at the end of each calendar year in which Pile Driving operations occur or upon request by the Consent Authority or Department of Conservation.

8J

If a southern right whale, orca, or humpback whale is sighted within Lyttelton Harbour/Whakaraupo west of a line between Godley Head and Adderley Head, the Consent Holder shall investigate, and if their presence is confirmed by the Consent Holder, Pile Driving shall cease and may not recommence if they are present west of a line between the western headland of Breeze Bay and the eastern headland of Camp Bay shown on Plan CRC175507A, attached to this consent.

8K

A Marine Piling Management Plan (MPMP) shall be prepared with advice from a suitably qualified marine mammal expert, and in consultation with the Department of Conservation. The MPMP shall include, but not be limited to:

- a. Introduction;
- b. Marine Mammals that may be present within Lyttelton Harbour/Whakaraupo;
- c. Potential for adverse effects;
- d. Control or mitigation measures:
 - i. Piling methodology to reduce noise at source;
 - ii. Identification of the Marine Mammal Observation Zone (MMOZ);
 - iii. Trained personnel to act as observers that have the necessary training and experience to search the whole of the MMOZ for marine mammals as far as reasonably practical;
 - iv. Pre-start and during works observations;
 - v. Soft Start Protocols;
 - vi. Hours of operation;
 - vii. Reducing risk of entanglements;
 - viii. Vessel speed management and marine mammal interactions
 - ix. Control of sediment, debris and contaminants;
- e. Reporting and logging of marine mammal sightings;
- f. Principles of the acoustic monitoring methodology;
- g. Training and experience of:
 - i. All personnel;
 - ii. Vessel masters;
 - iii. Marine Mammal Observers;
 - iv. Environmental monitoring teams; and
- h. Compliance with legislation

8L

The Consent Holder shall prepare the MPMP required under Condition (8K) in consultation with the Department of Conservation. Any written recommendations from Department of Conservation representatives that are not included in the final MPMP shall be provided to the Consent Authority at the same time as the MPMP is submitted in accordance with Condition (4)(b). A final copy of the MPMP shall be provided to the Department of Conservation.

8M

- a. The Consent Holder shall complete a review of the MPMP not less than two months prior to the commencement of Pile Driving for Stage Two wharf construction. The review shall be prepared with advice from a suitably qualified marine mammal expert, and in consultation with the Department of Conservation. A copy of the review shall be provided to the Consent Authority Manager and the Department of Conservation within one week of completion of the review.
- b. The purpose of the review is to incorporate the results of the report prepared under Condition (8BB).
- c. If the review recommends amendments to the MPMP, then the Consent Holder shall amend the MPMP in accordance with the review recommendations. The amended MPMP shall be submitted to the Consent Authority Manager not less than one month prior to the commencement of Pile Driving for Stage Two wharf construction and Condition (10) shall apply.

Certification and Amendment of CEMP

- 9
 - a. The CEMP shall be approved in writing by the Consent Authority Manager acting in a technical Certification capacity prior to works authorised by this consent first commencing, and the Consent Holder shall undertake all activities authorised by this consent in accordance with the approved CEMP.
 - b. The Consent Holder may commence activities in accordance with the CEMP unless the Consent Authority advises the Consent Holder in writing within 20 working days of receipt of the CEMP that it refuses to approve the CEMP because it fails to meet the requirements of Conditions (5) to (9) and provides reasons why that view is held.
 - c. Should the Consent Authority refuse to approve the CEMP in accordance with Condition (9)(b), the Consent Holder shall submit a revised CEMP to the Consent Authority Manager as soon as is practicable prior to works authorised by this consent first commencing. The certification process shall follow the same procedure set out in Conditions (9)(a) and (b).
- 10 The CEMP may be amended at any time. Any amendment of the CEMP shall be to achieve the purpose of the CEMP as set out in the conditions of this consent, and shall be approved in writing by the Consent Authority Manager acting in a technical Certification capacity. Conditions (9)(b) and (c) shall also apply when amending the CEMP. The Consent Holder shall undertake all activities authorised by this consent in accordance with the amended CEMP.
- 11 Prior to any amendments to the MPMP section of the CEMP, the Consent Holder shall contact the Department of Conservation (DOC) to request recommendations on the proposed amendments. Any written recommendations from DOC that are not fully incorporated as changes to the MPMP shall be provided to the Consent Authority Manager at the same time as the amended MPMP is submitted. A copy of the amended MPMP shall be provided to DOC immediately following Certification.

- 12 A copy of the CEMP and all amended CEMPs shall be provided to Tangata Whenua immediately following Certification.

Kaimoana Management Plan (KMP)

- 13 At least one month prior to the commencement of works under this consent, the Consent Holder shall provide, following consultation with Tangata Whenua, a Kaimoana Management Plan (KMP) to the Consent Authority Manager. A copy of the KMP shall be provided to Tangata Whenua.
- 14 The purpose of the KMP shall be to outline potential methods to mitigate the loss of kaimoana as a result of the reclamation.
- 15 The KMP shall include, but not be limited to, the following:
- a. Methods to monitor the health of kaimoana in the vicinity of the reclamation, including surveys using the Marine Cultural Health Index and traditional scientific methods;
 - b. Proposed methods and scale of effort to mitigate loss of kaimoana, which may include but are not limited to:
 - i. Eco-engineered habitats along the eastern reclamation revetment;
 - ii. Reseeding/translocation of kaimoana species; and
 - iii. Restocking kaimoana species for customary harvest;
 - c. An assessment of the proposed methods in (b) against a range of ecological, cultural, economic and practical criteria to determine a shortlist of preferred mitigation methods for further investigation by way of trials; and
 - d. A timeframe for implementing the trials referred to in (c).

Reclamation Rehabilitation Plan (RRP)

- 16 At least one month prior to the commencement of works under this consent, the Consent Holder shall provide a Reclamation Rehabilitation Plan (RRP) to the Consent Authority Manager. A copy of the RRP shall be provided to Tangata Whenua.
- 17 The purpose of the RRP shall be to naturalise the appearance of the eastern reclamation edge, and to co-ordinate planned plantings in the vicinity of the reclamation, so that visual impacts are minimised to the greatest extent practicable
- 18 The RRP shall include, but not be limited to, the following:
- a. The methods to be used to trial a range of coastal plant species along the eastern seaward edge of the completed Stage One reclamation to test establishment and survival rates, including maintenance and monitoring of test plots;
 - b. A list of coastal plants to be included in the trials referred to in Condition (18)(a) above;
 - c. A timeframe for implementing and completing the trials referred to in Condition (18)(a) above, including methods for monitoring and maintenance of the trial plantings for at least a period of five years;

- d. Details of the materials to be used on the eastern seaward reclamation edge;
 - e. Details of previous plantings and any other planting planned or being carried out on the hill slopes behind the reclamation, together with any proposed maintenance and pest control for any such plantings, so that a coordinated and consistent approach is undertaken; and
 - f. A planting plan that shows the location of plantings identified under Condition (18)(e).
- 19 The eastern reclamation edge of the Stage Two bund shall be planted as soon as practicable after completion of the bund construction, shall be based on the outcomes of the trial plantings required under Condition (18), and otherwise shall use best practice planting techniques to maximise survival.
- 20 Any Eco-engineered habitats constructed in accordance with Condition (15) where practical shall be designed to be visually sympathetic with the surrounding rock substrate without compromising the effectiveness of the habitat.
- 21 The dominant armour riprap material to be used on the eastern seaward reclamation edge shall be limited to volcanic rock that is locally sourced or visually similar to Lyttelton volcanic rock, being andesite, basalt and trachyte as the dominant armour riprap, except where artificial structures or other rock types are desired for providing kaimoana habitat. The permanent seaward-facing revetments shall be constructed to have generally straight and uniformly textured surfaces, and free from abrupt changes.
- 22 There shall be no more than three stormwater discharge locations on the Stage Two eastern seaward-facing revetment. To minimise the visual impact of the stormwater discharge pipes, the pipes shall be placed within the natural rock riprap, and have the pipe ends cut at an angle consistent with the revetment batters and be black in colour at the time of placement.

Prior To Each Stage of Works Commencing

- 23 The Consent Holder shall notify the Consent Authority Manager in writing at least ten working days prior to the commencement of Stage One and Stage Two of the works authorised by Condition (3).
- 24 Prior to commencement of Stage One and Stage Two of the works authorised by Condition (3) the Consent Holder or their agent shall arrange and conduct a pre-construction site meeting with the Consent Authority Manager and all relevant parties, including the primary contractor. At a minimum, the following shall be covered at the meeting:
- a. Scheduling and staging of the works;
 - b. Construction methods, erosion controls and sediment discharge controls;
 - c. Responsibilities and contact details of all relevant parties;
 - d. Expectations regarding communication between all relevant parties;

- e. Procedures for implementing any amendments to the CEMP;
- f. Site inspection; and
- g. Confirmation that all relevant parties have copies of the contents of this consent document and all associated erosion and sediment control plans, dust management plans and methodology.

- 25 A copy of this consent and the most up-to-date certified version of the CEMP shall be kept on site at all times and made available to all persons undertaking activities authorised by this consent.

Construction Reporting

- 26 The Consent Holder shall prepare an Annual Report which details the following:
- a. Construction undertaken in the preceding 12 months;
 - b. Description and evaluation of the monitoring undertaken and any mitigation measures used in the last 12 months; and
 - c. Description of any unforeseen environmental issues and the steps taken to address any such issues.

Reclamation Design and Construction

- 27 The Consent Holder shall implement erosion and sediment control measures that shall include but not be limited to:
- a. A construction methodology that achieves and maintains acceptable factors of safety of slope stability;
 - b. Methods to minimise erosion of sediment as set out in the CEMP;
 - c. All soil or hillside overburden, other than rock or aggregate, and any soil-coated rock or aggregate, shall only be placed on the reclamation above Mean High Water Springs or into coastal water within the Stage Two reclamation paddocks; and
 - d. A sediment curtain shall be installed during construction of at least the first 50 metres of the Stage Two bund as measured outwards from the shoreline.
- 28 The Stage Two eastern bund shall be constructed from the shoreline in a southerly direction for a length of no less than 50 metres as a means to minimise the propagation of mud waves towards the Battery Point.
- 29 The infilling of material into the Stage Two reclamation area shall only occur once the Stage Two bund is fully enclosed.
- 30 If dredge spoil is to be used as fill material in the Stage Two reclamation paddock, the Stage Two bund shall be designed and constructed with appropriate filter layers in such a way that minimises migration of fines to open coastal water.
- 31 The southern seaward faces of the Stage One and Stage Two bunds shall be properly protected at all times by rock armouring or other appropriate means to avoid a level of damage that will threaten integrity of the reclamation structure.

- 32
- a. The Stage One and Two bunds, reclamation and wharf structures shall be designed by a suitably experienced Chartered Professional Engineer in accordance with the conditions of this consent and in a manner that is consistent with current best practice, taking into consideration the Ministry for the Environment guidelines: Preparing for coastal change: A guide for local government in New Zealand, 2009 or any subsequent amendment, or any National Policy Statement on sea level rise; and
 - b. The design shall undergo a formal peer review by a suitably experienced Chartered Professional Engineer familiar in design and construction of port infrastructure, and a copy of the peer reviewer's report shall be provided to the Consent Authority prior to construction commencing.
- 33
- a. The Stage One and Two bunds, reclamation and wharf structures shall be constructed in a way that ensures that throughout the design life, its functional requirements and structural integrity are not compromised by sea level rise and wave and tide induced effects; and
 - b. A Chartered Professional Engineer experienced in reclamation construction works shall oversee construction of the reclamation bunds to ensure they comply with the design.

Deposition of Material

- 34
- Any material deposited into the reclamation areas, excluding the bunds, shall only consist of the following:
- a. Material excavated from the Gollans Bay Quarry and Quarry Haul Road, Lyttelton;
 - b. Material excavated from elsewhere within the Special Purpose (Lyttelton Port) Zone as identified in the Christchurch Replacement District Plan;
 - c. Demolition Debris, as defined in Appendix CRC175507B, attached to and forming part of this consent, provided that no more than 5% of Demolition Debris shall be used as fill in the Stage One reclamation;
 - d. Dredge spoil, except into the Stage One reclamation area; and
 - e. The material listed as 'Allowable Material' in Appendix CRC175507B, attached to and forming part of this consent.
- 35
- No material listed as 'Prohibited Material' in Appendix CRC175507B, shall be deposited into the reclamation areas.
- 36
- The material used for the construction of the bunds below Mean High Water Springs shall be limited to quarried material which shall be dominated by an aggregate size that is greater than 100mm and which is as far as practicable visually free of fines.
- 37
- The delivery of material onto the site shall be supervised by the Consent Holder or their representative at all times. At least five inspections per twenty loads of Demolition Debris shall be inspected at the Lyttelton Port dispatch office and all loads shall be inspected by the operator depositing material into the reclamation area. All loads of Demolition Debris shall be deposited behind the reclamation area tip face to enable inspection of loads before deposition occurs.

- 38 A record of all Demolition Debris deposited at the site shall be kept and held for the duration of each Stage of construction, and shall be provided to Canterbury Regional Council on request. This record shall include:
- a. The name of the person and company that delivered the material to the site;
 - b. The date of deposition;
 - c. The source of the material;
 - d. A description of the material; and
 - e. The approximate quantity of material.

Wharf Design and Construction

- 39 The wharf shall be:
- a. An open-piled structure;
 - b. Located parallel to and within the southern edge of the reclamation area; and
 - c. Designed by a suitably experienced Chartered Professional Engineer in accordance with the conditions of this consent and the New Zealand Building Act 2004 or subsequent amendment.
- 40 A Chartered Professional Engineer with relevant experience shall oversee the construction of the wharf structures to ensure it complies with the design.
- 41 The wharf design shall include a stormwater treatment device that meets best practice and is designed to remove, as far as practicable, total petroleum hydrocarbons, total suspended solids and gross pollutants from stormwater collected off the wharf and hardstand areas.

Monitoring and Compliance

- 42 The Consent Holder shall prepare and undertake a monitoring programme in accordance with these conditions. This may be included in the CEMP.
- 43 All trial plantings undertaken in accordance with Condition (18) and final plantings undertaken in accordance with Condition (19) shall be monitored and maintained at least once every 12 months for at least five years.
- 44 The Consent Holder shall monitor the on-going stability of the reclamation, and the section of bund above Mean High Water Springs, at least once per month, including but not be limited to the following methods:
- a. Using GPS or similar survey equipment to check levels;
 - b. Installation of settlement plates; and
 - c. Visual inspections.

- 45 During Active Construction, the Consent Holder shall complete annual quantitative surveys of the intertidal communities of the rock platform of Battery Point and compare these to a reference point at Livingstone Bay or any other similar reference site further east of Battery Point, to monitor the effects of the reclamation construction on intertidal communities. The monitoring shall follow the methods statement attached in Appendix CRC175507C.
- 46 Notwithstanding Condition (45), quantitative surveys of the intertidal communities of the rock platform of Battery Point shall be carried out at least once prior to and at least twice during the construction of the Stage Two bund within 50 metres of the Battery Point Exclusion Zone.
- 47 At least once per year during Active Construction, the Consent Holder shall collect mussel samples from Battery Point and one or more reference locations elsewhere in Lyttelton Harbour/Whakaraupo and complete tissue analysis of contaminant levels on these samples. The monitoring shall follow the methods statement attached in Appendix CRC175507D.
- 48 The Consent Holder shall undertake monitoring and maintenance of any temporary rock armouring placed on the southern seaward faces of the Stage One and Stage Two bunds as follows:
- a. Temporary rock armouring shall be maintained in a condition fit for purpose;
 - b. Temporary rock armouring shall be inspected at least once every six months and after major storm events in Lyttelton Harbour/Whakaraupo to assess if any part of the temporary armour requires repairs to restore any loss of protective function; and
 - c. Any required repairs to the temporary rock armouring shall be undertaken as soon as practicable.
- 49
- a. The Consent Holder shall prepare an annual monitoring report that collates and analyses the results of the monitoring completed under Conditions (43) to (48), including but not be limited to:
 - i. Summary of the monitoring of the trial and final plantings, including what trial plant species survived and thrived;
 - ii. Summary of the wave climate and the on-going stability of the reclamation and the section of bund above Mean High Water Springs;
 - iii. Summary of the results of the quantitative surveys of the intertidal communities of the rock platform of Battery Point and the reference point(s), and any actions that were undertaken as a result;
 - iv. Summary of the results of the tissue analysis of contaminant levels in the mussel samples from Battery Point and the reference point(s), and any actions that were undertaken as a result; and
 - v. Summary of the maintenance of any temporary rock armouring.

- b. At end of Stage One works, the Consent Holder shall collate the monitoring data collected under Conditions (43) to (48) and a report shall be prepared that evaluates any trends in the data.
- c. Within ten years from the first commencement of the Stage Two works the Consent Holder shall collate the monitoring data collected under Conditions (43) to (48) and a report shall be prepared that evaluates any trends in the data.
- d. A copy of the monitoring reports prepared under Conditions (49)(a), (b) and (c) shall be provided to the Tangata Whenua.

50 The Consent Holder shall provide the annual monitoring report to the Consent Authority Manager within one month of completion of the report.

Hazardous Spills

- 51 During construction the Consent Holder shall take all practicable measures to prevent spills of hazardous substances being discharged into the coastal marine area. Such measures shall include, but not be limited to:
- a. All practicable measures shall be undertaken to prevent oil and fuel leaks from vehicles and machinery;
 - b. Refuelling of machinery and vehicles where practicable shall not occur within 20 metres of the coastal marine area, and shall be supervised throughout the whole activity;
 - c. All refuelling equipment shall have shut-off valves;
 - d. The storage of fuel and other hazardous substances shall not occur within 20 metres of the coastal marine area, and shall be stored securely;
 - e. All vehicles and works areas shall have a spill kit capable of absorbing the quantity of fuel and other hazardous substances that may leak or be spilt; and
 - f. Spill containment equipment shall be immediately available and kept on site at all times.
- 52 The Consent Holder shall immediately inform the Consent Authority Manager of a leak or spill of a hazardous substance into the coastal marine area that is greater than 20 litres. Within 24 hours of the spill the Consent Holder shall provide the Consent Authority Manager with the following information:
- a. The date, time, location and estimated volume of the spill;
 - b. The cause of the spill;
 - c. The type of contaminant(s) spilled;
 - d. Observations of any spilt material once it enters the marine environment;
 - e. Clean up procedures undertaken;

- f. Details of the steps taken to control and remediate the effects of the spill on the receiving environment
- g. An assessment of the potential ecological effects of the spill; and
- h. Measures to be undertaken to prevent a recurrence.

Complaints

- 53 The Consent Holder shall maintain a Complaints Register for the purpose of recording and dealing with any complaints that are received by the Consent Holder in relation to the exercise of this resource consent. The Complaints Register shall record, where this information is available:
- a. The issue raised;
 - b. Any possible cause of the nuisance or effect;
 - c. The date and time of the complaint;
 - d. Any corrective action taken to address the cause of the complaint, including the timing of that corrective action; and
 - e. Name of complainant, if offered.
- 54 A record of complaints shall be provided to the Consent Authority Manager by the 30 April each year or upon request.

Mahinga Kai Enhancement Fund

- 55
- a. The Consent Holder shall establish a mahinga kai enhancement fund.
 - b. The purpose of the fund is to support opportunities for mahinga kai enhancement, which may include support for initiatives in the following areas:
 - i. Matauranga
 - ii. Monitoring and research;
 - iii. Active Restoration
 - iv. Managing Access
 - v. Education; and
 - vi. Compliance.
 - c. The Consent Holder shall consult with Te Hapū o Ngāti Wheke and Te Rūnanga o Ngāi Tahu to determine:
 - i. Which initiatives will receive funding; and
 - ii. How the funds are to be allocated.
 - d. The fund shall be for \$50,000 and shall be placed in a nominated Bank Account prior to the first exercise of this consent and the monies shall be allocated in accordance with Conditions (55)(b) and (55)(c).

Advice Note: *The fund created under this condition is the same as (and not additional to) the Mahinga Kai Enhancement Fund created under CRC175507.*

Marine Mammal Research

56

- a. The Consent Holder shall conduct a research programme to investigate Hector's Dolphin (*Cephalorhynchus hectori*) response to underwater noise associated with piling at Lyttelton Harbour/Whakaraupo. The research programme shall include:
 - i. Acoustic monitoring of background and piling noise
 - ii. Behaviour of Hector's Dolphin before, during and after piling
 - iii. Acoustic modelling of piling operations;
 - iv. Statistically and spatially model the variables affecting Hector's Dolphin behaviour before, during and after piling.
- b. The baseline monitoring carried out prior to the commencement of the Pile Driving operation shall be for a period of no less than three months.
- c. A suitably experienced and qualified person(s) shall prepare the research programme at least four months prior to the commencement of the Pile Driving operation and a copy shall be provided to the Consent Authority;
- d. The results of the research programme shall be assessed and a Marine Mammal Research report prepared and a copy provided to the Consent Authority and the Department of Conservation not more than six months after the completion of the research.
- e. A paper(s) based on the research programme shall be submitted to a relevant recognised peer reviewed journal.

Public Access

56A

After the completion of the project the Consent Holder shall investigate the feasibility of enhancing public access from Sumner Road through the Consent Holder's land holdings to Battery Point and Gollans Bay beach. This investigation shall include, but not be limited to, consideration of:

1. Health and safety
2. The Consent Holder's current and potential future land use requirements;
3. Lyttelton Port operational requirements; and
4. Cost.

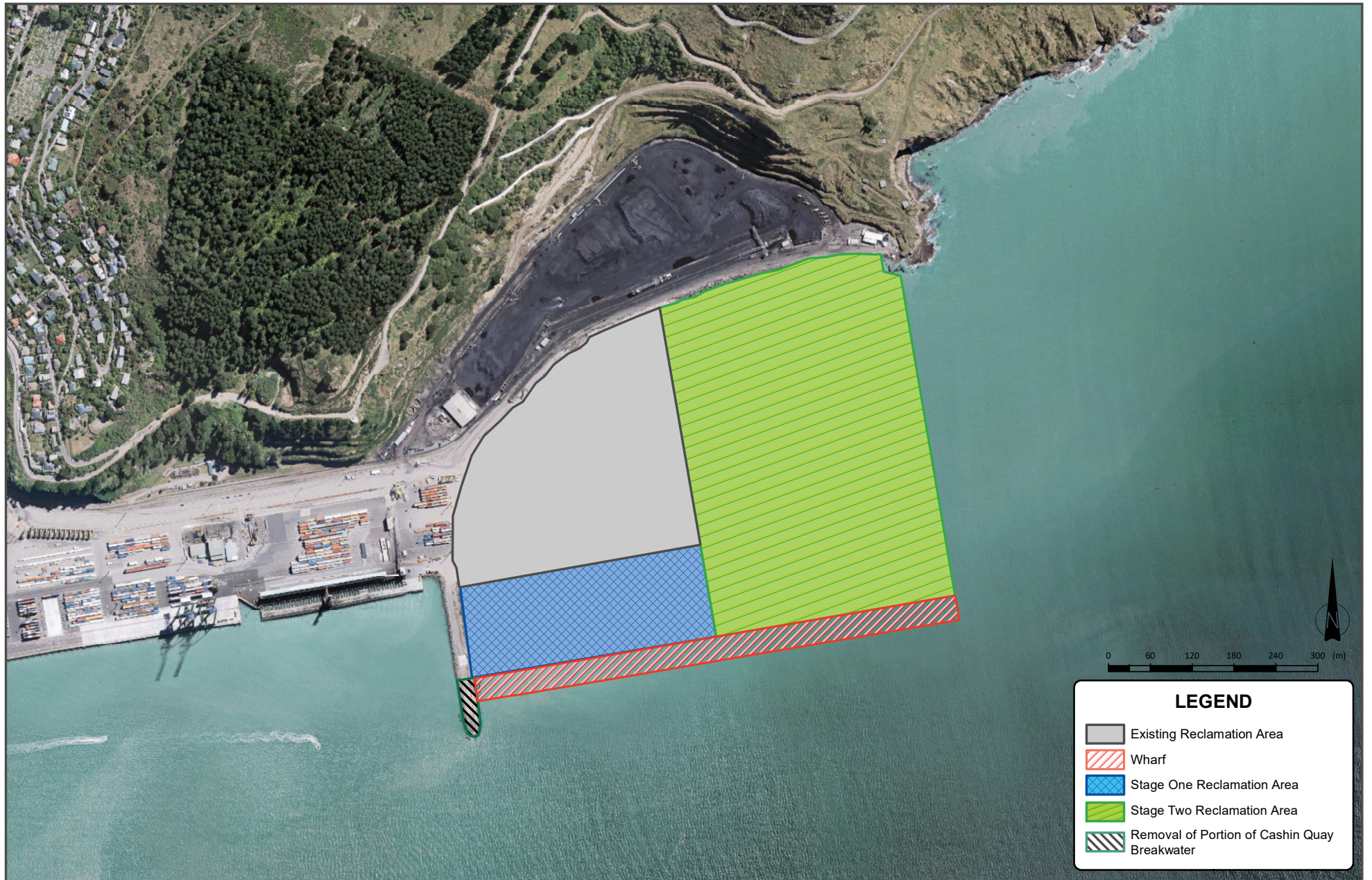
Administration

- 57 The Canterbury Regional Council may annually, during the last five working days of May or October, serve notice of its intention to review the conditions of this consent for the purposes of:
- a. Dealing with any adverse effect on the environment which may arise from the exercise of the consent; or
 - b. After receiving a report from the Consent Holder prepared under Condition (8B)(c) or (8BB), requiring the Consent Holder to implement the Best Practicable Option to remove or reduce adverse effects on marine mammals as a consequence of Pile Driving operations, as recommended in the report; or
 - c. Prior to commencement of Stage Two wharf construction, introducing measures to remove or reduce adverse effects on marine mammals as a consequence of Pile Driving operations, including amending the noise limits in Condition (8A)(d) and (8A)(e), based on the recommendations included in:
 - i. the marine mammal research report prepared under Condition (56)(d); or
 - ii. the report prepared under Condition (8BB).

- 58 The lapsing date for the purposes of section 125 shall be 31 December 2022.

Issued at Christchurch on 26 February 2018

Canterbury Regional Council



**Te Awaparahi Bay Reclamation Project
Overall Site Map**

Plan CRC175507A Whale and Orca line

Date Printed: 11 September 2017



Legend



This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION





Plan CRC175507B

Sound Exposure Level monitoring point

Monitoring point
43°37'14.981"S
172°44'11.828"E

200m

Map 10.10 Te Awaparahi Bay Reclamation Area



Map 10.10: Te Awaparahi Bay Reclamation Area



- Occupation by Port Activities
- Area A - Reclamation and Wharf Structures
- Operational Boundary

0 0.6 Kilometres

Map 10.11 Te Awaparahi Bay – Battery Point Exclusion Zone



Map 10.11: Te Awaparahi Bay – Battery Point Exclusion Zone

-  Battery Point Exclusion Zone
-  Area A - Reclamation and Wharf Structures



0 0.1 Kilometres

Appendix CRC175507B – Acceptance criteria for reclamation material

1. Allowable material:

- a) Any quarry sourced virgin material;
- b) Rock, gravel, sands, silts and clay;
- c) Stone;
- d) Bricks;
- e) Tiles;
- f) Aggregates;
- g) Reinforced concrete;
- h) Unreinforced concrete;
- i) General rubble;
- j) Cured asphalt (to be placed out of wave erosion zone);
- k) Glass; and
- l) Demolition Debris, as defined below.

For the purposes of this consent, “**Demolition Debris**” means materials that result from the demolition of buildings and structures. These materials shall only include:

- a) Stone;
- b) Bricks;
- c) Tiles;
- d) Aggregates;
- e) Reinforced concrete;
- f) Unreinforced concrete;
- g) General rubble;
- h) Cured asphalt (to be placed out of wave erosion zone); and
- i) Glass.

2. Prohibited material:

- a) Gib/plaster board, timber, all metals, carpet, plastics and electrical cables at a total volume of more than 5 percent per load;
- b) Asbestos cement products;
- c) Organic material at a volume of more than 5 percent per load;
- d) Liquids or semi solids (other than fluidised dredge spoil);
- e) Chemicals in bulk, either in a liquid or solid form; and
- f) Sheets of metal cladding.

Appendix CRC175507C – Method Statement for Survey of Intertidal Communities

(adapted from Lilley et al. 2016)

Site selection and timing

In addition to the Battery Point intertidal reef platform, an intertidal reference site will also be surveyed. It is envisaged that the reference site will be east of Battery Point on the north side of the Harbour/Whakaraupō (Livingstone Bay vicinity). The actual reference site selection will need to be based on the following:

- a) Contiguous rocky reef spanning the low to high tide zone,
- b) Similar exposure and physical structure to Battery Point (rock platform, scattered tide pools); and
- c) Similar intertidal community structure to that of Battery Point.

Seasonality (within a two month time period) is to be observed in the timing of the surveys (previous intertidal surveys in Lyttelton Harbour/Whakaraupō by Canterbury University's Marine Ecology Research Group were conducted between May and November 2015).

Each of the two sites should have clearly discernible zones as determined by tidal height and gradient and clear zonation in dominant biota. GPS coordinates for each site must be recorded along with a catalogue of photographs for each transect and representative quadrats within each zone. Sites should be surveyed during spring low tidal conditions (< 0.4 m above LAT).

Quantitative survey data

At each site a 30 m transect will be run parallel to the water line within each of the three tidal zones (low, mid, high). Ten 0.25 m² quadrats should be haphazardly placed along the transect at least 1 m apart. All macroscopic taxa (c. >3 mm) within the quadrat will be recorded. Percentage cover will be estimated for sessile invertebrates and algae, and mobile invertebrates will be counted. Total algal cover can be greater than 100% due to layering of sub-canopy and canopy species. Percentage cover will also be estimated for abiotic variables such as bare space, gravel and sediment.

Qualitative survey aspects

To identify any additional species that may be missed by quantitative sampling, a timed (20 minute) search will be conducted to generate a comprehensive species inventory for each of the two sites. Photographs and notes will be compiled concerning the depth and spatial extent of any settled sediment observed.

Data analysis

Survey data will be used to examine fundamental differences between sites using patterns of dominance and recognised indices of diversity. Statistical analysis of the compiled data will be conducted to identify any statistically significant changes in community structure and any broad temporal trends.

Appendix CRC175507D – Method Statement Bioaccumulation of Contaminants in Filter-Feeding Bivalves

Two species of edible mussel are common at Battery Point, the blue mussel (*Mytilus edulis galloprovincialis*) and the green-lipped mussel (*Perna canaliculus*). During each intertidal survey, samples of mussels are to be collected from the intertidal zone of Battery Point and from the reference site. A third mussel sampling site should be established on the south side of the central Harbour (possibly Ripapa Island vicinity). Scoping of these sites will enable one of the mussel species to be selected (based on prevalence) for bioaccumulation monitoring.

From each of the three sites, triplicate samples (approx. 15 individuals in each sub-sample) should be collected. The samples should be wrapped in clean aluminium foil, placed in pre-labelled polythene bags and stored on ice for transport to the laboratory according to standard sampling protocols (e.g. USEPA 1995). Each replicate sample should be analysed for moisture content, trace metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn) and polycyclic aromatic hydrocarbons (PAHs). Although these analytes do not include all possible contaminants, they will serve as suitable indicators of exposure to inorganic and organic chemicals associated with reclamation fill materials and resuspended bed sediments.

As well as comparison to tissue concentration data from the scientific literature and relevant food standards and guidelines, the results of analysis will be examined to identify temporal changes in relative contaminant concentrations within and between sites.

Exercising of resource consent CRC176030

It is important that you notify Environment Canterbury when you first start using your consent.

GRANTED TO: Lyttelton Port Company Limited
A COASTAL PERMIT (S15): To discharge sediment associated with the reclamation of the seabed and construction of a wharf
LOCATION: Coastal marine area at Lyttelton Port, Lyttelton

Even if the consent is replacing a previous consent for the same activity, you need to complete and return this page.

Providing this information will:

- Validate your consent through to its expiry date
- Minimise compliance monitoring charges
- Help provide an accurate picture of the state of the environment.

If consent CRC176030 is not used before 31 Dec 2022 this consent will lapse and no longer be valid.

Declaration:

I have started using this resource consent.

Action taken: (e.g. pasture irrigated, discharge from septic tank/boiler/spray booth etc).

Approximate start date (*Note: this may be different to the date the consent was granted*): _____

Signed: _____ **Date:** _____

Full name of person signing (please print): _____

Please return to:

Environment Canterbury
PO Box 345
Christchurch 8140

File: CRC175510