



PS23 Ecological Enhancement
Draft Coastal Wetland Restoration Plan

Prepared for
Watercare Services Ltd

Prepared by
Tonkin & Taylor Ltd

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1015172.1600 v1



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Document control

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Date	Version	Description	Prepared by:	Reviewed by:	Authorised by:
22 Sept 2022	0.1	Draft for client review	T. Ghanim S. Heggie-Gracie	S. McMillan	S. Richardson
6 Oct 2022	1	Issue for consent application	T. Ghanim S. Heggie-Gracie	S. McMillan	S. Richardson

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Distribution:

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Introduction and report purpose

Watercare Services Limited (Watercare) proposes to undertake ecological enhancement within the coastal marine area (CMA) adjacent to its at its Pump Station 23 (PS 23) site in Hillsborough, Auckland. The project aims to enhance the ecological value of the intertidal area, which is considered a natural wetland under the Resource Management (National Environmental Standards for Freshwater) Regulations 2020 (NES-Freshwater)¹, and involves the construction of a permanent high-tide bird roost, saltmarsh habitat, and bird roosting timber piles (referred to hereafter as “the project”).

A Restoration Plan is required by Clause 5 of Regulation 39 (restoration of natural wetlands – restricted discretionary activity). This Draft Coastal Wetlands Restoration Plan has been prepared to support a resource consent application to Auckland Council and meet the requirements of Schedule 2 of the NES-Freshwater. It is intended that once the detailed design has been developed and a contractor appointed, this Plan will be updated and submitted to Council as a Final Restoration Plan.

This Restoration Plan follows the structure of Schedule 2 of the NES-Freshwater.

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¹ In accordance with the recent High Court decision (CIV 2021-488-24 CIV 2021-488-26 [2021] NZHC 3113) and Auckland Council’s interpretation, all areas of vegetation, mudflats and estuarine environments in the CMA are considered to be wetlands.

1 Activity site and natural wetland details

(a) Physical address	CMA adjacent to 39 Frederick Street, Hillsborough
(b) Owner of adjacent site (39 Frederick Street)	Watercare Services Limited
(c) Contact details	Shalini Sanjesh Phone: +64 021 346 570 Email: Shalini.Sanjeshni@water.co.nz
(d) Legal description of adjacent site (39 Frederick Street)	Lot 1 DP 161858
(e) map showing the location and boundaries of the natural wetland	See Appendix A
(f) Legal status of the natural wetland under any enactment or plan	NES-Freshwater
(g) Management partners or key stakeholders involved in the restoration plan	Te Ahiwaru–Waiohua (Makaurau Marae Māori Trust) Ngaati Whangaunga Ngāi Tai ki Tāmaki (Ngāi Tai ki Tāmaki Tribal Trust)

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2 Natural wetland features and values

Additional detail of the natural wetland features and values is contained within the resource consent application, including an Assessment of Ecological Effects report² (Ecology Report) and Coastal Processes Assessment and Consent Level Design report³ (Coastal Report).

a Type of natural wetland

Intertidal area mostly comprised of sand flats and soft gloopy mud, with cockle shell-covered flats surrounding the stream outflow across the foreshore (west of the project area). There are also areas of exposed sandstone reef.

b Vegetation in the natural wetland

There is no vegetation in the project area. Within 100 m of the project area, there is a herbfield, small strips of mangrove scrub, and harakeke.

c Hydrology of the natural wetland

The project site is located within the upper reaches of Manukau Harbour, at a distance from the main tidal channel, and is sheltered from open coast waves outside the Manukau Harbour entrance. The project site is at the upper tidal extent, i.e., is only inundated at high tide.

A small stream discharges to the intertidal area, to the west of the project.

d Types of soils in the natural wetland

Firm muddy fine sand flats, soft gloopy mud, cockle shell-covered flats, exposed sandstone reef.

Sediment composition samples indicate finer sediment classes, particularly silt and clay and very fine sands. Overall, sediment composition in the vicinity of the project site shows signs of degradation from land use change and sediment loading to the Manukau Harbour. Typically mud content is between 30 and 60 %.

e Any artificial features in the natural wetland

The PS 23 building is located directly on the coastal edge, built from concrete and blockwork construction. Two sanitary sewer lines lie beneath the foreshore. The Central Interceptor (CI) project tunnel and pipeline alignment is currently being constructed and will run beneath this building. A temporary construction platform is currently within the CMA, to facilitate CI construction, and the project will be located almost entirely within the footprint of this platform once it's removed. A rock revetment will be constructed along the edge of the PS 23 site and two stormwater outlets will be reinstated during construction of the seawall.

Private jetties are located to the west of the project area.

Two high voltage (110kV and 220kV) transmission lines supported by support structures are in the harbour between Taylors Bay and Taumanu Reserve.

Auckland Council holds resource consents to construct a pedestrian boardwalk across the intertidal area.

² Tonkin + Taylor Ltd. (October 2022). PS23 Assessment of Ecological Effects. T+T ref 1015172.1600

³ Tonkin + Taylor Ltd. (October 2022). Pump Station 23 Ecological Enhancement: Coastal Processed Assessment and Consent Level Design. T+T ref 1015172.1600

f Any fauna known to use the natural wetland or its surrounding area

Intertidal habitats in the area provide effective foraging habitat for coastal birds.

The sandstone reefs, firm muddy fine sand flats, and soft gloopy mud are expected to support a diverse species assemblage including sea snails, seaweeds, sponges, crabs and shrimps, bivalves, polychaete worms, amphipods, chitons, echinoderms, sea squirts, barnacles, anemones and fish. Pacific oyster beds are also present in the area.

g Any special features of the natural wetland

The Manukau Harbour in the area relevant to the project is a Coastal Statutory Acknowledgement Area of Ngāti Tamaoho, Ngai Tai ki Tamaki (which covers the eastern half of the Manukau Harbour) and Te Kawerau a Maki (which covers the northern portion of the Manukau Harbour).

A number of iwi, hapu and whanau groups have made customary marine title claims to the Manukau Harbour under the Marine and Coastal Area (Takutai Moana) Act 2011.

There are no other known special features of the natural wetland (for example, sites of cultural significance such as archaeological features, areas of cultural harvest, historic sites, or recreational areas).

3 Natural wetland issues

a Current state or condition of the features and values of the natural wetland

The Ecology Report submitted with the resource consent application provides an overview of the wetland habitat values which have been assessed according to Environment Institute of Australia and New Zealand EIANZ criteria. The below is a summary of the findings:

- Marine habitats within the footprint of the proposed saltmarsh, bird roost, and surrounding rock sills/ rocky outcrop: negligible ecological value (due to these proposed features being within the footprint of a temporary works platform that is currently on the foreshore).
- Marine habitats adjacent to the temporary works platform: high ecological value.
- Mangrove: low ecological value.
- Herbfield: moderate ecological value.
- Harakeke: low ecological value.
- Coastal birds: very high ecological value.

The following characteristics of the CMA surrounding the project are noted

- The benthic invertebrate communities at Council monitoring sites near the project area are classed as 'Good' (to the West) and 'Poor' (to the East), indicating that there is a range in benthic degradation in the Manukau Harbour.
- Marine sediments typically comprise < 50% silt and clay grain sizes.
- Contaminant concentrations in sediment rarely exceed low effects threshold concentrations.
- Few invasive opportunistic and disturbance tolerant species present.

b Threats to the natural wetland and the opportunities for restoring its features and values

The intertidal area that the project will occupy is currently of negligible ecological value.

Watercare aims to enhance the ecological values of the CMA through habitat creation. The Project involves ecological habitat construction within the footprint of the existing temporary platform in the CMA, incorporating a constructed bird roost, indigenous saltmarsh vegetation, rocky outcrop, and timber piles.

4 Management objectives for natural wetland

The objective of the project is to provide long-term positive ecological benefits for coastal biodiversity, particularly birds and wetlands. The proposed works will involve the replacement of an existing temporary construction platform used for the CI project with a permanent high-tide bird roost and saltmarsh habitat.

The following resource consents have been obtained:

- *Once consents are granted, list consent reference, purpose and expiry*

Consent conditions relevant to this Restoration Plan are as follows:

- *Once consents are granted, list relevant conditions*

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5 Operational details

a The timelines for the activities and the persons responsible for resourcing and delivering them

Planting of the saltmarsh will be undertaken as soon as practicable following construction, during late autumn and winter.

Watercare is responsible for planting and ongoing maintenance.

b Plan showing the operational areas

Refer to the design drawings in **Appendix B**.

c Planting to be done

(i) a diagram showing the general areas for planting:

A planting plan will be prepared as part of detailed design, and included in the Final Restoration Plan as Appendix C. However, it is envisaged that there will be three planting zones within the saltmarsh, as follows:

- Zone 1: closest to shore
- Zone 2: middle zone
- Zone 3: furthest from shore

(ii) the species to be used within specific areas (for example, areas of standing water, wetter margin areas, or drier areas):

Table 5.1: Draft species composition within saltmarsh wetland

Species name	Common name	Planting zone and abundance	Spacing (m)
<i>Apodasmia similis</i>	Oioi	1, 2, 3 ++	0.5
<i>Coprosma repens</i>	Taupata	3 +	2
<i>Ficinia nodosa</i>	Wīwī	2 ++	0.5
<i>Juncus kraussii</i>	Sea rush	1 +	0.5
<i>Plagianthus divaricatus</i>	Saltmarsh ribbonwood	2, 3 +	2

Note: Zone 1 = closest to shore, Zone 2 = middle zone of planting, Zone 3 = furthest from shore.

++ = use commonly, + = use sparingly

(iii) the spacing of the plants:

Refer to Table 5.1.

(iv) the sources of the plants (for example, local native plant nurseries or locally sourced seed):

Eco-sourced from the Tāmaki Ecological District (ED) where plants are available, or adjacent ED where not available from Tāmaki ED. All plants to be sourced from local native plant nurseries or grown from locally sourced seed.

(v) the approach to releasing the plants (including how often, for how many years, and by what method weeding will be done around the plants):

Pest plant management will be undertaken once each year for 3 years following plant establishment. Pest plants will be dug out or spot sprayed with suitable agrichemicals for use in proximity to the marine environment.

Any plants that do not survive following each year will be replaced.

d Any vegetation to be removed, including species and methods of removal (for example, cutting, digging, or spraying):

No vegetation will be removed.

e Any machinery to be used and the purpose of its use:

The machinery used at the site will be confirmed once the contractor has been appointed and the final construction methodology determined.

f Description of the approach to water management

The shoreline (defined by MHWS) will move seaward as a result of the project. However, the proposed salt marsh will continue to function as a coastal environment, with water extending into the protected planting area at high tides.

g Managing erosion and sediment

Erosion and sediment control measures will be detailed in a Construction Management Plan. These will likely include the following measures:

- Minimise areas of disturbance to that necessary to undertake construction;
- Ensuring work in the intertidal zone will be undertaken “in the dry” around the lower stages of the tide window to avoid working within water;
- Weather (tide, wind, wave) forecasts will be monitored to ensure work areas are stabilised prior to any significantly inclement weather that may result in loss of sediment into the CMA; and
- All supratidal (above MHWS) demolition and excavation will be contained within silt fence or behind rock sills.

h Animal pest control

No animal pest control is proposed due to the species composition proposed (saltmarsh species) which are not preferentially targeted by pest mammals. Pest mammals with a low likelihood of causing damage to plantings at this location include possums (*Trichosurus vulpecula*) and rabbits (*Oryctolagus cuniculus*) which may be present in low numbers. Given the urban environment, trapping or baiting is also not recommended due to potential interference or harm to the public.

No pūkeko (*Porphyrio melanotus*) have been identified at the site to date, so loss of plants to pūkeko is considered unlikely. During pest plant management (once per year for three years following plant establishment), any loss of plants to pūkeko may trigger plant protection measures (such as increasing plant size to PB3 or larger or protecting plants from pūkeko with wire).

i Actions to minimise any adverse effects on fauna or to enhance values for fauna

Birds will be temporarily affected during construction as a result of noise, light and mobilisation disturbances. Construction will be undertaken at low-mid tide, at which point the coastal birds will predominantly be found foraging in the intertidal soft mud habitat. It is expected that birds will either be far enough from the site that they're not disturbed, or that they will temporarily self-relocate to other intertidal feeding areas within the vicinity and wider Manukau Harbour if disturbed.

Erosion and sediment control measures implemented prior to works starting will appropriately manage potential uncontrolled sediment discharges from the site.

The project will enhance values for fauna: the saltmarsh will provide foraging and roosting habitat for cryptic wetland birds, and the proposed bird roost, rocky outcrop, and timber piles will provide roosting habitat for a variety of coastal birds, including both colony and solitary roosting species.

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6 Review and reporting

This section will be completed once resource consents are granted, to reflect the monitoring and reporting requirements of those consents.

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7 Applicability

This report has been prepared for the exclusive use of our client Watercare Services Ltd, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

We understand and agree that this report will be used by Auckland Council in undertaking its regulatory functions in connection with PS23 Ecological Enhancement Project.

Tonkin & Taylor Ltd
Environmental and Engineering Consultants

Report prepared by:

Authorised for Tonkin & Taylor Ltd by:

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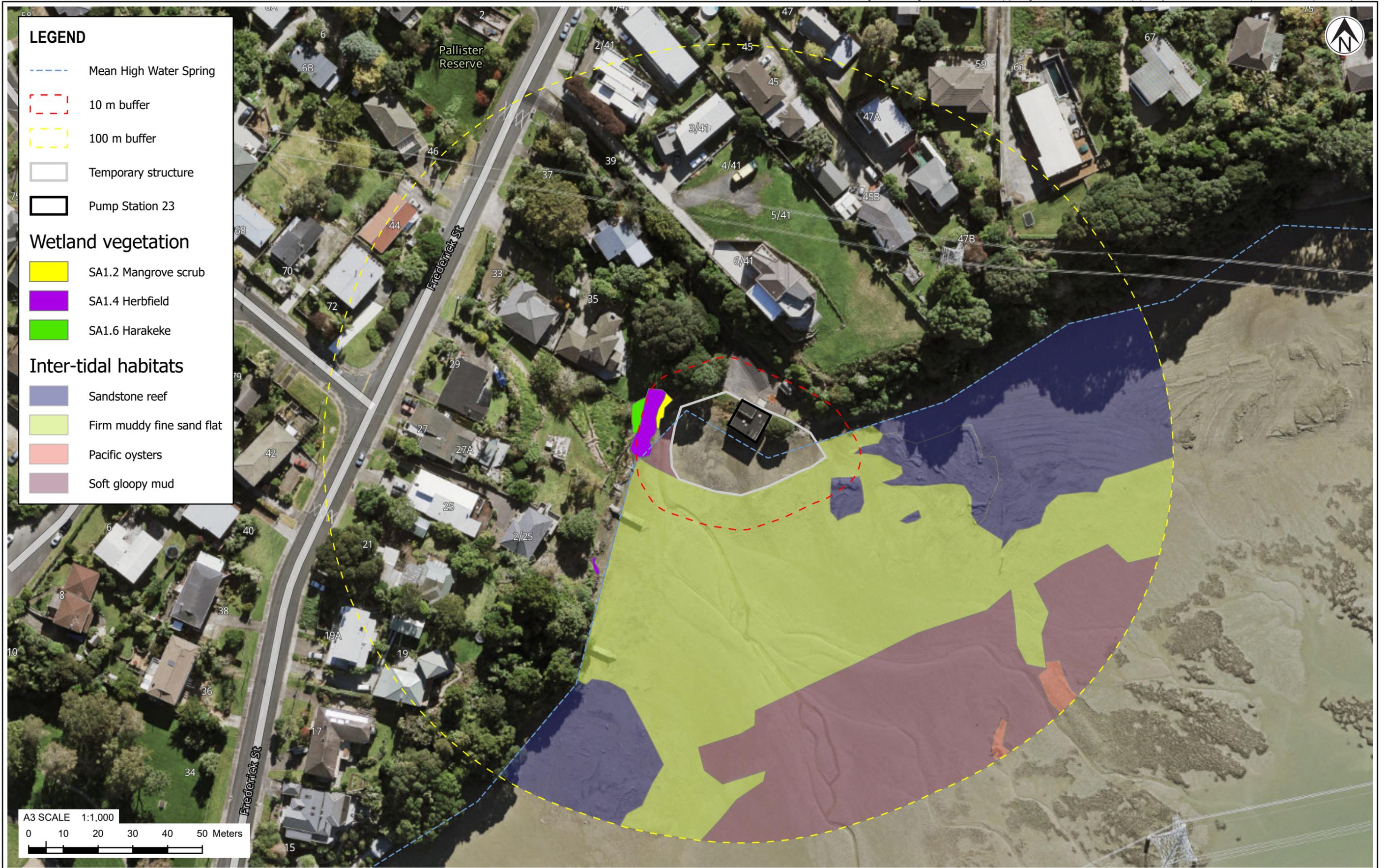
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Appendix A Map of existing habitats

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NOTES:
 Basemap NZ Hybrid Reference (Vector): Eagle Technology, LINZ, StatsNZ, NIWA, Natural Earth, © OpenStreetMap contributors.. NZ
 Navigation Map: Eagle Technology, LINZ, StatsNZ, NIWA, Natural Earth, © OpenStreetMap contributors.. NZ Imagery: Eagle
 Technology, Land Information New Zealand, GEBCO, Community maps contributors

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DRAWN	SHEG	JUN.22
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CLIENT	WATERCARE SERVICES LIMITED
PROJECT	CI - PS23 BIRD ROOST DESIGN
TITLE	WETLAND DELINEATION
SCALE (A3)	1:1,000
FIG No.	FIGURE 1.
REV	0

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Appendix C Saltmarsh planting plan

To be prepared as part of detailed design

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