APPENDIX 23A
SITE WIDE ECOSYSTEMS AND INDIGENOUS BIODIVERSITY MANAGEMENT PLAN

Plimmerton Farm, Porirua

Ecosystems and Indigenous Biodiversity

Management Plan

Report prepared for

KM & MG Holdings Ltd

Prepared by

RMA Ecology Ltd

Report number and date

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BETTER ECOLOGICAL OUTCOMES

PREPARED FOR:

KM & MG Holdings Ltd

PO Box 47-153

Upper Hutt 5018

Prepared by:	Tony Payne Principal Ecologist
Reviewed and Authorised by:	Graham Ussher Principal Ecologist

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BETTER ECOLOGICAL OUTCOMES

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1.0 Introduction

KM & MG Holdings Ltd propose to develop the 384 ha Plimmerton Farm site for commercial and residential land use (**Figure 1**). Development is expected to occur over a 20-year period and will be undertaken in a staged manner.

The site was rezoned via Plan Change 18 ('Plimmerton Farm Zone') that amended the Porirua City Operative District Plan (the District Plan) to introduce the Plimmerton Farm Zone (PFZ) including the Plimmerton Farm Precinct Plan.

Overall, the Plan Change provides for:

- Additional housing capacity of approximately 2,000 dwellings of various typologies (including a retirement village);
- Water sensitive urban design to protect receiving waters;
- Protection and augmentation of Significant Natural Areas and a Special Amenity Landscape;
- A commercial area that is to be confirmed via resource consent information requirements; and,
- Integrated transport and movement networks.

This Ecosystems and Indigenous Biodiversity Management Plan (EIBMP) has been prepared for KM and MG Holdings Limited (KMMG) to satisfy the environmental enhancement, management and monitoring requirements set out in the objectives, policies and information requirements of Plan Change 18 (PC18) of the District Plan, approved by the Minister for the Environment in February 2021.

Ultimately, this plan provides the overarching ecological management for the site in accordance with the relevant provisions in PC18.

Figure 1. The full extent of the Plimmerton Farm development area, site boundary (pink line).

1.1 Plan Change 18

The polices and subdivision information requirement for the Plimmerton Farm Zone (PFZ) have determined the scope of this EIBMP. Ultimately, the over-arching objective of the EIBMP is to provide the principles to maintain, protect and enhance ecological values and guide future resource consents while also ensuring sustainable land use in accordance with the PC18 provisions.

This principles-based approach will be achieved through adhering to consents sought and obtained under the provisions of the PFZ as well as regional consents under the Natural Resources Plan (NRP) and the National Environmental Standards for Freshwater (NES-F).

A flowchart illustrating the PC18 consenting process and required ecological plans is provided in **Figure 2** and described in **Table 1.**

In order to assist Council Officers in confirming that this plan meets the relevant information requirement, **Table 2** below provides a reference for each relevant provision and relevant excerpts are provided in **Table 3**.

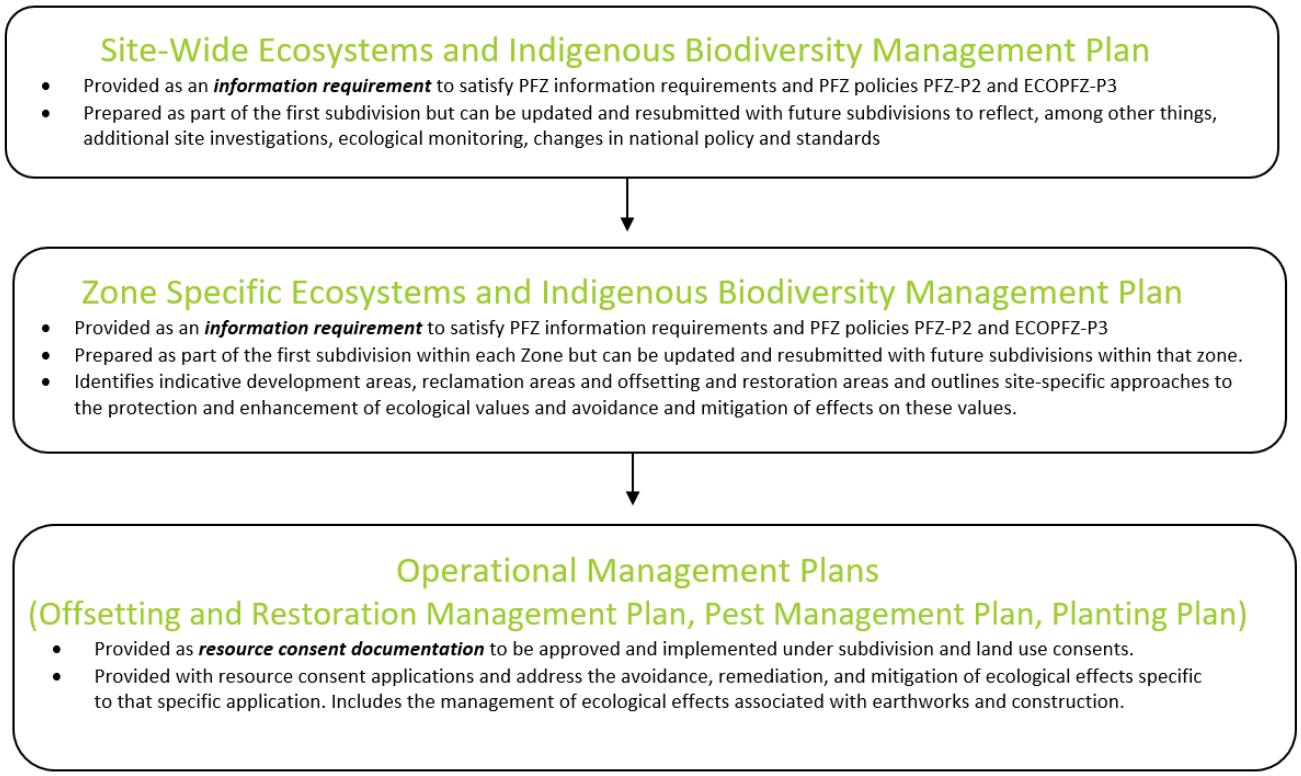

Figure 2. Information requirements for the Site-wide EIBMP, Zone EIBMP and resource consent stages.

Table 1. Description of information requirements for Site-wide EIBMP, Zone EIBMP and resource consent stages.

Factor	Site-wide EIBMP *(to be provided with all subdivision consents)*	Zone EIBMP *(to be provided with all subdivision consents within the relative zone)*	Resource consent stage & management plans
Mapping of ecological features	Coarse level for streams reliant on site-walkovers. Fine level for wetlands & SNAs so that indicative development areas can be overlaid to assess loss of features. Outline site-wide principles for avoidance, minimisation, mitigation hierarchy as per Precinct provisions.	Obtain earthworks footprint & overlay ecology features. Resolve/ refine/ justify intersections - loss; avoid where feasible. Provide relative values/ importance for features within zones, especially those not able to be avoided.	In-depth description of features according to current-day rules, national guidance and national standards. Impact assessment where effects cannot be avoided.
Protection of wetlands, streams, SNAs	Identify coarse areas to protect – eg. outside of broad earthworks areas. Outlines principles to protect & covenant. State assumptions around availability for offset & compensation.	Finer-level mapping relative to proposed earthwork extents. Include area estimates for protection of different types - wetland, stream, scrub etc. Indicate clearly BORA (existing or revised) areas available for enhancement if needed.	Provide exact areas for protection. Provide exact areas for loss. Apply effects mitigation hierarchy. Provide mitigation & offset where required) compensation balance & accompanying management plan for restoration & use of BORAs etc.
Fencing of SNAs & qualifying SNAs	Outline principles for fencing – assume 10 m wide from SNA boundary, but adjustable according to set of principles.	Fencing for SNAs for that zone in detail – indicative mapping and provide assessment if fencing less than 10m in specific places – relating to veg types/ SNA mapping inaccuracies etc	Set out for fencing, survey, fencing type, interaction/ proximity with services, roads & Lot boundaries.
BORAs	BORAs included in Precinct Plan. Outlined principles to amend or revise location of BORAs - extent, linkages.	Existing or revised BORAs formalised for the Zone relative to earthworks extents –extent area & linkages to be maintained.	Drawings show detail of existing or revised BORA relative to Lots, services, roads, any planting or management within BORAs for that

Factor	Site-wide EIBMP *(to be provided with all subdivision consents)*	Zone EIBMP *(to be provided with all subdivision consents within the relative zone)*	Resource consent stage & management plans
			stage if required for mitigation or offset or landscape treatments.
Pest control – animals & weeds	Outline general provisions to multi-species control. List priority areas to control pest & weeds, or site-wide species control if that approach is more effective.	Specify where pest control will be undertaken in the zone and specific timing, extent, type of control. Specify what species to control. Targets for control	Confirm areas, types, programme, targets and timing.
Revegetation/ restoration	Generic species lists for different planting environments – gully, slope, raw batters etc. Generic maintenance, replacement, monitoring, reporting etc in accordance with intent of PC18.	Indicate indicative areas for planting Specific planting zones & schedules with grades, %, but not numbers/ areas.	Confirm plant areas, sizes, types, schedules, numbers. Outline implementation and future maintenance obligations.

Table 2. Relevant PC18 provisions and direction to the relevant section(s) of this Plan.

PC18 provision	Relevant Section of this Plan
SUB$_{PFZ}$-IR-1 – SPATIAL INTEGRATION AND ONGOING PROTECTION AND MANAGEMENT	
Applications under rule SUBPFZ-R1, SUBPFZ-R2, SUBPFZ-R3, SUBPFZ-R4, SUBPFZ-R5 or SUBPFZ-R6 must include, for the entirety of the Zone, at least the following: *Environmental enhancement and management*	See below.
1. The extent of all permanent and intermittent waterways to be protected and their margins and associated riparian buffer areas, and measures to restore and enhance them compared to their pre-development state.	Sections 3.4, 5.1- 5.4 Appendix A. Figure 6
2. The extent of all natural wetlands and their margins, and measures to restore and enhance them compared to their pre-development state.	Sections 3.5, 5.1- 5.4 Appendix B. Figure 6
3. The extent of any other wetlands to be protected, and their margins, and measures to restore and enhance them compared to their pre-development state.	Sections 3.5, 5.1- 5.5 Appendix B. Figure 11
4. The extent of all Significant Natural Areas and their margins and the restoration proposed to enhance the values of Significant Natural Areas within the Zone compared to their predevelopment state.	Sections 4.1, 5.1, 5.4 Appendix A Figure 11
5. The extent of all Biodiversity Offsetting and Restoration Areas and any associated ecological enhancement areas, and measures to restore and enhance them compared to their predevelopment state.	Section 4.2 Figure 7, Figure 12
6. Any Areas of Significant Terrestrial Indigenous Biodiversity outside of Significant Natural Areas and Biodiversity Offsetting and Restoration Areas, and any associated ecological enhancement areas, and measures to restore and enhance them compared to their predevelopment state.	Sections 4.2, 4.2.2 Appendix A Figure 7
7. Catchment and sub-catchment boundaries.	Section 3.3, Appendix A Figure 9
8. The provision of cat management (such as education) and /or cat ownership controls and if controls proposed the legal mechanisms to be employed.	Section 5.5.1
9. The extent of planting proposed for all riparian margin setback areas and how they will be managed and maintained on an ongoing (as necessary) basis.	Sections 5.1-5.5
10. For all of 1. to 9. above, an Ecosystems and Indigenous Biodiversity Management Plan shall be provided that:	See below.
a. Gives effect to the requirements for Significant Natural Areas, Areas of Significant Terrestrial Indigenous Biodiversity and Biodiversity Offsetting and Restoration Areas as set out in ECOPFZ-P5, ECOPFZ-P7, ECOPFZ-P8 and ECOPFZ-P9;	Full document
b. Methods to recognise and provide for Te Mana o te Wai in receiving waters	Sections 3.2, 5.1-5.5
c. Provides details for ongoing (as necessary) pest management across the site	Section 5.5
d. Fencing to exclude stock animals from Significant Natural Areas, Areas of Significant Terrestrial Indigenous Biodiversity and Biodiversity Offsetting and Restoration Areas;	Section 5.2.1
e. Offsetting and restoration for Biodiversity Offsetting and Restoration Areas, or other areas, that includes:	Section 5.3
i. Buffering and augmentation of Significant Natural Areas;	Section 5.2
ii. Retention of existing gully vegetation and regenerating native bush to assist in the reinstatement of vegetation cover. Restoration may	Section 5.1

be promoted via natural regeneration of indigenous vegetation on retired pasture and other areas;	
iii. Restoration of landform and vegetation cover that is compatible with the wider landscape-scale natural ecosystem that Plimmerton Farm is part of;	Section 5.1
iv. Planting including plant sources, establishment and maintenance;	Sections 5.3, 5.4 Appendix C
v. Provision for cultural harvesting;	Section 5.3.1
vi. Specifies legal mechanisms for the land-owner's responsibility for the ongoing management including funding for Significant Natural Areas, Biodiversity Offsetting and Restoration Areas and Areas of Significant Terrestrial Indigenous Biodiversity;	Section 6.0
11. Sets out a monitoring and enforcement framework for the matters detailed in clauses 1. to 9. above.	Section 7.0

Table 3. Relevant excerpts of PC18 relating to ecological provisions identified in ECO_{PFZ}-P5, ECO_{PFZ}-P7, ECO_{PFZ}-P8 and ECO_{PFZ}-P9

The policies of relevance to this Plan are outlined below.

ECO_{PFZ}-P5	**Protection of Significant Natural Areas and Areas of Significant Terrestrial Indigenous Biodiversity**

Protect the biodiversity values of Significant Natural Areas identified in *ECO_{PFZ}-Appendix-1: Schedule of Significant Natural Areas* and Areas of Significant Terrestrial Indigenous Biodiversity, by requiring subdivision, use and development to:

1. Avoid adverse effects on indigenous biodiversity values associated with:
   a. Loss of ecosystem types and their extents;
   b. Reductions in abundance of threatened species;
2. Avoid other adverse effects on identified indigenous biodiversity values where practicable;
3. Minimise other adverse effects on the identified biodiversity values where avoidance is not practicable;
4. Remedy other adverse effects where they cannot be avoided or minimised; and
5. Only consider biodiversity offsetting for any residual adverse effects that cannot otherwise be avoided, minimised or remedied and where the principles of *ECO_{PFZ}-Appendix 2 Biodiversity Offsetting* are met; and
6. Only consider biodiversity compensation after first considering biodiversity offsetting and where the principles of *ECO_{PFZ}-Appendix 3 Biodiversity Compensation* are met.

ECO_{PFZ}-P7	**Appropriate Use and Development in Significant Natural Areas, Areas of Significant Terrestrial Indigenous Biodiversity and Biodiversity Offsetting and Restoration Areas**

Enable vegetation removal within Significant Natural Areas, Areas of Significant Terrestrial Indigenous Biodiversity or Biodiversity Offsetting and Restoration Areas for the following activities where the vegetation removal is of a scale and nature that maintains the identified biodiversity values:

1. Maintenance around existing buildings and infrastructure;
2. Safe operation of roads, tracks and accessways;
3. Restoration and conservation activities; and
4. Opportunities to enable tangata whenua to exercise customary harvesting practices.

ECO$_{PFZ}$-P8	Other Subdivision, Use and Development in Significant Natural Areas and Areas of Significant Terrestrial Indigenous Biodiversity

Only allow subdivision, use and development in Significant Natural Areas and Areas of Significant Terrestrial Indigenous Biodiversity where the activity:

1. Avoids SNA049 Camborne Bush except for protection and restoration activities in accordance with ECO$_{PFZ}$-P10;

2. Applies the effects-management hierarchy of ECO$_{PFZ}$-P5;
3. Recognises Te Mana o te Wai in receiving waters;
4. Takes into account the findings of an ecological assessment from a suitably qualified ecologist that determines the significance of the indigenous biodiversity values, the impact of the activity on the identified biodiversity values in order to support the application of the effects management hierarchy of ECO$_{PFZ}$-P3;
5. Provides for the formal protection and ongoing active management;
6. Minimises the land ownership fragmentation and physical fragmentation as part of the subdivision, use or development;
7. Avoids locating building platforms and vehicle accessways;
8. Minimises trimming or removal of indigenous vegetation to avoid loss, damage or disruption to the ecological processes, functions and integrity of the area;
9. Minimises earthworks;
10. Relates to the construction of the Primary Collector Road through the site or has a functional need to be in, or to cross, the specific location; and
11. Minimises the potential cumulative adverse effects of activities on the values of the area.

ECO$_{PFZ}$-P9	Other Subdivision, Use and Development in Biodiversity Offsetting and Restoration Areas

Provide for subdivision, use and development in Biodiversity Offsetting and Restoration Areas where the activity protects or restores ecological, hydrological and amenity values, or provides opportunities for biodiversity offsetting, that:

1. Requires planting regimes and ongoing pest animal and pest plant management;
2. Recognises Te Mana o te Wai in receiving waters;
3. Encourages water sensitive design;
4. Has a functional need or operational need for the specific location; and
5. Minimises physical fragmentation as part of the subdivision, use or development.

1.2 EIBMP Purpose

It is recognised that given both the scale of the project, as well as the 20-year development timeframe, the full breadth of protection areas cannot be fully determined in this Plan. Rather, it is the intent of this site-wide EIBMP ('EIBMP') to provide the over-arching guidelines and principles that will inform Zone EIBMPs ('ZEIBMP'), and future resource consent applications, which will be prepared to address the ecological matters relating to the area being developed at that point in time.

ZEIBMPs provide greater detail of activities which seek to achieve a no-net-loss of terrestrial, wetland and stream biodiversity values. These will follow their own independent programme and will ensure that key priority actions and ecological mitigation and restoration occurs ahead of significant site works being advanced as part of the development stages.

Site-specific works, including ecological restoration interventions, will be developed and confirmed at the resource consent stage (refer table and flowchart above).

Overall, the measures identified in this EIBMP will be implemented via future resource consents.

1.3 EIBMP Implementation

1.3.1 Zone EIBMP

Due to the extensive scale of values for restoration, restoration management requires a strategic and staged approach in order to appropriately prioritise protection of values on both a spatial and temporal scale. The site has been split into three ecological management zones (EMZ) to achieve this (**Figure 3**). Each zone requires the development of a ZEIBMP once construction footprint designs have been refined. Construction footprint designs will be confirmed at the resource consent stage.

The purpose of the ZEIBMP is to provide the following:

- Include refined earthworks footprint with an overlay of ecology features;
- Resolve, refine and justify intersections where there is a loss of ecological values; avoid where feasible;
- Provide relative ecological values/ importance for features within zones, especially those not able to be avoided;
- Provide a finer-level of ecological mapping relative to confirmed earthwork extents;
- Include area estimates for protection of different types - wetland, stream, SNA, other SNA;
- Indicate clearly BORA areas available for enhancement, if needed;
- Provide details where fencing for SNAs may occur, streams and wetlands for that Zone – indicative mapping and why less than 10 m in specific places – relating to vegetation types/ SNA mapping inaccuracies;
- BORAs formalised for the Zone relative to earthworks extents – (extent, area and linkages to be maintained);
- Specify where weed and animal pest control will be undertaken;
- Specify what weed and animal pest species will be control;

- Targets for control;
- Indicate where planting may occur (indicative); and
- Specific planting zones & schedules with grades, %, but not numbers/ areas.

Some restoration actions will extend beyond EMZs (e.g. fencing), where appropriate, while others (e.g. pest management) will only be triggered when development is undertaken in the relevant Zone. This approach recognises the practicalities of managing 384 ha, while also protecting and enhancing the significant ecological values on site at appropriate landscape, catchment and ecosystem scale.

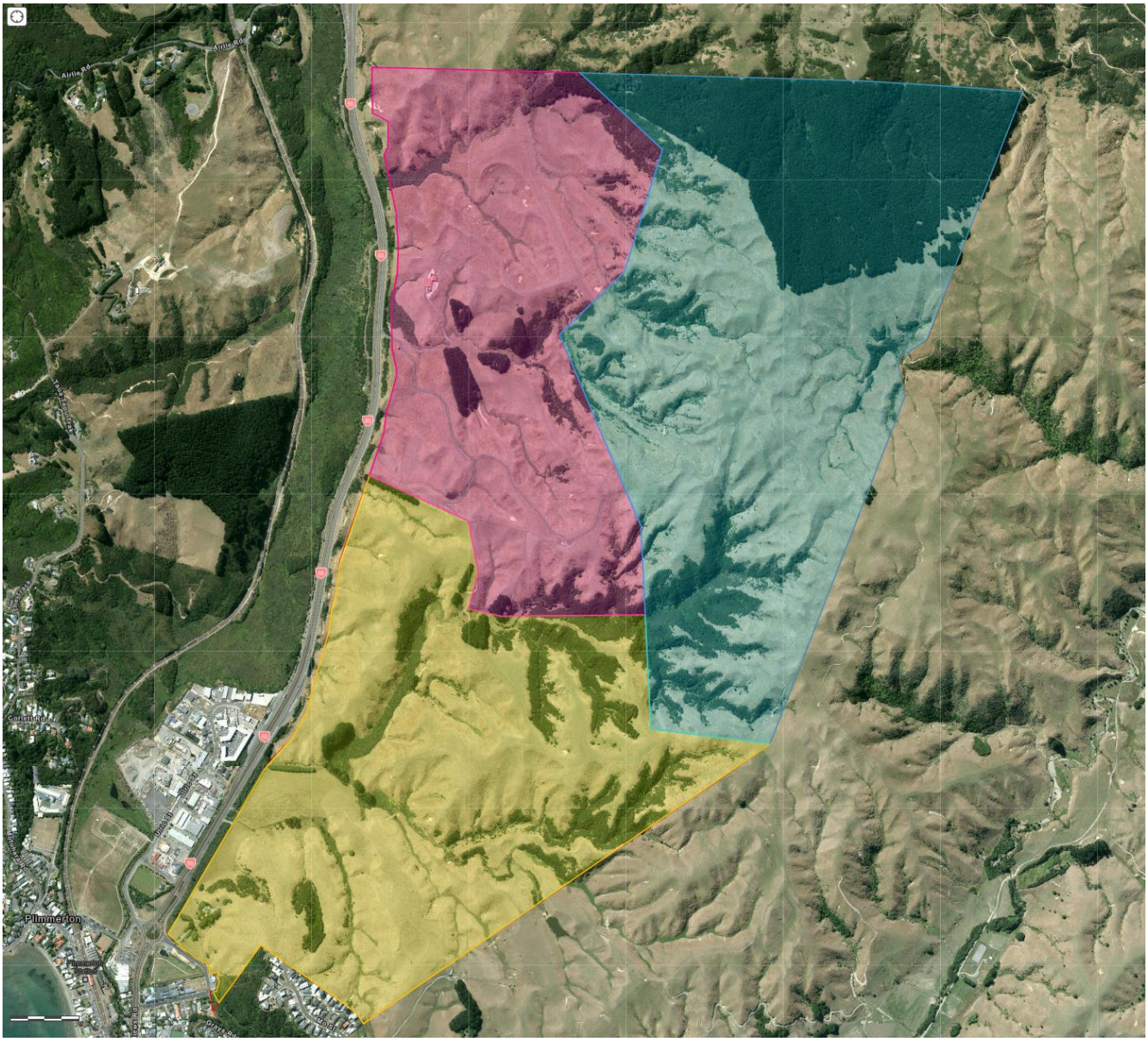

Figure 3. Ecological Management Zones (EMZ). Zone 1 (yellow), Zone 2 (pink), Zone 3 (blue)

1.3.2 Future Resource Consents

Future development of the site will be undertaken in accordance with resource consents obtained under provisions in the PFZ chapter of the District Plan as well as provisions of the NRP and the NES-F that are administered by Greater Wellington Regional Council (GWRC).

The Ecosystem Indigenous Biodiversity chapter of the Plimmerton Farm Zone, manages the following activities:

1. Subdivision of sites that contain SNAs;
2. Construction of residential units on sites that contain SNAs;
3. Vegetation removal and earthworks within SNAs;
4. Restoration and maintenance; and
5. Other activities not specifically provided for.

For all subdivisions in the Plimmerton Farm Zone (except boundary adjustments), the subdivision application must include an EIBMP that includes all of the information listed in **Table 2** above.

Activities that would require consent and discharge permits from the Greater Wellington Regional Council include:

- Discharging stormwater or contaminants;
- River / stream crossings; and
- Discharges associated with earthworks.

Administered by GWRC, activities that would require consent under the NES-F include:

- Earthworks and stormwater diversion within 100 m or 10 m of a natural inland wetland;
- Culverts; and
- Stream reclamation.

It is acknowledged that the scope of activities covered under the NES-F may change based on the proposed changes to the NPS-FM and NES-F currently being considered by MfE.

It is through the ZEIBMP that the ecological values of the specific zones will be confirmed and through future resource consents that potential effects on these ecological values and biodiversity function of the site will be assessed and protection and enhancement measures implemented.

1.4 EIBMP Structure

The EBIMP generally follows the structure of the PC18 provisions relating to environmental enhancement, management and monitoring (ECO_{PFZ}-P7, ECO_{PFZ}-P8 and ECO_{PFZ}-P9, provided in full in **Appendix A**) however, it also contains a range of other information not specifically required from the provisions which is considered important for providing context and detail to Council and the land owner, consultants and contractors during the implementation of this Plan.

In accordance with the PC18 information requirements, the EIBMP will be provided with every subdivision resource consent application within Plimmerton Farm. As noted above, the EIBMP may be updated to reflect changes to principles or changes in district, regional or national standards and guidance.

The EIBMP is structured as follows:

1. Introduction;
2. Methodology;
3. Freshwater ecology descriptions;
4. Terrestrial ecology descriptions;
5. Mitigation and management principles;
6. Protection mechanisms; and
7. Maintenance, monitoring and reporting.

1.4.1 Contractual Requirements

KM & MG Holdings Ltd (or other relevant land holding entity) will require the following environmental management responsibilities for its contractors:

- Take all reasonable steps to care for and protect the environment;
- Be familiar with the relevant resource consents;
- Where relevant, be responsible for the implementation of the EIBMP and have appropriate procedures to comply with environmental management requirements; and
- Adhere to the requirements of any other relevant plan that has been prepared for the project.

All contractors will be issued with a controlled copy of the EIBMP. A copy of the EIBMP will be kept on site at all times that physical works authorised by the associated resource consents is being undertaken.

1.4.2 EIBMP Roles and Responsibilities

Descriptions of the roles and responsibilities for stakeholders is provided in **Table 4**.

Table 4. Descriptions of the roles and responsibilities for stakeholders.

KM & MG Holdings Limited (or any future land holding entity)	Responsible for providing the EIBMP and supporting documentation to their contractors. They are responsible for ensuring that their consultants and contractors understand the content of the documentation and what their role will be in delivering ecological mitigation measures. Ultimately it is the land holding entity's responsibility to: - Ensure contractors have access to all documentation or data required to meet the requirements of the EIBMP and future ZEIBMP. - Ensuring all of their staff are aware of the requirements of the EIBMP and ZEIBMPs. - Responsible for ensuring that all ecological mitigation works that form part of the EIBMP and ZEIBMPs are delivered.

Main Contractor (including their sub-contractors)	Responsible for ensuring that they fully understand the requirements for delivering the EIBMP and ZEIBMPs, and its supporting documentation. They will be responsible for ensuring that all of their staff are aware of the requirements of the EIBMP and ZEIBMPs. The competent contractor will work closely with the Project Ecologist to ensure that an ecologist is present to provide supervision as required, in accordance with the EIBMP and ZEIBMPs.
Project Ecologist	Responsible for working with the Contractors, Project Engineers, Project Landscape Architect and Council compliance staff to ensure compliance with the requirements of the EIBMP and ZEIBMPs, Regional Consents and Permits. The Project Ecologist will need to have the competencies to undertake the works specified within the EIBMP and ZEIBMPs. It is anticipated that the Project Ecologist role may be filled by a number of individuals with certain species-specific skill sets.
Design Consultant (Project Engineers)	Responsible for developing an understanding of the ecological requirements and for seeking solutions that meet the requirements of the EIBMP and ZEIBMPs.
Project Landscape Architect	Responsible for taking into consideration the requirements of the EIBMP and ZEIBMPs and for seeking ways in which this can be complemented by the wider landscape plantings.
Project Arboriculturist	Responsible for working with the Contractor and the Project Ecologist during the removal of vegetation to ensure compliance with the requirements of the EIBMP and ZEIBMPs, while undertaking works in accordance with Health and Safety requirements.
Pest Control Contractor	Responsible for the delivery of pest control within the site. The contractor is responsible for monitoring pest levels to identify if they are below target level. If this is not the case it is their responsibility to indicate to the land holding entity how the pest control should be adjusted to achieve target levels.
Council's Regulatory and Monitoring Staff	Responsible for reviewing the implementation of EIBMP and ZEIBMPs and providing guidance if it is determined that there may be a need for a change in approach.
Ngāti Toa Rangitira	May have future responsibility for environmental management and enhancement measures outlined in the ZEIBMPs.

1.5 Site Description

Plimmerton Farm predominantly occupies moderate to steep hill land bordering on Camborne and the lower Taupo Stream in Porirua City (**Figure 1**, **Plate 1**). The site is within the Wellington Ecological District. The current ecological state of the site is extensively modified from its original, pre-human natural state.

The majority of the site – comprising spur, ridge and hill-slopes – has established pasture with dryland grassland species such as sweet vernal, brown top, cocks-foot, ryegrass and clover as the dominant species. While the land within Plimmerton Farm is managed mostly as pasture grassland, it has some substantial areas of regenerating scrub and forest in gullies with small remnant values of broadleaved forest (dominated by canopy tree species kohekohe and tawa). Indigenous vegetation is predominantly situated in lower gully systems, and the sides of rolling hills where pastoral conversion has been more difficult and there is a 47 ha block of managed pine forest in the north-eastern corner of the site.

The northern catchment of the Plimmerton Farm site drains to the Taupō Swamp via three culverts beneath SH59 and the southern catchment of Plimmerton Farm drains via Taupō Stream to Te Awarua-o-Porirua Harbour. The farm forms about 35 % of the 1,108 ha Taupo Stream catchment. Within this catchment, Plimmerton Farm lies immediately to the east on the opposite side of SH59 of the lower half of the Taupo Swamp Ara Harakeke (Taupo Swamp Complex). 18.1 % of the total area of the Taupo Swamp catchment falls within Plimmerton Farm. About 12 % of the farm area, on its eastern and north-eastern boundaries, falls outside the Taupo Stream catchment and lies within the Kakaho Stream catchment.

A lot of small headland tributaries with stock access have been severely modified through farming activities, resulting in collapse of the original stream bed and presence of 'induced wetlands' in the headwaters of some catchments. In general, higher ecological values on site are comprised of flaxland and regenerating forest within the lower gully systems, contiguous areas of kanuka scrub/ forest which provide habitat for native fauna, and areas dominated by regenerating native scrub vegetation.

Site figures depicting ecological features required by PC18 are provided in **Appendix A.**

Plate 1. Steep, rolling grassland with wetland vegetation in the lower gully. Typical of large areas of the Plimmerton Farm site.

2.0 Methodology

2.1 Desktop Assessment

A desktop assessment of the development footprint and surrounding area was undertaken to identify sites of ecological value, as well as sites already listed as being ecologically significant based on PC18. These resources were also used, where available, to provide insight as to the reasons why areas were significant, and the ecological values they comprise. Areas with ecological values that were not listed as ecologically significant in the various PC18 documents were assessed against the significance criteria listed in the RPS - Policy 23. This aligns with PFZ provisions that require the identification of other 'Areas of Significant Terrestrial Biodiversity'.

The following documents and databases were reviewed for the ecological assessment:

- National Amphibian and Reptile Database System (Herpetofauna) to gather information on lizard species that have been recorded in proximity to the project site;
- Land Environments of New Zealand (LENZ) and the Threatened Environment Classification (TEC);
- iNaturalist and Bird Atlas of New Zealand (E-Bird);
- Department of Conservation national bat records;
- Reviewing historic aerial photographs (Retrolens);
- Greater Wellington Regional Council Natural Resources Plan (NRP); and
- Porirua City Council Operative District Plan (the District Plan).

The PCC and GWRC webmaps were reviewed to identify existing vegetation, streams and overland flow paths present on the site and to establish an understanding of the ecological status of the waterways present. Maps of these existing features (vegetation, streams) were then ground-truthed.

Any species found were recorded and their threat status checked against the relevant national threatened species classification lists (Hitchmough *et al.* 2021, Robertson *et al.* 2021 and de Lange *et al.* 2018).

2.2 Site Survey

Three site surveys were undertaken in November 2020, March 2021, and December 2021. The purpose of the survey was to assess the location, type and state of ecological features (watercourses, wetlands, vegetation, and fauna habitat) on the site to inform the development layout and stage design.

During the site survey, native and exotic plant species and communities were recorded, and a qualitative assessment of vegetation habitats for herpetofauna (frogs and lizards), birds and bats was conducted. The assessment included, but was not limited to, areas of vegetation on site most likely to be impacted or removed by the future building platforms and roading network, focusing on the botanical and ecological value of identified plant communities.

Terrestrial vegetation and habitats (including both identified SNA and other areas) were assessed against the Significant Natural Areas (SNA) criteria, as follows:

a) *Representativeness: the ecosystems or habitats that are typical and characteristic examples of the full range of the original or current natural diversity of ecosystem and habitat types in a district or in the region, and:*

    i. *Are no longer commonplace (less than about 30 % remaining); or*

    ii. *Are poorly represented in existing protected areas (less than about 20 % legally protected)*

b) *Rarity: the ecosystem or habitat has biological or physical features that are scarce or threatened in a local, regional or national context. This can include individual species, rare and distinctive biological communities and physical features that are unusual or rare.*

c) *Diversity: the ecosystem or habitat has a natural diversity of ecological units, ecosystems, species and physical features within an area.*

d) *Ecological context of an area: the ecosystem or habitat:*

    i. *Enhances connectivity or otherwise buffers connectivity or otherwise buffers representative, rare or diverse indigenous ecosystems and habitats; or*

    ii. *Provides seasonal or core habitat for protected or threatened indigenous species.*

Bird populations on site were surveyed through incidental observations during the site survey. Lizard populations were surveyed by way of targeted habitat searches during the site survey. Habitat searches for ground dwelling lizards involved inspecting areas of the site likely to be utilised by native lizards as shelter. Examples of lizard retreats include beneath dense vegetation, logs and rock. Lizards also frequently utilise discarded building materials such as timber and broken concrete, as well as dumped garden waste. Any terrestrial invertebrates uncovered were also noted during the habitat searches.

Watercourse values were assessed to inform a description of stream extent, quality, riparian margin health and stream channel naturalness, complexity and ability to provide habitat for in-stream life. Watercourse types (permanent, intermittent), ponds, drains and barriers to stream functioning (e.g. perched culverts) were also mapped.

Streams were classified according to the NRP (relevant excerpts are attached below). Wetlands were classified according to the NRP, and the NPS-FM ('natural inland wetland'), as follows:

- ***Rivers and streams****: for the purpose of determining stream width or intermittently flowing rivers and streams in Category 2 surface water bodies, the active bed is the area that is subject to at least frequent flows and is predominantly un-vegetated and made up of silt, sand, gravel, boulders or similar; and*

- ***Natural Wetland****: Is a permanently or intermittently wet areas, shallow water, and land water margin that supports a natural ecosystem of plants and animals that are adapted to wet conditions, including in the beds of lakes and rivers, the coastal marine area (e.g. saltmarsh), and groundwater-fed wetlands (e.g. springs).* ***Natural wetlands*** *do not include:*

(a) a wetland constructed by artificial means (unless it was constructed to offset impacts on, or restore, an existing or former natural wetland); or

(b) a geothermal wetland; or

(c) any area of improved pasture that, at 3 September 2020, is dominated by (that is more than 50% of) exotic pasture species and is subject to temporary rain derived water pooling

'Wetland' has the same meaning as in the RMA.

Wetlands on site have also been interpreted based on the definitions within the NPS-FM:

- ***Natural wetland:*** *means a wetland (as defined in the Act) that is not:*

(a) a wetland constructed by artificial means (unless it was constructed to offset impacts on, or restore, an existing or former natural wetland); or

(b) a geothermal wetland; or

(c) any area of improved pasture that, at the commencement date, is dominated by (that is more than 50% of) exotic pasture species and is subject to temporary rain-derived water pooling

It is acknowledged that the Minister for the Environment is currently considering changes to the NPS-FM and NES-F). Changes include possible amendments to the definition of 'Natural Inland Wetland'.

As part of the survey of the entire site, the Clarkson Rapid Test was applied to identify areas of possible wetland vegetation. Locations of particular interest were low-lying areas within gullies.

The methodology applied for the assessment of wetlands at this site followed the current protocols in accordance with the NPS-FM 2020; however, these may be subject to change based on changes to the NPS-FM and NES-F, and in turn result in changes in wetland extent on site. Any changes brought about by the recent changes to the NPS-FM/ NES-F will be incorporated into the Zone -specific ZEIBMP and subsequent resource consent applications and management plans.

The methodology applied for the assessment was as follows:

1. Apply the Clarkson (2013) method cited in the NPS-FM 2020 Wetland Assessment Protocol (see **Figure 4** for summary flow chart);
2. Assess soils by applying the criteria outlined in Fraser (2018) for identifying hydric (wetland) soils (see **Figure 5** for summary flow chart). This involved excavating a hole ca. 400 mm deep to assess and photograph soil moisture, topsoil structure, subsoil structure and presence of gleyed soils and mottling; and
3. When analysing data from the field plots, plots with a vegetation community that met the definition of improved pasture and were >50 % exotic pasture species dominant were excluded from being NPS-FM-level wetlands; the Clarkson method for the Rapid Test and/or Dominance Test/ Prevalence Test was then followed to assess whether an RMA-level wetland was present or not.
4. The MfE wetland delineation hydrology tool includes 'wetland hydrology indicators' - an assessment using one-off observation that identify the presence or absence of a wetland in areas where hydrophytic vegetation and hydric soils are present or uncertain. The presence of one primary indicator, or two secondary indicators, confirms the presence of a wetland.

   We recognise that extensive monitoring can be required over wet and dry periods (winter and summer) over many years, using tools such as bore logs and measuring water level, to conclusively determine if the MfE wetland delineation hydrology tool requirements are met.

   To meet the standard for wetland hydrology, an area must be:

   a. *inundated for at least seven consecutive days during the growing season in most years (50 per cent probability of recurrence); or*
   b. *saturated at or near the surface for at least 14 consecutive days during the growing season in most years (50 per cent probability of recurrence, for example, 5 years in 10). Soils may be considered saturated if the water table is within:*
      i. *15 centimetres of the surface for sands*
      ii. *30 centimetres of the surface for all other soils.*

   A detailed hydrology assessment was not undertaken as part of this survey but it is acknowledged that Pattle Delamore Partners (PDP) have been engaged to undertake hydrological baseline monitoring across the lower portion of the site. The data received by PDP will inform both the ZEIBMPs and future resource consents.

For this site we have used our professional judgment to delineate the vegetation communities on site, and have mapped them using GPS +/- 5 m, based on representative Clarkson 2013 vegetation plots, topography, hydrology indicators, and presence of saturated hydric soils. We have also considered the wider vegetation mosaic where patches of obligate and facultative wetland species are present. Together with these field observations we have used recent aerial imagery to delineate the wetlands on site, capturing clear areas where patches of obligate and facultative wetland species are dominant.

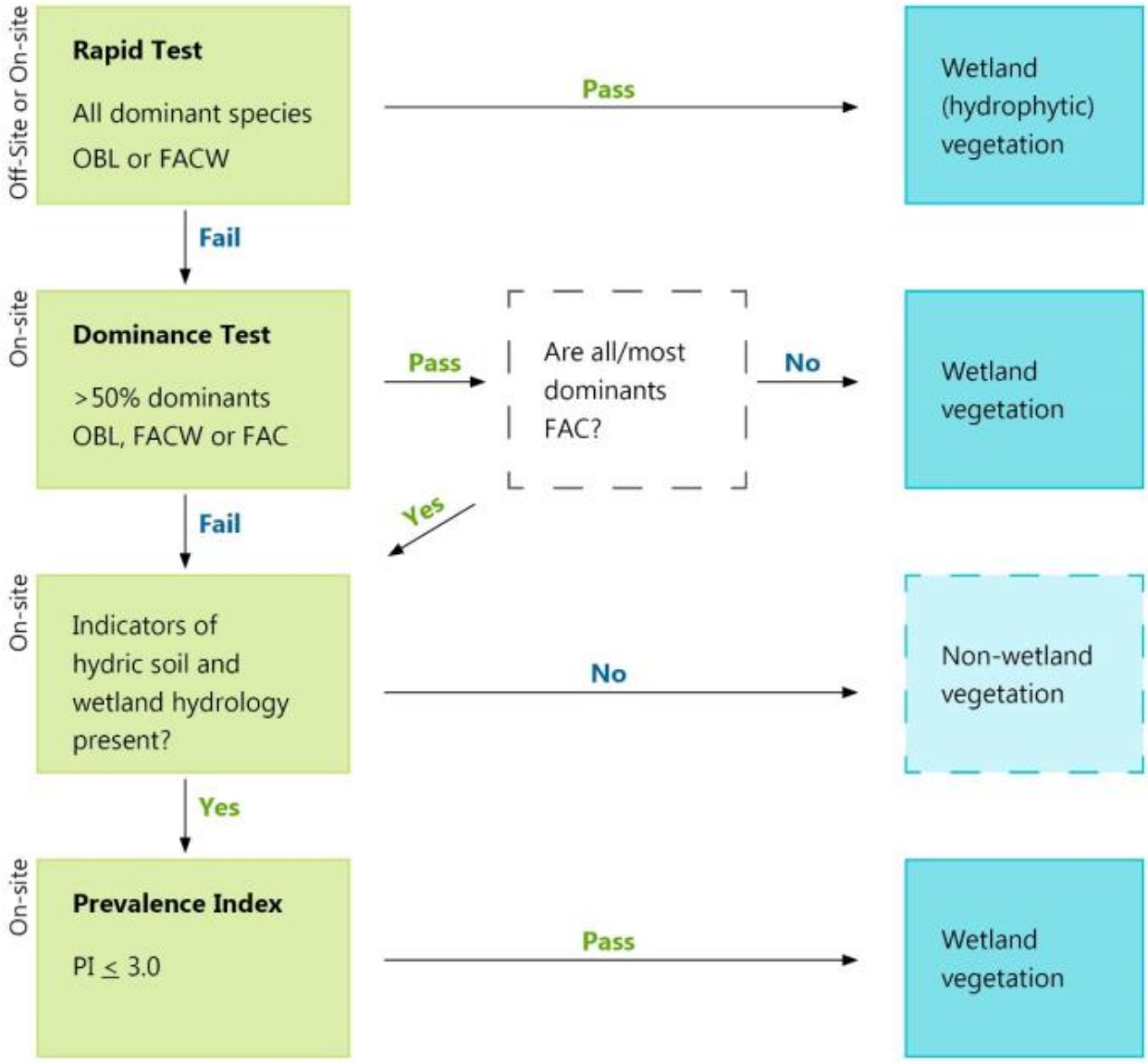

Figure 4. Flow chart of steps for hydrophytic (wetland) vegetation determination. Wetland indicator status abbreviations: FAC= facultative; FACW = facultative wetland; OBL = obligate wetland (sourced from NPS-FM MfE Wetland Delineation Protocols 2020).

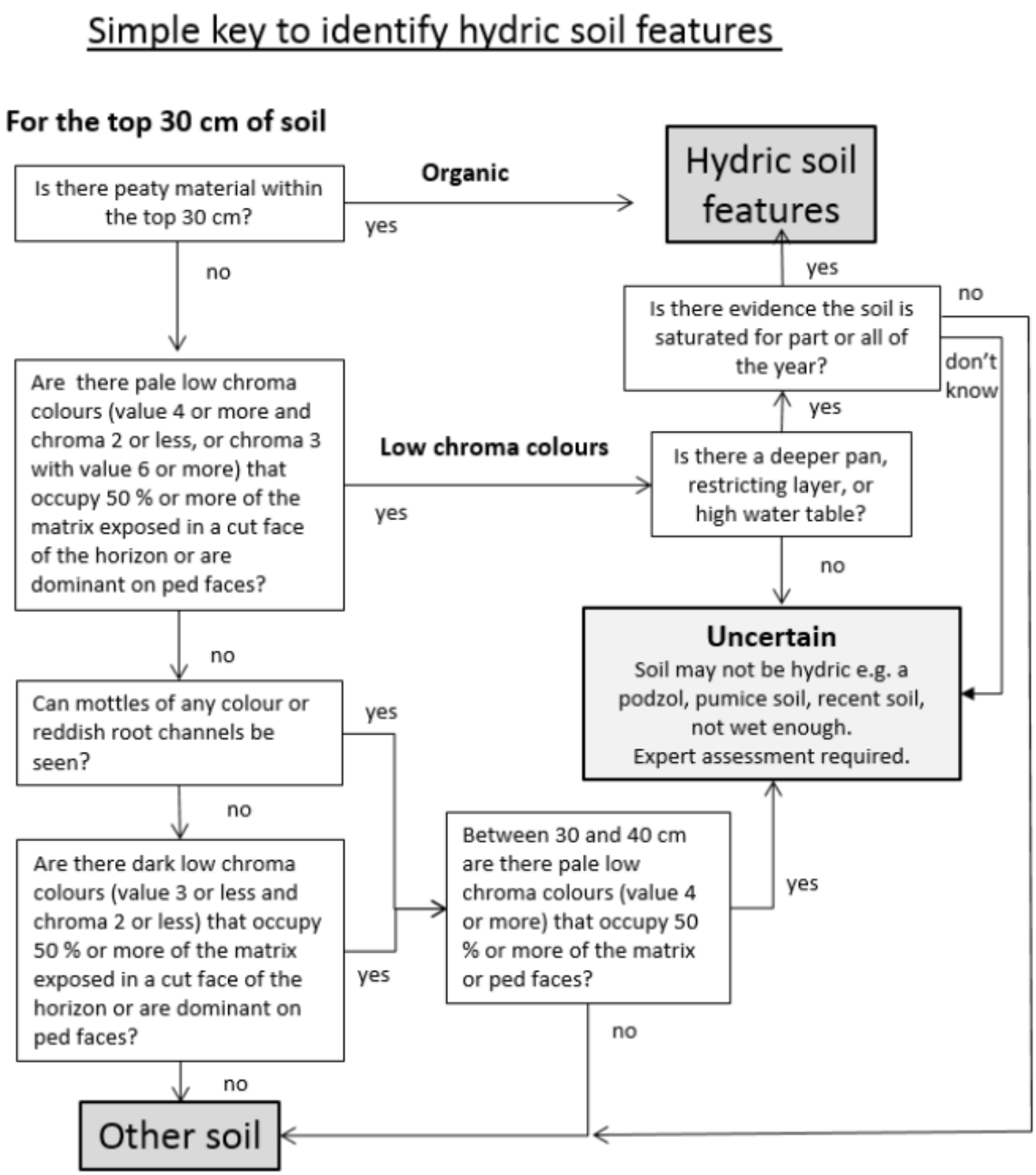

Figure 5. Key to identifying hydric soils (from Fraser *et al.* 2018).

3.0 Freshwater Ecology

Plate 2. A representative photograph of several modified watercourses on site within a rural pasture farming context.

3.1 Freshwater Summary

Freshwater features on the site are summarised in **Table 5**.

Table 5. Freshwater values at the site and the indicative extent of loss and retention associated with the proposed development footprint. Note this is for information purposes only, and areas/ lengths will be refined at the ZEIBMP and future resource consent stages.

Feature	Extent retained Length (km) / Area (ha)	Extent of loss Length (km) / Area (ha)	Total length (km)/ total area (ha)	Percentage of extent retained (TBC in ZEIBMPs)
Intermittent stream	5.12	0.63	5.75	89.0 %
Permanent stream	5.77	1.21	6.97	82.8 %
Wetland[1]	10.39	5.31	15.70	66.2 %

[1] Refer discussion in Section 3.5 in relation to proposed amendments to the current definition of 'Natural Inland Wetland'

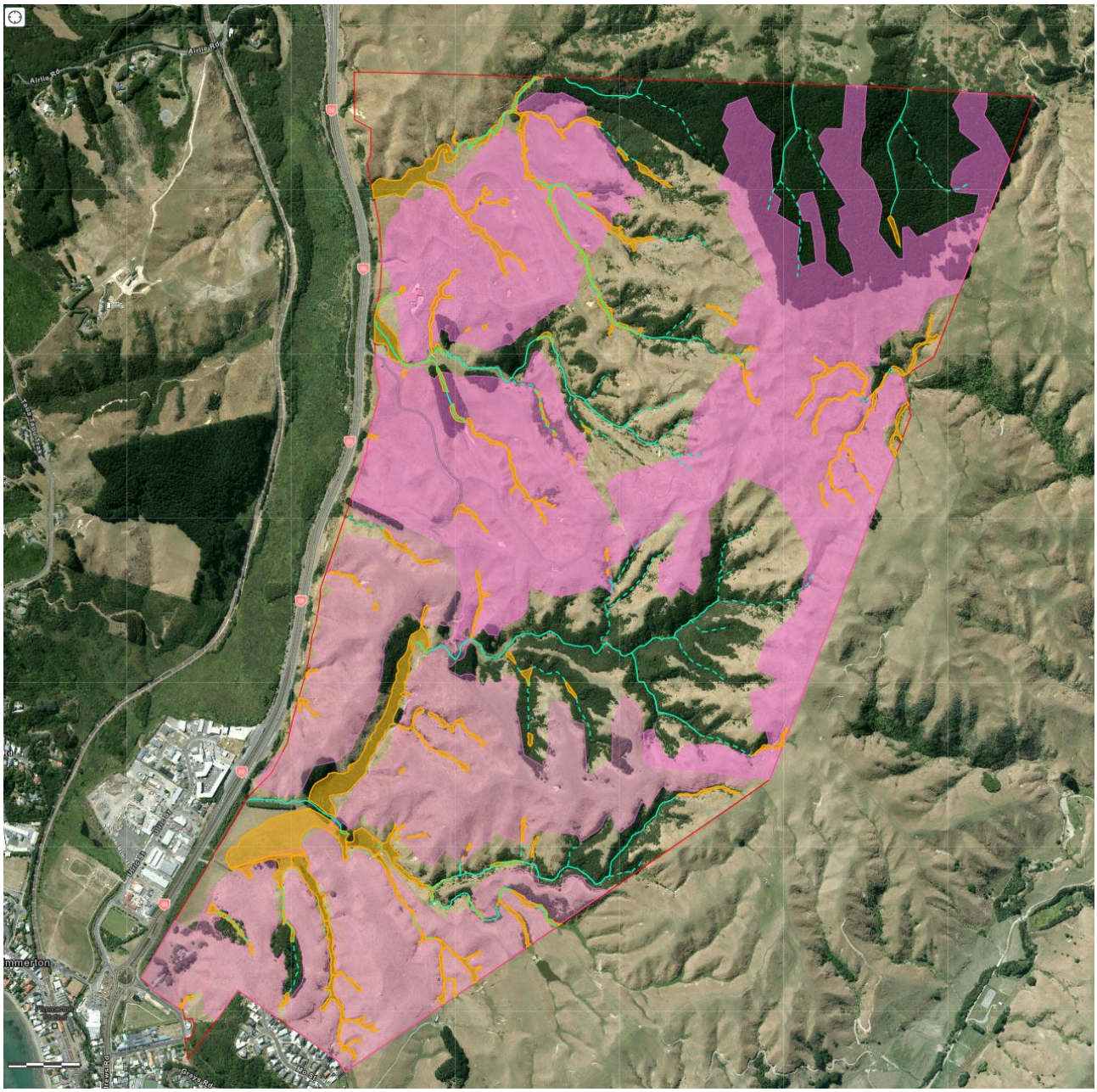

Figure 6. Wetlands (orange areas), permanent streams (turquoise line), intermittent streams (dashed turquoise line), indicative development extent (pink area).

3.2 Te Mana o te Wai / Freshwater Principles

Te Mana o te Wai recognises the vital importance of water. It acknowledges the special connection all New Zealanders have with freshwater by:

- Preventing further degradation of freshwater ecosystems;
- Making immediate improvements to systems through retirement, fencing (see flowing sections); and
- Reversing past damage to bring the freshwater ecosystems to a healthy state within a generation.

Te Mana o te Wai imposes a hierarchy of obligations. This hierarchy means prioritising the health and well-being of water first. The second priority is the health needs of people (such as drinking water) and the third is the ability of people and communities to provide for their social, economic and cultural well-being. The

hierarchy does not mean, however, that in every case the water needs to be restored to a pristine or prehuman contact state before the other needs in the hierarchy can be addressed.

The six principles of Te Mana o te Wai in the NPS-FM inform its implementation, and include:

1. ***Mana whakahaere:*** *the power, authority, and obligations of tangata whenua to make decisions that maintain, protect, and sustain the health and well-being of, and their relationship with, freshwater*
2. ***Kaitiakitanga:*** *the obligation of tangata whenua to preserve, restore, enhance, and sustainably use freshwater for the benefit of present and future generations*
3. ***Manaakitanga:*** *the process by which tangata whenua show respect, generosity, and care for freshwater and for others*
4. ***Governance:*** *the responsibility of those with authority for making decisions about freshwater to do so in a way that prioritises the health and well-being of freshwater now and into the future*
5. ***Stewardship:*** *the obligation of all New Zealanders to manage freshwater in a way that ensures it sustains present and future generations.*
6. ***Care and respect:*** *the responsibility of all New Zealanders to care for freshwater in providing for the health of the nation.*

The NPS-FM policy relating to these principles outlines that the policy will be implemented by Regional Councils through engagement with communities and tangata whenua to determine how Te Mana o te Wai applies to water bodies and freshwater ecosystems in the region.

The developer of Plimmerton Farm will therefore engage with Ngāti Toa with respect to what Te Mana o te Wai means to the iwi and how this may apply to the Plimmerton Farm development.

Notwithstanding, Ngāti Toa Toa were involved in the Plimmerton Farm Freshwater Principles that include mana whenua principles that reflect the broad principles of Te Mana o te Wai.

3.3 Catchments

The following PFZ information requirements (SUB$_{PFZ}$-IR-1(1)) require plans and information detailing:

1. *Catchment and sub-catchment boundaries.*

There are 28 sub-catchments on site. These drain predominantly into the Taupo Swamp on the western side of SH59. Two sub-catchments flow into the Kakaho Stream, to the east of the site.

Catchment and sub-catchment boundaries are provided in **Appendix A**.

Any changes to sub-catchment boundaries as a result of proposed earthworks and subdivision extents will be illustrated in ZEIBMP's.

3.4 Stream Habitats

The following PFZ information requirements (SUB$_{PFZ}$-IR-1(2)) require plans and information detailing:

2. *The extent of all permanent and intermittent waterways to be protected and their margins and associated riparian buffer areas, and measures to restore and enhance them compared to their pre-development state.*

A network of 69 streams within the site extend c. 12.72 km. Streams on the site vary considerably in ecological value. Streams within SNAs generally have cobbled-bottomed stream beds, with high shading

from dense riparian vegetation, and significant instream fauna habitats. In contrast, smaller intermittent streams in pasture areas can be highly degraded due to a lack of riparian cover and stock damage to stream beds.

Indicative masterplanning undertaken by the project team to date indicates that approximately 1.84 km stream of reclamation/ piping/ culverting or similar may be required to implement the development. To mitigate the effects of this, an assessment of the loss against the effect's mitigation hierarchy will be undertaken and offsetting will likely be required. The details of which will be provided at the resource consent stage and the biodiversity offset will be prepared in accordance with ECO_{PFZ}-P3.

Stream offsetting shall follow good practice guidelines, including an objective calculation for determining the extent of offsetting required, such as the Stream Ecological Valuation (SEV) method. The specific methodology applied for the SEV is detailed in the Auckland Council technical report 2016/023 for intermittent streams (Neale et al. 2016) and for permanent streams (Storey et al. 2011).

The following hierarchy will be applied for identifying stream offset locations:

1. "like for like" replacement of stream type, extent and condition;
2. Highly degraded streams; and
3. Streams that provide opportunities to join fragments of riparian vegetation.

ZEIBMPs will include plans indicating vegetated riparian buffers and the triggers for when they will be implemented for the streams to be retained and offset locations.

Enhancement of riparian buffers compared to their pre-development state will follow natural successional measures to guide stream restoration.

Principles for the creation of riparian buffers, the removal of stock, fencing, environmental weed control, pest management and the associated monitoring, maintenance and reporting are provided in **Section 5.0** below.

The extent of all permanent and intermittent waterways to be protected is provided in **Table 5** above.

Permanent and intermittent stream locations are provided in **Figure 6** and in **Appendix A**.

3.5 Wetland Habitats

The following PFZ information requirements (SUB_{PFZ}-IR-1(3) and (SUB_{PFZ}-IR-1(4)) require plans and information detailing:

3. *The extent of all natural wetlands and their margins, and measures to restore and enhance them compared to their pre-development state.*
4. *The extent of any other wetlands to be protected, and their margins, and measures to restore and enhance them compared to their pre-development state*

3.5.1 Wetland Survey

As noted above, the Minister for the Environment is currently considering changes to the NPS-FM and NES-F). Changes include possible amendments to the definition of 'Natural Inland Wetland'. A detailed description of wetland survey methods applied for this EIBMP are provided **Appendix B**.

Further wetland delineation and mapping that will form part of future ZEIBMP's and will reflect the most up-to-date definition at the time of drafting.

The survey found that, based on the current definition as outlined above, there are 84 natural wetlands on site, and cover a total area of c. 15.7 ha.

The wetlands vary considerably in condition and ecological value. Wetlands broadly consist of:

1. Lowland native dominant wetlands with high ecological value;
2. Riparian wetlands within the gully floors adjacent to perennial streams;
3. Induced *Isolepis prolifera* wetlands with underlying ephemeral or intermittent stream characteristics. These are classified as 'natural inland wetlands' in accordance with the NPS-FM 2020 definition; and
4. Wetland seepages at the head of catchments.

Indicative master-planning indicates that approximately 5.3 ha of wetland reclamation over the entire Plimmerton Farm development site or similar may be required primarily in locations for the main infrastructure for the development. For this, offsetting would be required, the details of which will be provided at the resource consent stage and a biodiversity offset prepared in accordance with ECOPFZ-P3.

Wetland protection and restoration will be achieved via fencing and enhancement of wetlands following natural successional measures to guide wetland restoration (further details are provided in **Section 5.0**.) Where feasible, a minimum 10 m vegetated buffer will be instated around all wetlands to be retained, the details of which will be provided in the ZEIBMP and resource consent stage. Where a 10m buffer cannot be achieved, principles are set out in Section 5.1 below will be applied to evaluate where such buffers can be reduced.

A summary of wetland features is provided in **Table 5** above. All natural wetlands are depicted on **Figure 6**, **Appendix A** and **Appendix B**.

4.0 Terrestrial Ecology

Plate 3. Regenerating kanuka along steep gully hillslopes. This is one of 18 Significant Natural Areas (SNA) on site.

4.1 Significant Natural Areas

The following PFZ information requirements (SUB$_{PFZ}$-IR-1(5)) require plans and information detailing:

5. *The extent of all Significant Natural Areas and their margins and the restoration proposed to enhance the values of Significant Natural Areas within the Zone compared to their predevelopment state.*

The SNAs identified through PC18 consist of a patched network of 18 areas covering 38.5 ha of the site. This includes four wetlands which meet the NRP definition of an 'Outstanding Natural Wetland' (**Appendix D**) and 14 SNAs consisting of native forest. The largest forest remnant is 18.3 ha and is described in the NRP as kohekohe-tawa forest which is 'Regionally Threatened: Endangered'.

A high-level of protection is afforded to SNAs under the provisions of PC18. Provisions manage the following activities:

- Subdivision of sites that contain SNAs;
- Construction of building platforms/residential units on sites that contain SNAs;
- Vegetation removal and earthworks within SNAs; and
- Restoration and maintenance.

As part of site-wide restoration management for SNAs as required under PFZ provisions, where possible a 10 m vegetated buffer surrounding each area shall be provided for (see Section 5 regarding how this buffer will be assessed). Enhancement of SNA buffers will follow natural successional measures to guide forest restoration. Key components are in keeping with restoration management around streams and wetlands, and also include the removal of stock, and the provision of fencing, environmental weed control, pest management and the associated monitoring, maintenance and reporting. Further details on the restoration proposed to enhance the values of SNAs compared to their pre-development state are provided in **Section 5.0**.

The extent of Significant Natural Area identified as part of PC18 (PC18 SNA) is provided in **Table 6** below.

PC18 SNA is shown in **Appendix B**.

Table 6. PC18 SNA and the potential extent of loss and retention associated with the proposed development footprint. Note these areas are for information purposes only, and will be refined at the ZEIBMP and resource consent stages.

Feature	Extent retained Area (ha)	Extent of loss Area (ha)	Total Area (ha)	Percentage of extent retained (TBC in ZEIBMPs)
SNA (PC18 extent)	36.36	2.17	38.53	94.4 %

4.2 BORA and Other Significant Natural Areas

The following PFZ information requirements (SUB$_{PFZ}$-IR-1(5)) require plans and information detailing:

6. *Any Areas of Significant Terrestrial Indigenous Biodiversity outside of Significant Natural Areas and Biodiversity Offsetting and Restoration Areas, and any associated ecological enhancement areas, and measures to restore and enhance them compared to their predevelopment stat*e.

4.2.1 BORA

Biodiversity Offsetting and Restoration Areas (BORA) were mapped as part of the PC18 provisions, and cover 87.7 ha (22.8 %) of the site. BORA show areas that have been set aside for potential ecological

restoration, where a need for offsetting is triggered through the proposed site development, including where areas buffer significant ecological values (forest, wetland), connect vegetation, create biodiversity corridors and landscape linkages. These areas currently do not hold significant ecological values, but rather are areas that have been identified for consideration as part of any future ecological offsetting developed during the resource consent stage.

The location and scale of the BORAs were chosen based on a desire to create ecological linkages, but also to satisfy landscape design needs (aesthetics and landscape visual amenity). Therefore, the current location of BORAs does not necessarily reflect absolute needs for ecological restoration, and in most cases, there could be another or many possible alternative designs of BORA that still meet the underlying ecological purpose of improving ecological connectivity.

There are numerous areas on site which are suitable for 'revised BORA extent' or 'additional BORA', which could buffer areas with significant ecological values (forest, wetland), connect vegetation, and create biodiversity corridors. These areas are outside of the indicative development footprint, existing BORA, PC18 SNA, and wetlands (including significant natural wetlands and wetlands of outstanding indigenous biodiversity value); but include SNA qualifying vegetation identified by RMA Ecology. This approach is consistent with PC18 BORA mapping.

Summarising the above, priorities for the relocation of BORAs will be:

1. Areas of indigenous vegetation that are not listed as SNA, but which meet the SNA criteria ('SNA qualifying vegetation');
2. Creation of buffers to existing SNAs, wetlands or stream margins; and
3. Connecting fragmented SNAs, wetlands and streams with vegetate corridors.

There is approximately 30 ha of BORA identified on the PFZ maps. Should any of this area be proposed for development as identified in ZEIBMPs, there is 58 ha of additional BORA areas available to relocate and redefine BORA in order to ensure no net loss of BORA extent across the development. If BORA locations are revised, an assessment of this will be included in the future resource consents. Not all BORAs areas may be used as offsets or restored as part of the overall development of Plimmerton Farm. Maps that show BORAs areas are illustrative of the potential outcome for restoration when BORA management is included across the site.

4.2.2 OTHER SNA AREAS

PC18 SNA were largely mapped via aerials[2]. To satisfy this requirement, we have undertaken site assessments and aerial mapping to refine SNA boundary lines (where SNA boundaries may have omitted high value vegetation) and identified additional areas that meet the SNA criteria.

These other areas of vegetation that qualify as SNA areas are referred to herein as the 'SNA qualifying vegetation'. SNA qualifying vegetation totals 21.6 ha.

An indication of the extent of BORA and SNA qualifying vegetation, including the areas that will be retained is provided in **Table 7** below.

BORA and SNA qualifying vegetation are shown in **Figure 7** and **Appendix A**.

[2] Paul Blaschke of Blaschke and Rutherford Environmental Consultants for Plan Change 18, dated November 2019.

Table 7. SNA qualifying vegetation, BORA and additional BORA areas available on site and the potential extent of loss and retention associated with the proposed development footprint. Note these areas are for information purposes only, and will be refined at the ZEIBMP and resource consent stages.

Feature	Total Area set by Plan Change PC18 (ha)	Extent retained Area (ha)	Extent of projected loss Area (ha)	Percentage of extent retained (TBC in ZEIBMP)
SNA qualifying vegetation (RMA Ecology extent)	21.59	16.98	4.61	78.6 %
PC18 BORA	87.70	58.00	29.70	66.1 %
Additional BORA available for offsetting SNA loss and/or for BORA relocation.	54.84	54.84	0.00	100.0 %

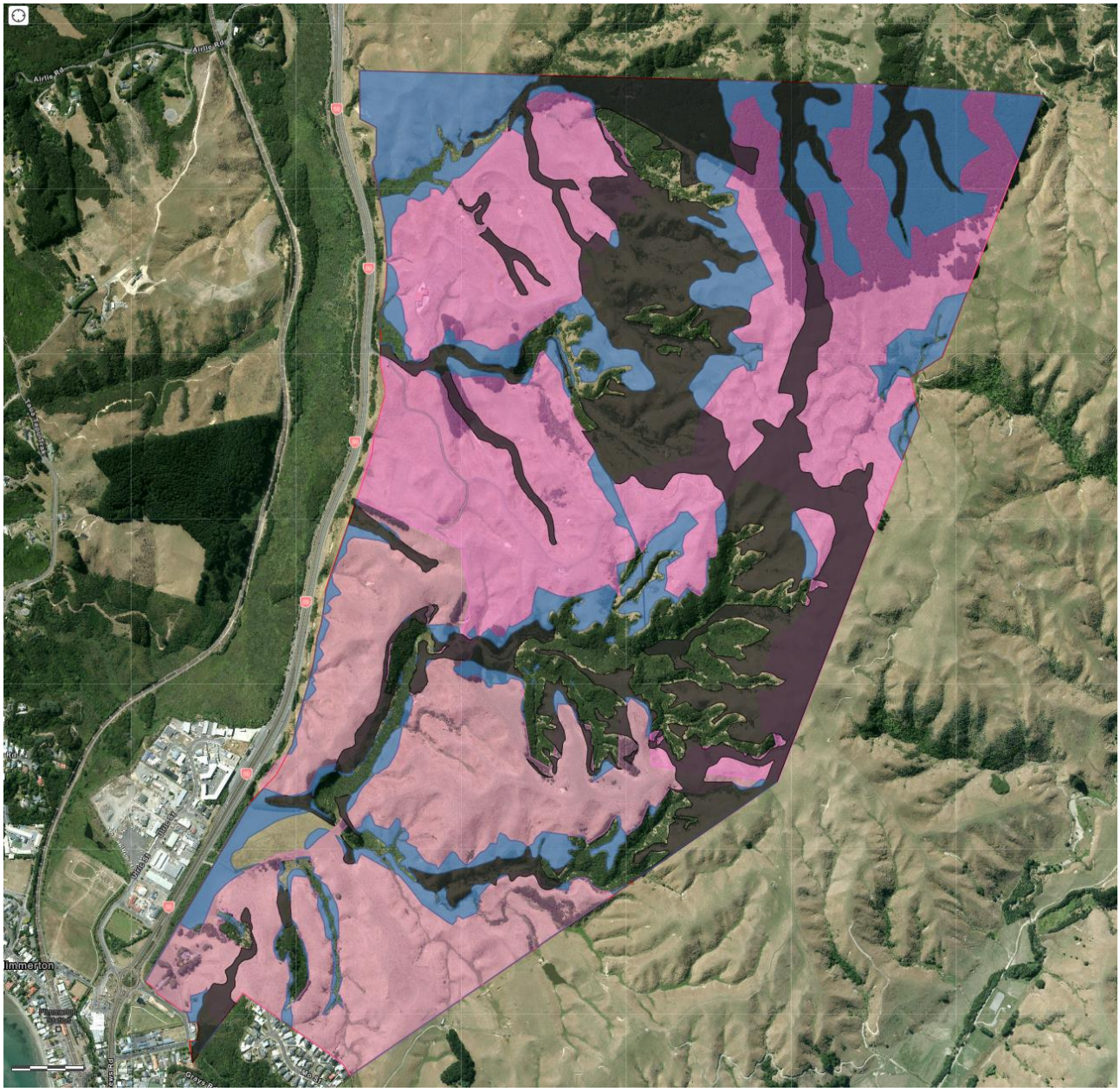

Figure 7. PC18 BORA (black areas), additional BORA available (blue area), and indicative development extent (pink area)

5.0 Mitigation and Management

The following PFZ information requirements require plans and information detailing:

e. Offsetting and restoration for Biodiversity Offsetting and Restoration Areas, or other areas, that includes:

i. Buffering and augmentation of Significant Natural Areas;

ii. Retention of existing gully vegetation and regenerating native bush to assist in the reinstatement of vegetation cover. Restoration may be promoted via natural regeneration of indigenous vegetation on retired pasture and other areas;

iii. Restoration of landform and vegetation cover that is compatible with the wider landscape-scale natural ecosystem that Plimmerton Farm is part of;

This section of the EIBMP presents an overview of ecological mitigation and management, including offsetting and restoration principles. The potential effects of future development have been defined based on the available habitat and specifies information, the Plimmerton Farm Precinct Plan and the preliminary masterplan design of the development.

Mitigation principles outlined in this EIBMP and to be further detailed in subsequent ZEIBMP have been developed in accordance with the mitigation hierarchy in **Figure 8** below.

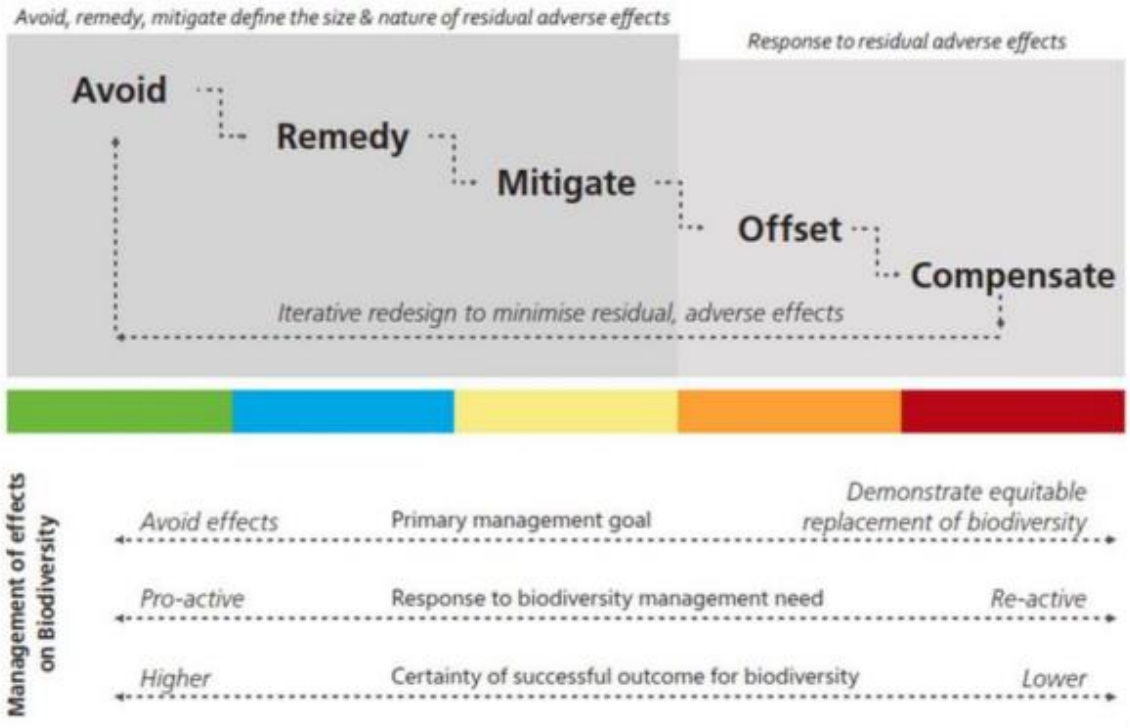

Figure 8. Mitigation hierarchy which illustrates that biodiversity offsetting and compensation should only be used for residual effects (Biodiversity Working Group, 2019).

5.1 Strategic Approach

Through the Plan Change process, the land owner expressed a desire to undertake a development that sought to protect indigenous biodiversity values and that a strategic, proactive and targeted approach would be required to mitigation. This is relevant because works on the site have the potential to impact on sensitive downstream environments.

For effective mitigation to be delivered across the site, each stage will need to incorporate mitigation that provides habitat that can support the species present and provide habitat connectivity. A strategic vision is critical in achieving effective mitigation.

The mitigation and management of effects described in this EIBMP are focussed on the effects of the development; however, it is acknowledged that, as a staged development, the mitigation and management of effects will be largely determined through the ZIEBMP and future consent processes.

While to be determined through future consents, in order to appropriately protect and enhance ecological values within each stage of development, key principles for restoration management are required. For this site these principles include (but many not be limited to):

- Buffering and augmentation of SNAs, streams and wetlands to be retained;
- Retention of existing native vegetation to assist in the reinstatement of vegetation cover;
- Restoration via natural regeneration of indigenous vegetation on retired pasture and other areas not proposed to be developed; and
- Restoration of landform and vegetation cover (e.g. biodiversity corridors) that is compatible with the wider landscape-scale natural ecosystem of which Plimmerton Farm is part.
- Fencing, unless stock has already been removed from the development stage in which case fencing may not be required in all cases.

Buffer width will differ according to the feature being protected, and the degree to which values within the ecological feature require buffering. Buffer widths will be identified in each ZEIBMP and confirmed at the resource consent application stage. The buffer width standard that will be applied is as follows:

1. For streams to be retained:
    - Where the stream bed is less than 3 m wide on average, a 10 m wide buffer measured from the top of each bank will be provided for in the first instance (i.e. where practicably possible or where the stream is not being reclaimed), and then the area beyond this. This buffer will be fenced or otherwise have stock excluded. The buffer will be planted with a mix of native trees and shrubs to provide a contiguous corridor and to provide enhancement to the stream values (see **Section 5.3**).
    - Where the stream bed is greater than 3 m wide on average, an average 20 m wide buffer will be provided for in the first instance (i.e. where possible). This buffer will be fenced or otherwise have stock excluded. The buffer will be planted with a mix of native trees and shrubs to provide a contiguous corridor and to provide enhancement to the stream values (see **Section 5.3**).

    It is acknowledged that, there may be constraints or impracticalities in providing the minimum buffer widths in all instances for all streams to be retained. In such cases, the rational for deviating from the ideal minimum buffer width will be explained and assessed in the applicable resource consent, including why the proposed alternative will not result in a substantial disbenefit to biodiversity protection or enhancement.

2. For wetlands to be retained, a hierarchal approach will be adopted, providing protection to high values:
    - For all wetlands on site, including those identified as a 'Significant Natural Wetland' in the PC18 maps, a 10 m wide buffer measured from the top of each bank will be provided for in the first instance (i.e. where possible), and then the area beyond this. This buffer will be fenced or otherwise have stock excluded. The buffer will be planted with a mix of native trees and shrubs to provide a contiguous corridor and to provide enhancement to the stream values (see **Section 5.3**).
    - Buffers of less than 10 m will be determined in future assessments. This will be according to the size of the wetland site and the values within the wetland that the buffer is intended to protect. For example, for a headwater wetland dominated by exotic 'dry-land' wetland plant species with poor potential future wetland values for plants and wildlife, a buffer of 5 m wide may be appropriate, whereas an intact (but degraded) gully system wetland with diverse plant communities would benefit from a full 10 m wide planted buffer.

3. For forest/ shrubland areas:
    - A 10 m wide buffer around the mapped extent of all SNAs and other significant ecological areas will be provided for as a standard, however on-the-ground interpretation on a case-by-case basis is also acceptable from an ecological perspective providing the criteria below is applied.

    - If a case-by-case assessment approach is used, then the following criteria will be applied:
        a. Where the existing SNA edge is already mature successional species (e.g. kanuka), then the buffer can include the land under the mature trees beyond the mapped margin. The SNA edge can be smaller (e.g. 5 m) and include plantings under successional species to the trunkline, as well as land outside of the mapped SNA edge. The minimum combined width must be a minimum of 10 m wide. Where offsetting is required, this area will be prioritised, and include buffer planting with a mix of native trees and shrubs to provide a contiguous corridor and enhancement to the forest values (see **Section 5.3**).

        b. Where the existing SNA edge is young regenerating species (e.g. young kanuka already forming a buffer, or tauhinu shrubland), then the whole of the area occupied by young regenerating species will be taken into account as part of a buffer (i.e. in some places there may be no additional need for buffer plantings to the existing SNA edge if that edge comprises a thick swathe of kanuka or similar early successional plants).

        c. Where the SNA edge comprises old-growth, large, established canopy trees (e.g. rewarewa, puka, kohekohe), the buffer will to be at least 10 m wide as measured from the dripline of that tree. Allowance may be made for a smaller width buffer if there are building or design constraints that cannot be shifted, in which case a minimum 5 m wide buffer will be provided of very dense tree and shrub plantings (e.g. 0.5 m spacing).

5.2 Restoration Buffer Management

The following PFZ information requirements require plans and information detailing:

8. *The extent of planting proposed for all riparian margin setback areas and how they will be managed and maintained on an ongoing (as necessary) basis.*

The extent of planting proposed for all riparian margin setback areas will be identified in the ZEIBMP and confirmed at the resource consent stage. As a guiding principle however, the extent of planting will include areas where it is determined that natural re-establishment of native shrubs and trees will be impeded (for example by rank grassland) or will take a long time to naturally establish (for example where suitable seed sources are distance or few).

The extent of planting proposed for all riparian margin setback areas will be dependent on the outcome of resource consents granted, which may include assessments of minimum buffer width across different parts of the site (see **Section 5.1**), and the use of re-planting as part of the suite of approaches to enhance aesthetic, landscape of ecology values, including the use of buffer areas that lie outside of mapped SNAs as sites as part of the effects management hierarchy.

Management will follow the principles of this Plan, including those governing weed and animal pest control and maintenance periods.

5.2.1 Fencing

The following PFZ information requirements require plans and information detailing:

d. Fencing to exclude stock animals from Significant Natural Areas, Areas of Significant Terrestrial Indigenous Biodiversity and Biodiversity Offsetting and Restoration Areas;

Fencing will be identified and constructed based on the relevant ZEIBMP unless stock has already been removed from the development stage in which case fencing may not be required in all cases. As a priority, fencing of riparian margins and forest edge buffers will be undertaken throughout the Zone in order to exclude stock from ecologically important areas unless stock has already been removed from the development stage.

The agreed location of fence lines will be based on practical considerations (i.e. ease of fencing and practicality of alignment) and will avoid damage to indigenous vegetation (e.g. hand cutting of vegetation where required). All new fence alignments will be walked by the fencer and a suitably qualified representative of the consent holder, prior to construction, to ensure effects are minimised, while constructability and functionality are maintained.

Once fencing is established in pastoral grassland, natural regeneration of vegetation is likley to accelerate, and include native woody species that drive succession, such as manuka (*Leptospermum scoparium*), kanuka (*Kunzea robusta*), tauhinu (*Ozothamnus leptophylla*) and coastal tree daisy (*Olearia solandri*) – as represented elsewhere on the site.

Fencing across the site will be staged, depend on stock exclusions efforts and be defined in the future staged resource consents. The site-wide principles for fence line installation to be applied at the time of resource consent include:

- Installation of new fencelines determined by the project ecologist to be necessary (i.e. where stock are still present or particular SNA areas need further protection), or shifting of existing fencelines,

will occur as soon as practicable following issue of resource consent for bulk earthworks within the relevant Zone.

- Fences to exclude stock will be required around all protected areas. At Plimmerton Farm some of site is already boundary fenced, however most of the site will need new fences erected to reflect the revised fencelines that prioritise protection of ecological areas;
- Where required, stock exclusion fencing will consist of stock proof fences, or similar, as per standard specifications;
- An ecologist will work with the development team during the resource consent phase to identify routes of new fencelines; and
- Where appropriate, fencing will protect and buffer SNAs, BORAs, streams and wetlands to be retained, with any lesser buffer area developed in accordance with the principles outlined in Section 5.1.

5.3 Planting Principles

The following PFZ information requirements require plans and information detailing:

iv. *Planting including plant sources, establishment and maintenance;*

v. Provision for cultural harvesting;

Good practice principles for this Plan follow preferred methodologies and standards advocated by local and regional councils in the Wellington region and elsewhere in New Zealand.

Appropriate plant species for ecological restoration have been selected based on the GWRC guidelines[3] in conjunction with GWRC's predicted ecosystem GIS layer. The entire site is classified as MF6, kohekohe tawa forest[4] in GWRC's predicted ecosystem GIS layer. The lowland south-western portion of the site is also classified as Ecozone 14 Pauatahanui – Porirua Harbour, and the remainder of the site as Ecozone 13 - Inland Wellington – Porirua[5] within *Writing a Planting Plan A technical guide for the Wellington region*.

Ecological principles that underpin this EIBMP and future ZEIBMPs and resource consents are as follows:

- Use indigenous species that are representative of natural local plant communities and which provide appropriate community structure. For this Plan, this has been guided by Council's *Writing a Planting Plan A technical guide for the Wellington region* guidelines;
- Plant to create habitats which are representative of the natural environments once present. At Plimmerton Farm the historic vegetation cover over the proposed planting areas would have been kohekohe-tawa forest (MF6) comprising mostly kohekohe (*Dysoxylum spectabile*) and tawa (*Beilschmiedia tawa*) as well species recommended by GWRC for Ecozones 13 and 14. Given the low-lying and poorly drained nature of the lower catchment basins within the site, it is likely that kahikatea (*Dacrycarpus dacrydoides*) and pukatea (*Laurelia novae-zelandiae*) swamp forest was locally present within the lower gullies.

[3] Writing a Planting Plan, A technical guide for the Wellington region, Restoration planting Wetland Restoration: A Handbook for New Zealand Freshwater Systems

[4] Singers Forest Classification – Historic Forest Extent, GWRC.

[5] A guide to planning restoration planting projects in the Wellington region, Wellington Regional native plant guide. Revised edition 2010.

- Source seed and plants locally (eco-sourcing[6]) in order to select strains that are best suited to local environmental conditions and to maintain the integrity of local genetic stocks;
- Plant species which benefit terrestrial as well as aquatic systems and which give long-term benefits for ecosystem health;
- Reduce or eliminate potential threats to the restored system; in New Zealand these threats are largely from introduced weeds and animal pests, as well as domestic livestock; and
- Provisions for cultural harvesting in planting schedules, including consulting with mana whenua. As part of developing planting schedules considerations of rongoā, maramataka and tohu species have been included.

The general approach to planting, that will be defined and confirmed through future resource consents, will involve five steps (more details on each of these are provided in subsequent sections):

1. Plant locally sourced species that are ecologically appropriate to the particular site;
2. Plant in late winter/early spring to avoid winter frosts but provide the longest possible time for root systems to develop before summer droughts occur, using combi-guards;
3. Before planting, use an appropriate method in accordance with best practice kill grass to lessen the competition for water while the seedlings/ saplings establish;
4. Undertake release weeding to clear encroaching grass/herbs after planting. Once root systems have developed (over the first three growing seasons, or as appropriate based on monitoring) plants should readily survive grass and herb competition; and
5. Aftercare maintenance for ecologically important weeds (e.g. climbing vines, woody weeds) will be undertaken until natural succession establishes and canopy closure is achieved (where applicable).

Example planting plan concepts, and recommended species lists are provided in **Appendix C**.

5.3.1 Cultural Harvesting

Provision is made for cultural harvesting as a Permitted Activity in the Plimmerton Farm Zone provisions. Discussions with Ngāti Toa Rangitira are on-going with respect to access and opportunities for harvesting into the future.

5.4 Ecological Weed Control

Ecological weed control is required in places in order to facilitate natural succession.

The existing vegetation in protected areas is largely dominated by pasture grass. In some low-lying areas, there are shelterbelts of mature willows (*Salix fragilis*) with some exotic weeds (mainly blackberry and gorse), and a range of pasture weeds. Important ecological weeds (exotic woody species, scrambling and climbing vines) are generally in low densities on hillslopes as a result of pasture farming; however, localised infestations of ecological weeds could proliferate without active management.

The approach that will be implemented at this site is to undertake control of ecological weeds, including suppression or to nil or near-zero presence in accordance with the Greater Wellington Regional Pest Management Plan 2019-2039 (GWRC-PMP). Further control may be required in areas where planting is proposed, including releasing of grasses etc, or where large infestations occur.

[6] Following the guidance provided in Writing a Planting Plan A technical guide for the Wellington region. GWRC.

As appropriate, a comprehensive control programme will be undertaken to remove and kill infestations of ecological weeds listed in the GWRC-PMP using the methods approved by GWRC. Ecological weed control will follow accepted industry practice and will form part of ecological restoration in buffers zones.

Ecological weed control principles that will be applied in ZEIBMPs and future resource consents include (but may not be limited to):

- Knock-down of ecological weeds using methods and herbicides approved by GWRC for use around waterways, as part of stream and wetland buffer restoration. For most ecological weeds this will involve mulching, cutting or herbicide spraying;
- A minimum of two applications of approved spray should be applied with a minimum of 4 weeks between each application;
- Every effort shall be taken to ensure non-target species are not contaminated;
- Personnel applying herbicide should have completed an approved agrichemical course and all operations should comply with the Agrichemical Users Code of Practice (NZ Agrichemical Education Trust);
- Herbicide application shall adhere to the New Zealand Standard 8409 Code of Practice for the Management of Agrichemicals, commonly known as GROWSAFE®;
- A programme of follow-up monitoring of plantings to ensure that weeds are supressed or removed as part of revegetation objectives; and
- Monitor ecological weed incidence and distribution twice-annually until natural succession establishes and canopy closure is achieved (where applicable). This will be to determine ecological weed control needs and control ecological weeds as necessary. This approach will facilitate native plant growth and reduce the likelihood of ecological weed establishment (further details are provided in the below section).

5.5 Pest Management

Animal pest management includes a mix of exclusion and ongoing control of browsing pests. Boundary fencing around restoration areas will exclude large mammals such as stock, pigs and possibly goats. Rabbits, hares and possums will require control in order to suppress numbers to enable natural regeneration and succession of palatable species. The programme undertaken will focus on reducing the densities of a number of animal pests (e.g. rabbits, hares and possums), which will benefit wetland, riparian vegetation and forest regeneration and enhancement.

5.5.1 Cat management

9. *The provision of cat management (such as education) and /or cat ownership controls and if controls proposed the legal mechanisms to be employed.*

The landowner proposes to include cat education material with Sale and Purchase Agreements and Contracts but will not be enforcing cat ownership controls. This approach will however be reviewed as the development progresses should cat ownership within the developed area impact on wildlife protection and enhancement undertaken in the protected areas of the site.

5.5.2 Possums, rabbits and hares

Rabbits, hares and possums are ubiquitous throughout the District. It is therefore likely that animal control will be needed in places to facilitate natural succession in buffer areas and the interior of forest SNAs.

The control of animal pests is necessary to minimise unwanted effects by mammalian browsers, particularly the predation of native wildlife, seeds, flowers and plant seedlings. A pest animal control plan for each EMZ will be prepared by an appropriately qualified and certified pest control contractor. The programme will focus on protecting vegetation values in SNAs to facilitate natural succession. As outlined in Section 1.3 above, a pest animal control plan will be included as draft in the ZEIBMPs and finalised and implemented through future resource consents.

The animal pest control programme will incorporate the following factors:

1. For rabbits and hares, the level of rabbit presence and use poison or other approved control methods to supress numbers;
2. For possums, a knock-down control operation using appropriate methods, including but not limited to tamper-proof traps, bait stations or other methods as advised by an appropriately qualified and certified pest control contractor, and maintain ongoing control on a regular basis, as required.

Pre and post monitoring will be advised by the pest control operator, as will targets for a subsequent control programme. The purpose of the control programme will be to reduce pest animals to very low levels such that the likelihood of environmental damage being caused is low.

Where possible, the programme will coordinate with broader control programmes being managed by Council or others to leverage landscape-level benefits.

For possums the focus will be on assessing the levels of trap kills or bait take (as appropriate), and where at all feasible, work in with monitoring being undertaken by Council to provide a more robust picture of pest animal populations over these and adjoining sub-catchments.

Rabbit, hare and possum management and maintenance measures will be implemented for an adequate period from the commencement of bulk earthworks in each stage. Maintenance of control will be considered as the development progresses and take into account Council's district-wide programmes, local community support for ongoing pest control and the advantages (if any) of continuing the programme.

6.0 Protection in perpetuity

The following PFZ information requirements require plans and information detailing:

Specifies legal mechanisms for the land-owner's responsibility for the ongoing management including funding for Significant Natural Areas, Biodiversity Offsetting and Restoration Areas and Areas of Significant Terrestrial Indigenous Biodiversity;

This applies to all reserved areas for protection as shown in **Figure 7**.

There are a number of different ways that SNA's BORA and other areas can be protected however, it is not possible to identify the most appropriate mechanism for the specific areas until the future development adjacent to these areas has been determined. For example, an SNA may be adjacent to a road corridor, a few or many residential allotments or form part of a wider area that may be vested to Council as reserve. At this stage, the masterplan for the site is still indicative and therefore the extent and exact locations of protection areas not yet determined making it impossible to determine the best protection mechanisms for these areas. Because of this, legal mechanisms for the protection of these areas will be outlined in the ZEIBMPs and the protection of these areas proffered in the subsequent resource consent applications.

7.0 Maintenance, monitoring and reporting

The following PFZ information requirements require plans and information detailing:

11. Sets out a monitoring and enforcement framework for the matters detailed in clauses 1. to 9. above.

The specific monitoring and enforcement framework for all the matters identified in this EIBMP will be outlined in further detail in the ZEIBMPs and dealt with (i.e. enforced) via future resource consents from PCC and GWRC.

Irrespective, to satisfy the PFZ information requirement and to ensure a coordinated and consistent approach to maintenance and monitoring across the site, the following sections provides guiding principles for maintenance, monitoring and reporting to be included in ZEIBMPs and relevant resource consents.

7.1 Maintenance

Maintenance shall include as a minimum:

- Confirmation of areas fenced and under active management (planting and pest control). Fences will be maintained for 5 years post-construction.;
- A twice-annual ecological weed survey for an appropriate period in each stage once bulk earthworks have commenced, and subsequent control until the incidence of ecological weeds[7] is appropriately suppressed, and then two-yearly monitoring surveys thereafter until the canopy closure target has been reached, which is anticipated to be by 5 years following the completion of planting;
- As required, control of ecological weeds shall be undertaken to improve the health of restoration areas. Ecological weed control shall be implemented until 80% canopy closure has been achieved for all planting areas;
- In-fill planting shall be carried out where plants have died, as required to ensure that desired objectives (see below) are achieved; and
- A programme of animal pest control shall be carried out annually to assess the level of threat by browsing pests and stock, within the restoration areas. Animal pest control shall be undertaken as required to ensure that desired objectives (see below) are achieved.

7.2 Monitoring

Monitoring shall be undertaken to report on progress, to identify potential management issues, and to enable corrective actions to be made. **Monitoring is detailed in the following sections.**

7.2.1 Mitigation Monitoring

[7] Species listed in the GWRC PMP or which are species that hinder the natural succession of restoration areas

- Where fencing, ecological weed control, buffer planting and pest animal control have been undertaken, there will be a Monitoring report submitted to GWRC and PCC annually from the start of the relevant restoration programme. The Monitoring report shall include:
    - The date of the inspection;
    - The person carrying out the inspection and their qualifications;
    - An assessment of the position of fence lines in accordance with the relevant ZEIBMP and any maintenance required to ensure stock are excluded.
    - The condition of native plantings undertaken at each site, including their coverage relative to an objective of 80 % canopy cover, and overall plant health;
    - The condition of wetlands.
    - A map showing the general locations of ecological weeds recorded and controlled over the previous year;
    - Observations of any damage to native trees and plants within SNAs (whether caused by people, pest animals or natural events) that may increase the susceptibility of the forest to ecological weed invasion;
    - The locations of pest animal traps and control methods applied in that year together with an estimate of the number of pest animals removed or the effectiveness of control techniques at reducing pest densities; and

      Corrective actions undertaken to reduce threats to planted areas and levels of pest animals, as appropriate.

7.2.2 Wetland Monitoring

- Prior to earthworks commencing in each Zone, a Wetland Monitoring Plan contained in the relevant ZEIBMP shall be submitted to Porirua City Council for certification. The monitoring plan for each zone shall include methodologies to provide baseline and ongoing monitoring measures to sufficiently measure the potential changes in ecological and hydrological function of wetlands, downstream of the earthworks footprint. Baseline monitoring will include a single survey prior to earthworks, biannual monitoring (summer and winter) for the duration of bulk earthworks, and a single post-completion of bulk earthworks survey. Recommendations for any corrective actions will be made in the annual monitoring report. The monitoring plan shall be developed in general accordance with the 'Handbook for monitoring wetland condition', Clarkson, B.R., Sorrell, B., Reeves, P., Champion, P., Partridge, T., and Clarkson B. D. (2004) and shall specifically include pre-works monitoring to establish baseline condition in sufficient detail that changes can be measured.

7.2.3 Restoration Planting

- Annual monitoring of restoration plantings will be undertaken using transects. Transects will be used to assess both the survivorship and growth of the plantings and the establishment of ecosystem processes within the restoration areas following planting. The information on the success of the initial restoration plantings will be important for informing decision making with regard to subsequent management of restoration areas. Permanent transects will be measured annually during the first five years after planting, with four permanent 50 m x 10 m belt transects used for each 1 ha restored. Transects shall be permanently established within one month of restoration planting being planted. Each transect corner will be permanently marked with a peg and location recorded using GPS and include recording the following attributes:
    - The total of each plant species planted;
    - The total number of mortalities, and species (where identifiable) of planted species.

- The objective of 80 % canopy cover, which includes assessing the overall proportion of contiguous native vegetation cover.

Note that plants which are on the very edge of the transect boundaries must be identified as within the transect to avoid errors in repeat survival assessments.

In addition to overall cover, the following information will be collected to monitor the condition of the plants post-planting:

- Ecological weeds – The total number of each species and maturity based on flowering/ seeding;
- Herbivory/Animal sign – The total number and species of plants browsed as well as general observations of animal sign (e.g. scat);
- Disease (discolouration, markings) - The total number and species of plants with signs of disease; and
- Plant form (e.g. hardened) - The total number and species of plants with poor form (e.g. small stature, frost damage, wind damage).
- Photomonitoring points will be established at each transect corner, and include four photographs per transect photographing the direction of the 50 m length of the transect. Each photopoint will be given a unique identifier (e.g. 1A, 1B). Any notable or discrete areas of plant failure will be recorded and mapped, and recommendations for corrective actions will be made in the annual monitoring report.

7.2.4 Pest Plant Monitoring

The goal for pest plant control is to ensure that all target pest plants are controlled and no target pest plants reach maturity within the site. This shall be monitored using two methods:

- Analysis of collected data: The age class (mature, juvenile, seedling) data of controlled pest plants will be collected during control operations. The number of controlled matures will be used as a measure of progress towards the goal.
- Pest plant transects: A pest plant transect should be carried out in conjunction with analysis of the data recoded during the control operation including track logs, data points, operational notes and agrichemical usage. It should be undertaken between 3- and 6-weeks following pest plant control. A transect should be walked through the control area taking the following into account:
  - Target species and distribution pattern;
  - Control methodology;
  - Control phase and corresponding target;
  - Similar native taxa present and ease of differentiation;
  - Weather conditions;
  - Timing of control; and,
  - Likely impact of herbicide.

The transect need not be straight or random, but instead incorporate a stratified sample of specific areas of interest such as outlying infestations, infestations hidden by geographic features, disturbed sites, historic mature populations, etc. This allows the auditor to identify issues where a random or objective audit would not. The audit should specifically examine:

- Successful control of target species;
- Unintended impact on indigenous vegetation;
- Acceptable amount of herbicide used, considering infestation size; and,
- The number, age class, and species of uncontrolled pest plants.

- The latter evaluation will be used as a measure of progress towards the goal. This method is important because data collected during control effort excludes undetected individuals.

7.2.5 Pest Animal Monitoring

The goal for pest animal control is to reduce the relative abundance of target pest animals to low levels. 'Low levels' is defined as the Wax Tag Index (WTI) and Rat Tracking Index (RTI) being below 20 %. This number is considered appropriate for this site due to its size and likely frequent reinvasion from neighbouring unmanaged areas. Pest animal monitoring should include

- Monitoring lines with methods such as wax tags and tracking tunnels;
- Monitoring should be undertaken two times per year in February and November.
- Each monitoring line should be placed away from the traplines, be comprised of 5 units at 50 m intervals for a total of 10 tracking tunnels and 10 wax tags, and otherwise be established and monitored in general accordance with the relevant guidance documents:
  - Williams, D. 2013: DOC tracking tunnel guide v2.5.2: Using tracking tunnels to monitor rodents and mustelids. Department of Conservation, Science & Capability Group, Hamilton, New Zealand.
  - National Pest Control Agencies (2015). A1 Possum population monitoring: Using the trap-catch, waxtag and chewcard methods.

7.3 Reporting

A monitoring report shall be submitted to GWRC and PCC on 1 June annually. The report shall contain, but not be limited to:

- The results of the monitoring undertaken as specified above;
- The extent of the SNAs, BORA, wetlands, streams and other ecological features that have been protected and restored as the development progresses;
- Where fencing, weed control, buffer planting and pest animal control have been undertaken, and the extent of these actions; and
- Progress against achieving any goals or objectives in the EIBMP and relevant ZEIBMP.

Further details of the monitoring report will be subject to site requirements, and as agreed with GWRC and PCC.

7.4 Indicative programme timeline

. An indicative programme timeline of key tasks to implement the actions listed in this Plan are shown in **Table 8** below.

Table 8. Key tasks and timing for management within the restoration areas. Shaded cells represent indicative period (season, where appropriate) in which tasks are to be undertaken.

Task	Summer	Autumn	Winter	Spring
Year 1				
• Erect fences				
• Ecological weed control				
• Animal pest control				
• Plant planting areas				
• Wetland condition monitoring				
Subsequent years				
• Maintenance: ecological weed control and animal control, as needed	annual			annual
• Maintenance: replace failed plantings				
• Monitoring: confirm fence lines, planting area cover (where appropriate), wetland condition				
• Reporting: Annual monitoring report for restoration activities, results and recommendations.				

Appendix A – Site Figures

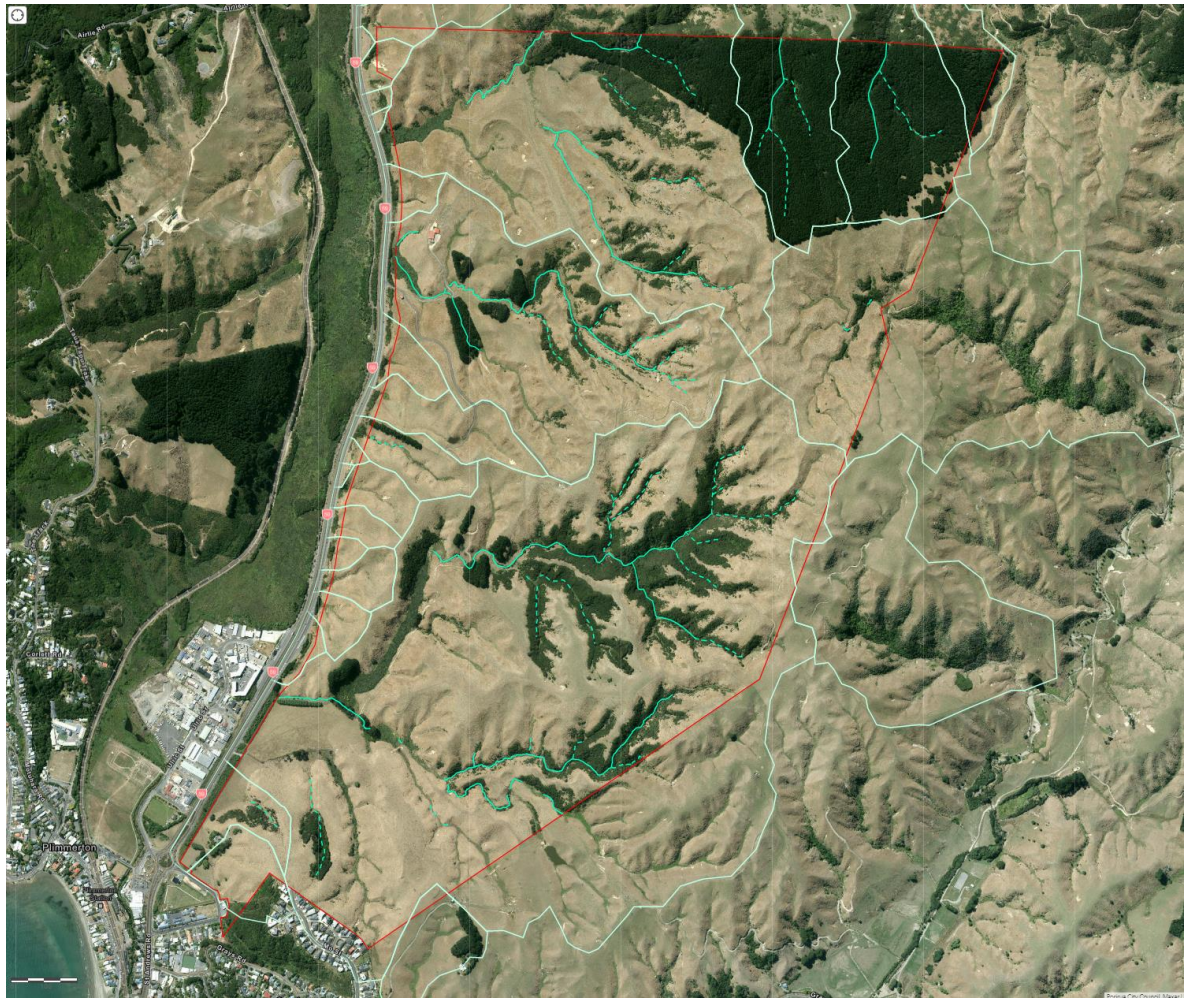

Figure 9. Site catchments and sub catchments. Streams (solid and dashed turquoise lines), catchments (white lines), site boundary (red line).

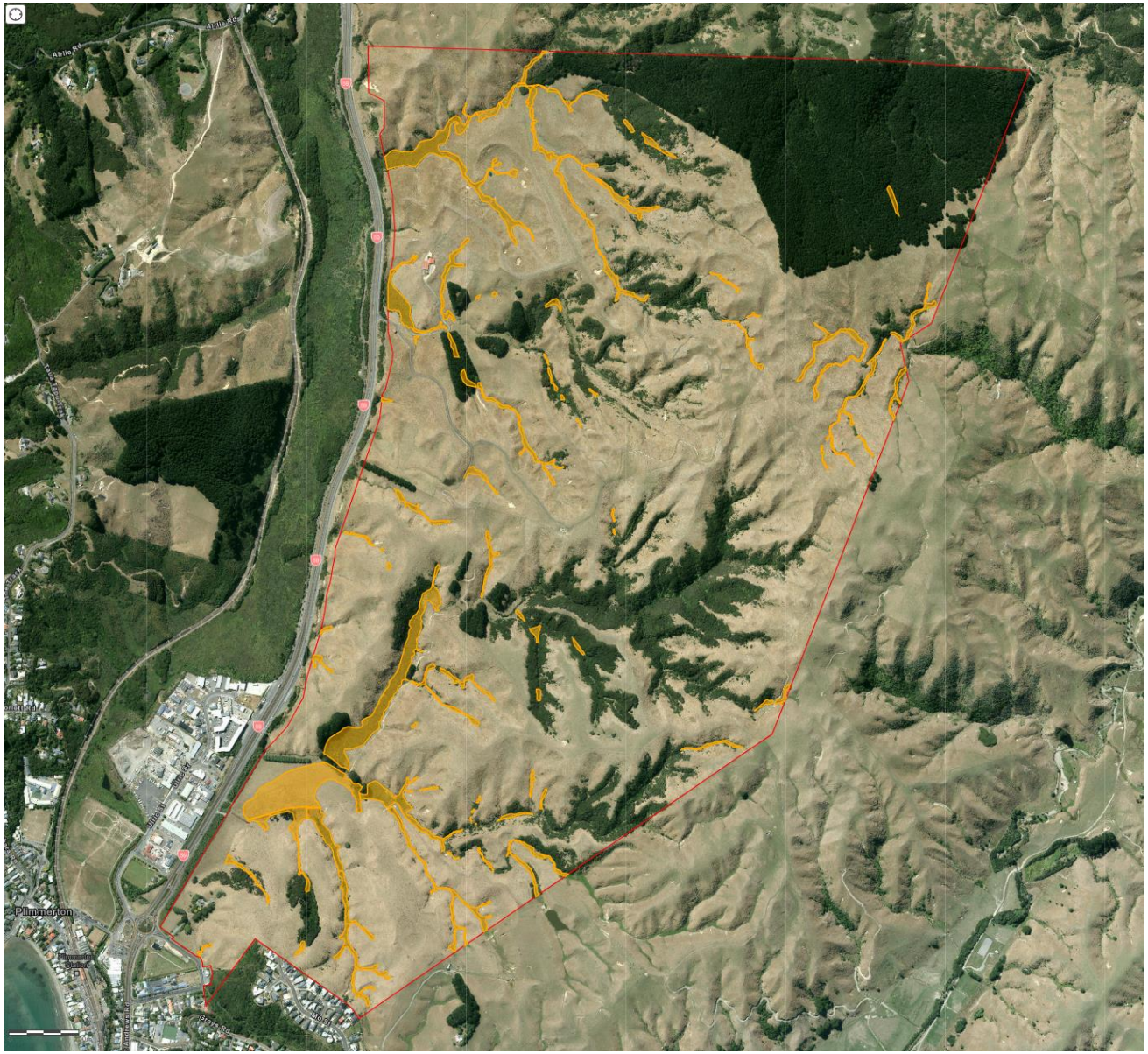

Figure 10. Wetlands. Wetlands (orange areas), site boundary (red line).

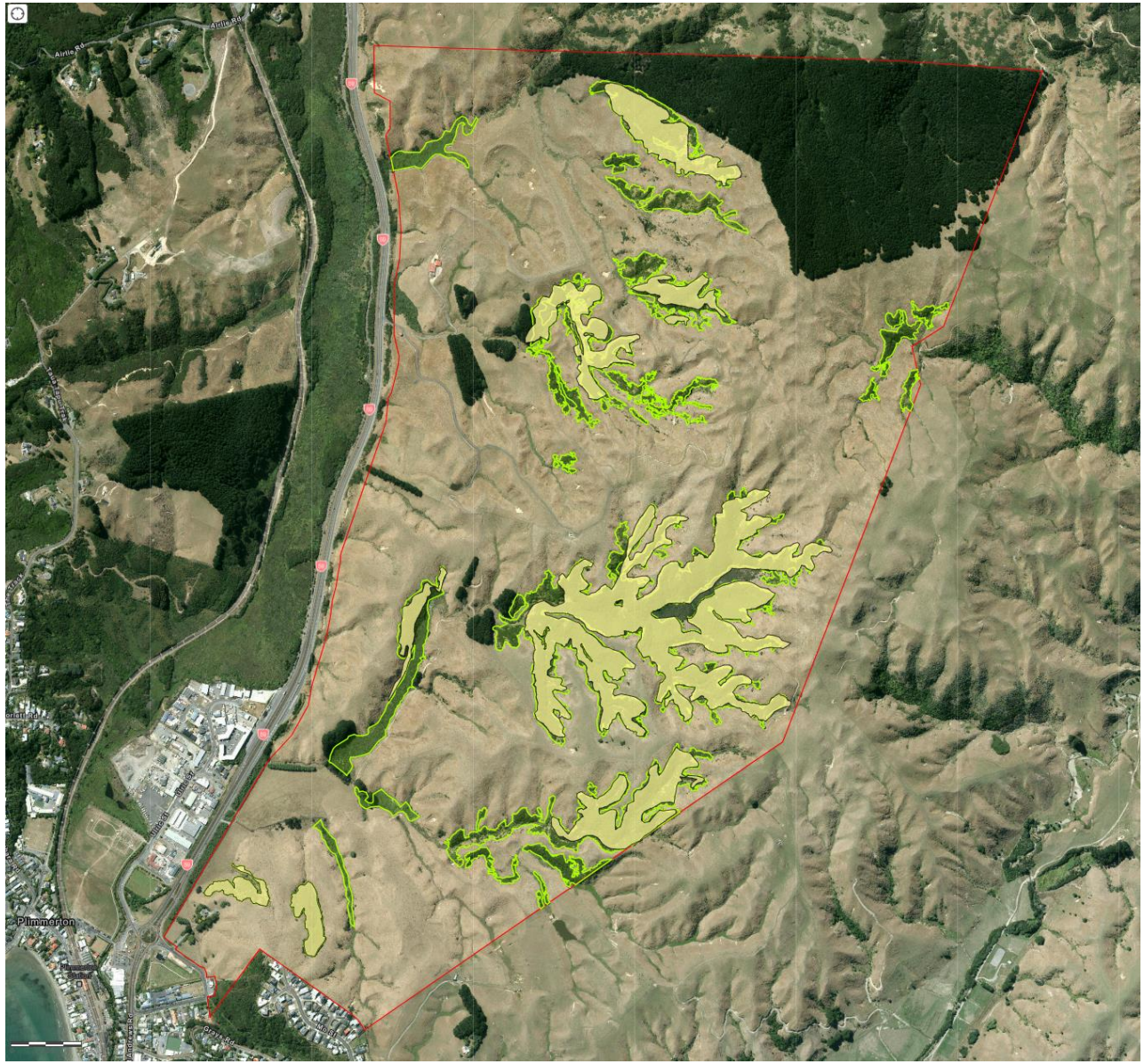

Figure 11. PC18 SNA and SNA qualifying vegetation. PC 18 SNA (yellow area), SNA qualifying vegetation (green areas), site boundary (red line).

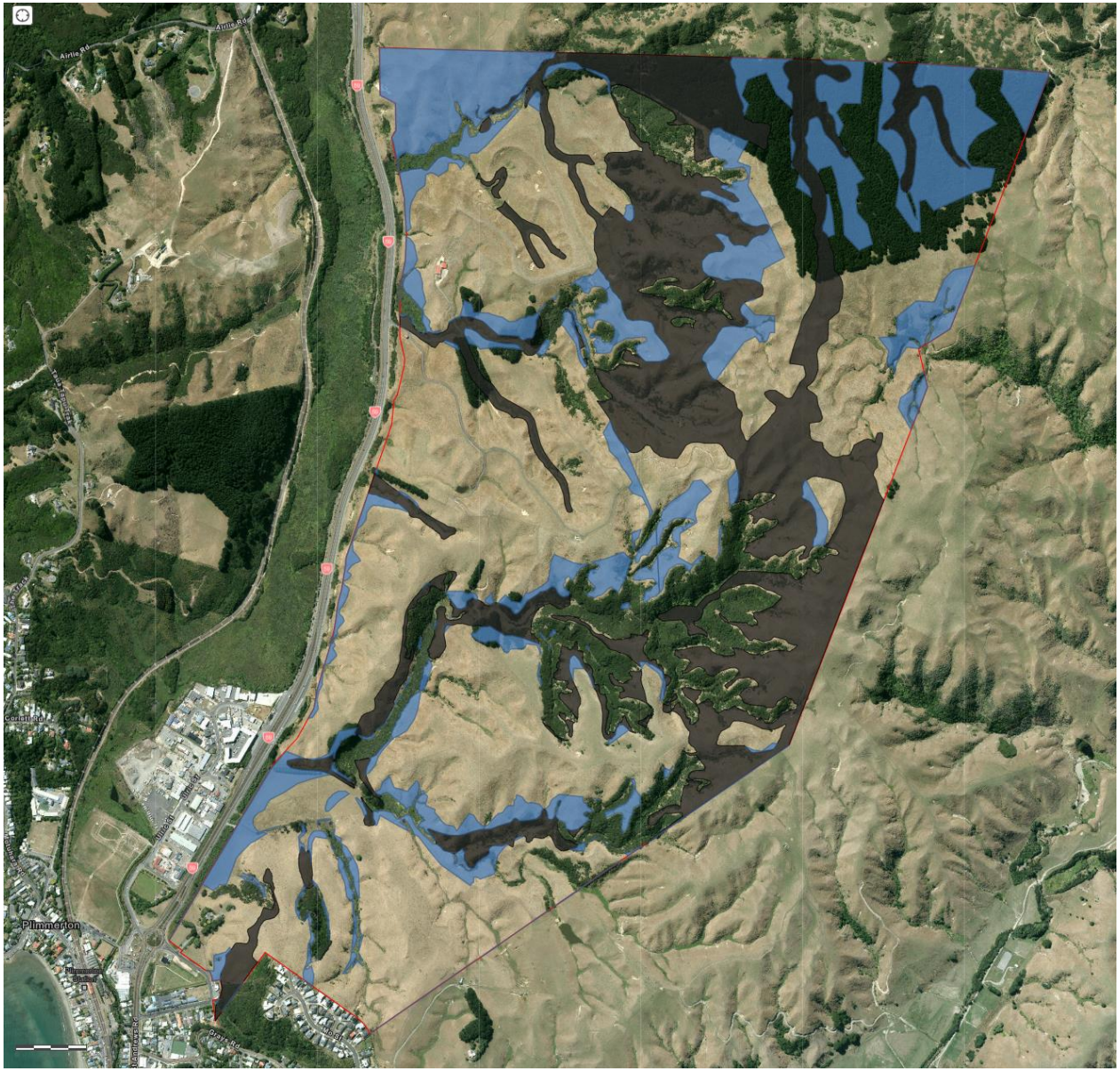

Figure 12. Biodiversity Offset and Restoration Areas (BORA). PC 18 BORA (black areas), additional BORA available (blue area).

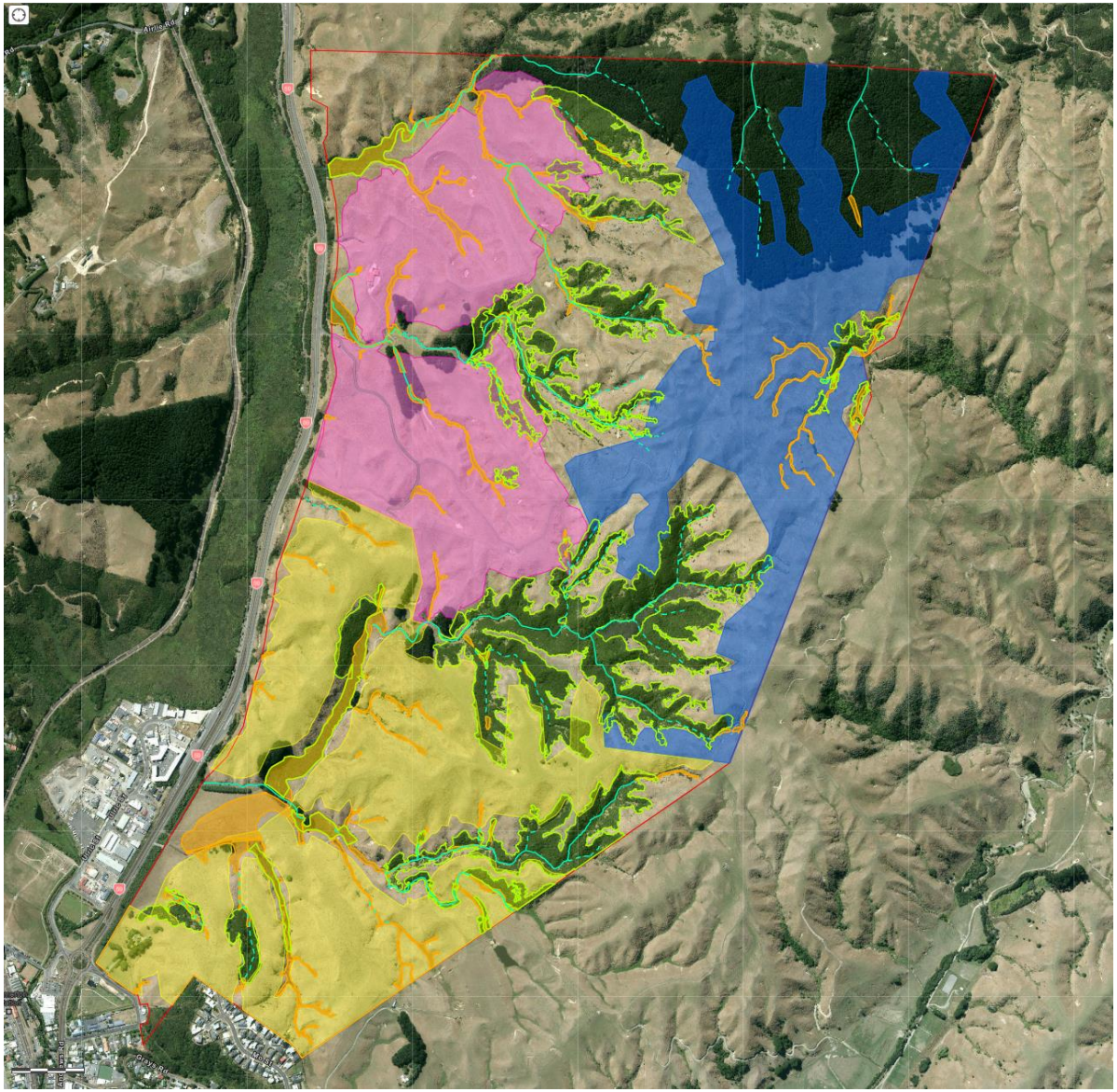

Figure 13. The indicative earthwork extents for Zone 1 (yellow), Zone 2 (pink), Zone 3 (blue), relative to streams (turquoise and turquoise dashed lines), wetlands (orange area), and combind SNA/ SNA qualifying vegetation.

Appendix B: Wetland classification

[To be updated if required based on future changes to NES-F and NES-FM]

As part of the survey of the entire Property, the Clarkson Rapid Test was undertaken to identify areas of possible wetland vegetation. Locations of particular interest were gully heads, stream margins, and slope seeps. In general, wetlands on the Property are easily delineated by the dominance of obligate wetland species such as *Isolepis prolifera*, in conjunction with a rapid change to contour or rapid change to complete dominance of dryland pasture grassland species (**Plate A1**).

A total of fifty-seven (57) vegetation plots and a further ca. 152 soil core samples were taken in representative locations across the subject areas. All 57 vegetation plots had an associated soil sample, and additional soil samples were taken in either nearby upland grass communities to demonstrate where wetlands terminated, or in low-lying areas to determine whether wetland soils were present. The purpose of the vegetation plots was to reaffirm the Clarkson Rapid Test for a number of wetlands delineated on the Property.

The supporting calculations for determining wetlands, site photographs including soil samples are provided below.

Plate A1. Wetland D1. The distinctive light green *Isolepis prolifera* and immediate change in topography provides an obvious delineation between terrestrial and wetland vegetation.

Plate 4. A clear variation between hydric soils (left) and non-hydric soils (right) recorded on site.

Table 9. Plimmerton Farm wetland classification calculations (1 of 3)

Site	Plimmerton Farm					pasture grasses									
Date & Recorders	GTU 13 March 2021			Wetland	A1.1	A1.2	A1.3	A2.1	A2.2	A2.3	C4.1	A3.1	A3.2	A3.3
Common name	**Species (hydrotype)**		**group score**		Plot 1	Plot 2	Plot 3	Plot 4	Plot 5	Plot 6	Plot 7	Plot 8	Plot 9	Plot 10
Brown top	*Agrostis capillaris*	FACU	4		10%	50%				15%	25%	10%	20%	50%
Sweet vernal	*Anthoxanthum odoratum*	FACU	4			45%	5%				5%	5%	5%	10%
Kikuyu grass	*Pennisetum clandestinum*	FACU	4						10%					
Creeping buttercup	*Ranunculus repens*	FAC	3				20%	15%		15%		10%	10%	
	Isolepis prolifera	OBL	1					78%	20%					
	Isolepis reticularis	FACW	2		5%									
	Jucus australis	FACW	2		10%							5%		
	Carex geminata	FACW	2											20%
	Jucus sarophorus	FACW	2						30%	25%				
Cats ear	*Hypochaeris radicata*	FACU	4		2%									
Creeping bent	*Agrostis stolonifera*	FACW	2		6%				15%	30%	20%	40%	15%	15%
Umbrella sedge	*Cyperus ustulatus*	FACW	2				50%							
Water pepper	*Persicaria hydropiper*	FACW	2							10%				
Lotus	*Lotus pedunculatuS*	FAC	3		10%				10%		5%			
Perennial ryegrass	*Lolium perenne*	FACU	4										10%	
Soft rush	*Juncus effusus*	FACW	2		50%	5%	20%				30%	30%	30%	
Yorkshire fog	*Holcus lanatus*	FAC	3		7%		5%	7%	15%		15%		10%	5%
				Total cover	100%	100%	100%	100%	100%	95%	100%	100%	100%	100%
				% pasture grasses	27%	95%	10%	7%	25%	15%	50%	15%	45%	65%
Prevalence Index (Hydrophytic vegetation ≤3)				as per Clarkson calculation	2.4	3.9	2.4	1.4	2.3	2.5	2.8	2.4	2.9	3.3
Excluded as NPSFM wetland (>50% pasture in improved pasture?)				Yes = conclude at Row "RMA wetland' No = conclude at Row 'NPSFM wetland'	No	Yes	No	No	No	No	No	No	No	Yes
Dominance test score (>50%) for OBL, FACW, or FAC				Yes = go to 'all or most FAC'	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
				No = go to 'hydric soil present'										
All or most dominants FAC?				Yes = go to 'hydric soil present' No = wetland	No		No	No	No	No	No	No		
Hydric Soil Present				Yes = go to 'prevalence index'		No							Yes	No
				No = not wetland; stop										
Wetland Hydrology Present				Yes = go to 'prevalence index' No = not wetland; stop									Yes	
Prevalence Index (≤ 3.0)				Yes = wetland	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
				No = not wetland; stop										
NPSFM wetland (Yes or No)					Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	
RMA Wetland (Yes or No)						No								No

Table 10. Plimmerton Farm wetland classification calculations (2 of 3)

Site	Plimmerton Farm				pasture grasses																													
Date & Recorders	2-4 March 2021, MN + TP + GU																																	
Common name	Species (hydrotype)		group score		C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	B1	B2	D1	F1	F2	G1
Yarrow	*Achillea millefolium*	FACU	4							1%				1%																			
brown top	*Agrostis capillaris*	FACU	4		80%					1%	15%	15%																				3%	
Creeping bent	*Agrostis stolonifera*	FACW	2			80%	55%	3%	45%	75%		35%	91%	80%	70%	90%	5%		30%	40%	10%	15%	70%	40%	65%	30%	60%	5%	25%				5%
sweet vernal	*Anthoxanthum odoratum*	FACU	4		1%					1%	5%																				15%	
starwort	*Callitriche stagnalis*	OBL	1														1%	2%														
	Carex dipsacea	FAC	3																										3%				15%
	Carex secta	OBL	1																											15%			
	Centella uniflora	FACW	2						1%																					1%			
Scotch thistle	*Cirsium vulgare*	FACU	4		1%																								1%				
Yellow buttons	*Cotula coronopifolia*	FACW	2															10%															
Hawksbeard	*Crepis capillaris*	FACU	4																										1%				
Cocksfoot	*Dactylus glomerata*	FACU	4		1%																												
Yorkshire fog	*Holcus lanatus*	FAC	3		1%	3%	3%	15%	45%	10%	65%	20%	3%	3%	25%	8%				20%	30%	75%	10%	5%		20%	5%	30%	30%	30%	80%	30%	45%
Cat's ear	*Hypochaeris radicata*	FACU	4							1%											2%		1%		30%						1%		
	Isolepis aucklandica	OBL	1																													1%	
	Isolepis prolifera	OBL	1			15%	20%			2%							50%	15%								3%		1%	1%	2%	1%		
Jointed rush	*Juncus articulatus*	FACW	2				1%										2%									2%			2%				
	Juncus australis	FACW	2																												8%		
	Juncus bufonius	FACW	2																												1%		
soft rush	*Juncus effusus*	FACW	2																													7%	
	Juncus pauciflorus	FACW	2																											2%			
	Juncus sarophorus	FACW	2															8%										60%	30%	40%		40%	30%
Perennial ryegrass	*Lolium perenne*	FACU	4		3%			75%	5%	5%	10%	20%		8%	1%			4%	63%	35%	50%	5%	10%	45%	5%	40%	30%			5%	5%	2%	
Lotus	*Lotus pedunculatus*	FAC	3							2%																5%	3%	3%		2%			
Mercer grass	*Paspalum dilatatum*	FACU	4																			5%		2%									
Water pepper	*Persicaria hydropiper*	FACW	2															5%	1%											2%			3%
narrow leaved plantain	*Plantago lanceolata*	FACU	4					1%																				1%					
creeping buttercup	*Ranunculus repens*	FAC	3				1%						1%															1%	3%	2%	3%		
Sheep's sorrel	*Rumex acetosella*	FACU	4						1%											2%	3%		3%										
Broadleaf dock	*Rumex obtusifolius*	FAC	3								1%		2%																		1%		
	Solanum sp.	FACU	4																					1%									
	Sonctius sp.	FACU	4																					1%									
clover	*Trifolium repens*	FACU	4		10%	1%		8%	1%	5%	3%	5%	2%	10%	3%	1%			1%	2%	5%		2%		1%		2%				2%	2%	2%
Litter						1%				3%	3%	5%																					
Bare ground					1%	2%	20%		3%	1%	1%		1%	1%	1%	1%	45%	46%	5%	2%	2%	2%	5%	5%		2%	3%		5%	1%			
				Total cover	97%	99%	80%	102%	98%	103%	99%	95%	99%	102%	99%	99%	58%	44%	95%	99%	100%	100%	96%	94%	101%	100%	100%	101%	96%	101%	102%	100%	100%
				% pasture grasses	96%	4%	3%	98%	51%	24%	98%	60%	5%	21%	29%	9%	0%	4%	64%	57%	85%	80%	22%	50%	6%	65%	40%	33%	30%	37%	87%	52%	47%
Prevalence Index (Hydrophytic vegetation ≤3)				as per Clarkson calculation	4	1.9	1.8	3.8	2.6	2.4	3.3	3.1	2.1	2.4	2.3	2.1	1.1	1.8	3.3	3	3.5	3	2.4	3.1	2.7	3	2.7	2.3	2.4	2.3	3	2.7	2.6
Excluded as NPSFM wetland (>50% pasture in improved pasture?)				Yes = conclude at Row "RMA wetland' No = conclude at Row 'NPSFM wetland'	Yes	No	No	Yes	Yes	No	Yes	Yes	No	No	No	No	No	No	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No	No	No	Yes	Yes	No
Dominance test score (>50%) for OBL, FACW, or FAC				Yes = go to 'all or most FAC' No = go to 'hydric soil present'	No	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
All or most dominants FAC?				Yes = go to 'hydric soil present' No = wetland		No	No		Yes	No	Yes	No	No	No	No	No	No	No		No		Yes	No		No	No	No	No	No	No	Yes	Yes	Yes
Hydric Soil Present	M = mottling; G = gleyed; W = wet			Yes = go to 'prevalence index' No = not wetland; stop	No			Yes		Yes		Yes							Yes		Yes	Yes		Yes							Yes	No	Yes
Wetland Hydrology Present				Yes = go to 'prevalence index' No = not wetland; stop	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes					Yes		Yes
Prevalence Index (≤ 3.0)				Yes = wetland No = not wetland; stop	No	Yes	Yes	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NPSFM wetland (Yes or No)						Yes	Yes			Yes			Yes	Yes	Yes	Yes	Yes	Yes					Yes	No	Yes		Yes	Yes	Yes	Yes			Yes
RMA Wetland (Yes or No)					No			No	Yes		No	No							No	Yes	No	Yes			No					Yes	No	

Table 11. Plimmerton Farm wetland classification calculations (3 of 3)

Site	Plimmerton Farm																		
Date & Recorders	2-4 March 2021 MN				pasture grasses														
Common name	**Species (hydrotype)**		**group score**		M1	M2	M3	M4	M5	M6	M7	M11	M12	M13	M14	M14a	M15	M16	M17	M18	M19	M20
brown top	*Agrostis capillaris*	FACU	4												5%							
Creeping bent	*Agrostis stolonifera*	FACW	2									20%		5%		10%	20%	15%		10%		
starwort	*Callitriche stagnalis*	OBL	1													2%	1%	10%	4%	4%		
	Carex geminata	FACW	2													15%						
	Carex secta	OBL	1			35%				20%					20%				15%			
	Carex virgata	FACW	2														20%			3%		
	Centella uniflora	FACW	2										1%									
Scotch thistle	*Cirsium vulgare*	FACU	4												3%							
Hawksbeard	*Crepis capillaris*	FACU	4		1%							1%										
	Cyperus ustulatus	FACW	2		10%				30%				55%									
	Depaira petersenii	FAC	3																2%			
	Digitalis purpurea	UPL	5			2%													2%			
Yorkshire fog	*Holcus lanatus*	FAC	3		40%	15%		2%	30%	10%		23%	25%	20%	25%	30%	10%		2%	20%	15%	
	Hydrocotyle heteromeria	FACU	4																40%			
	Isolepis prolifera	OBL	1			10%	95%	60%		50%	85%	14%	1%	15%		40%						
Jointed rush	*Juncus articulatus*	FACW	2																			
	Juncus australis	FACW	2									3%										
soft rush	*Juncus effusus*	FACW	2			2%			30%					25%	40%		40%	70%		30%	20%	75%
Perennial ryegrass	*Lolium perenne*	FACU	4											10%	10%			10%		30%	15%	20%
Lotus	*Lotus pedunculatus*	FAC	3			1%		20%	3%			2%	1%									
	Lobelia anceps	FACW	2										2%			1%	2%		2%			
Water pepper	*Persicaria hydropiper*	FACW	2			1%		3%		1%			2%	1%								
narrow leaved plantain	*Plantago lanceolata*	FACU	4		1%			1%					1%									
	Prunella vulgaris	FACU	4																			
creeping buttercup	*Ranunculus repens*	FAC	3		48%	30%		10%	5%	3%		17%	6%	15%		3%				2%	50%	4%
	Solanum sp.	FACU	4																15%			
clover	*Trifolium repens*	FACU	4									5%	3%	20%	9%	10%	10%	10%	2%	3%		
Litter																						
Bare ground										20%		15%	5%	10%					16%			
				Total cover	100%	96%	95%	96%	98%	84%	85%	85%	97%	111%	112%	111%	103%	115%	84%	102%	100%	99%
				% pasture grasses	40%	16%	0%	22%	33%	10%	0%	30%	29%	50%	49%	40%	20%	20%	4%	53%	30%	20%
Prevalence Index (Hydrophytic vegetation ≤3)				as per Clarkson calculation	2.9	2.1	1	1.7	2.4	1.3	1	2.5	2.4	2.7	2.5	2.1	2.3	2.3	3.3	2.8	3	2.4
Excluded as NPSFM wetland (>50% pasture in improved pasture?)				Yes = excluded as PNRP wetland No = conclude at Row 'NPSFM wetland'	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	Yes	No	No
Dominance test score (>50%) for OBL, FACW, or FAC				Yes = go to 'all or most FAC'	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No
				No = go to 'hydric soil present'																		
All or most dominants FAC?				Yes = go to 'hydric soil present' No = wetland	Yes	No	No	No	Yes	No	No	Yes	No	No	No	No	No	No	No	No	No	Yes	
Hydric Soil Present	M = mottling; G = gleyed; W = wet			Yes = go to 'prevalence index'	No		Yes		Yes		Yes	No	No	Yes					No	No	Yes	Yes
				No = not wetland; stop																		
Wetland Hydrology Present				Yes = go to 'prevalence index' No = not wetland; stop	Yes	Yes		Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No		No	Yes
Prevalence Index (≤ 3.0)				Yes = wetland	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes
				No = not wetland; stop																		
NPSFM wetland (Yes or No)					No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No		No	Yes
RMA Wetland (Yes or No)																				No		

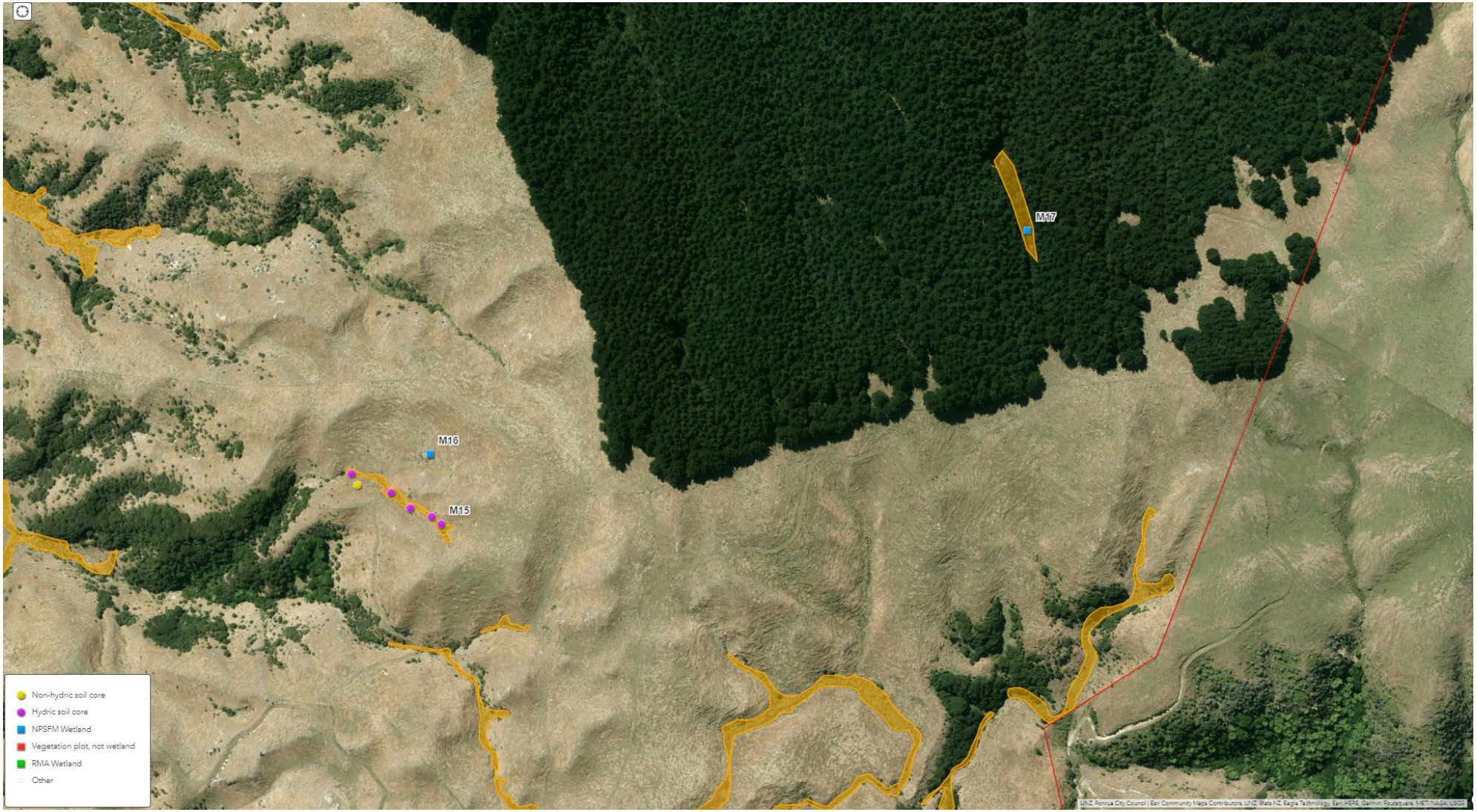

Figure 14. Wetland classification soil sample and wetland plot locations and results. North-eastern portion of the site. (1 of 5)

Figure 15. Wetland classification soil sample and wetland plot locations and results. North-western portion of the site. (2 of 5)

Figure 16. Wetland classification soil sample and wetland plot locations and results. Central-western portion of the site. (3 of 5)

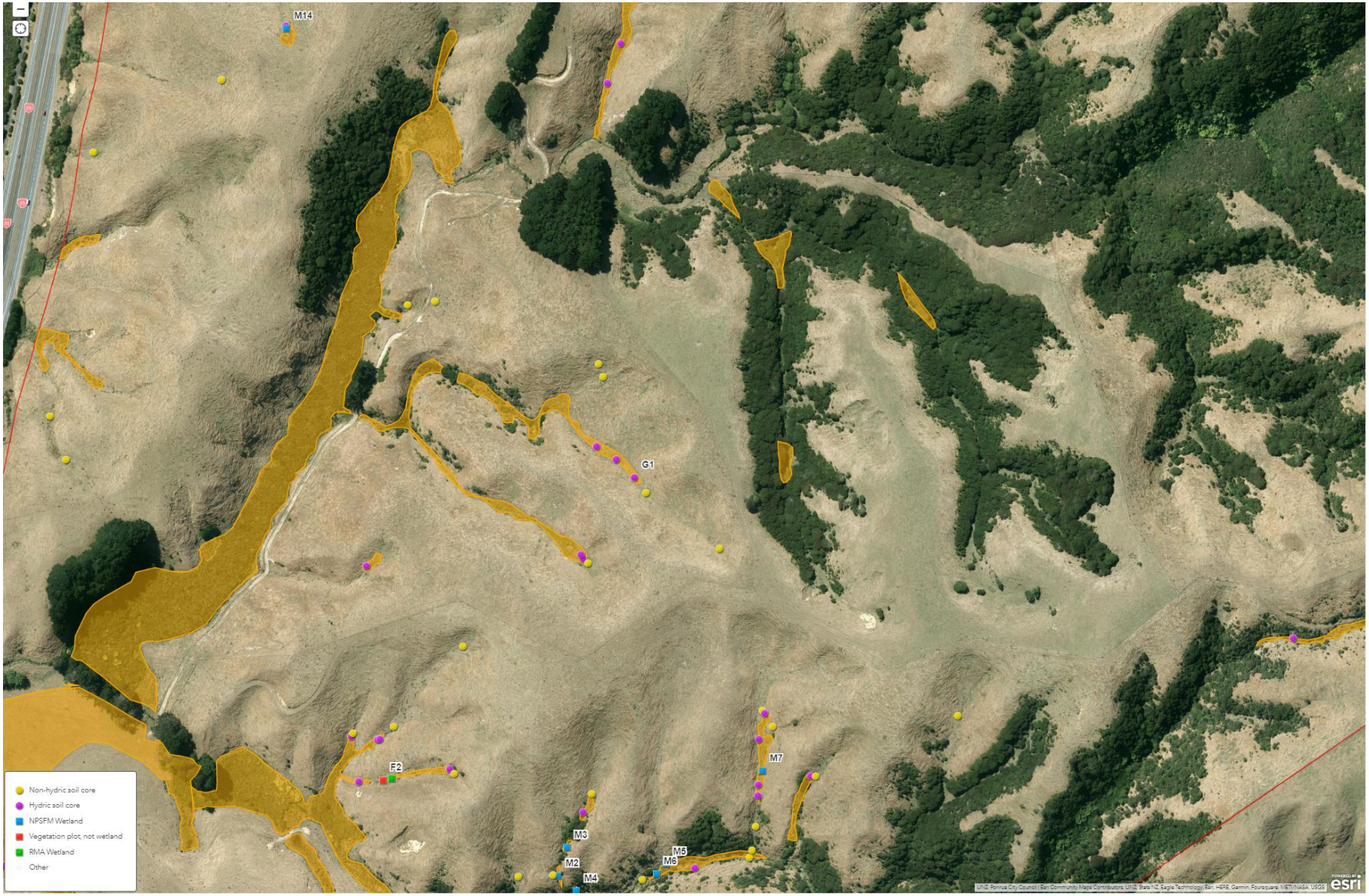

Figure 17. Wetland classification soil sample and wetland plot locations and results. South eastern portion of the site. (4 of 5)

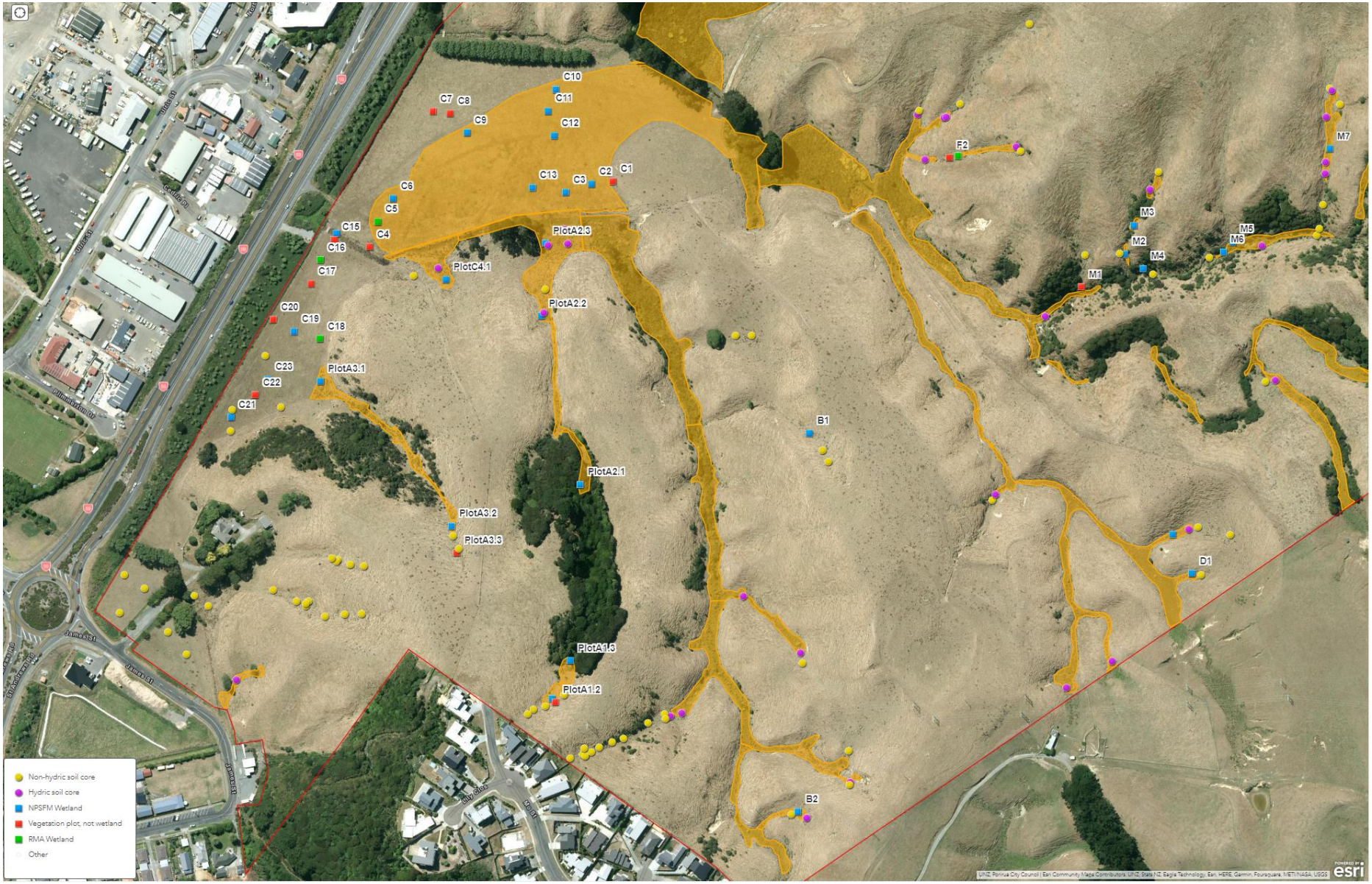

Figure 18. Wetland classification soil sample and wetland plot locations and results. South-western portion of the site. (5 of 5)

Appendix C – Planting plan concept

An example of a planting plan concept for reinstating stream margins following completion of earthworks. Species lists are based on GWRC Wellington Region Native Plant Guide (2010), Eco Zone 13 and MF6 Broad-leaved kohekohe tawa (Singers and Rogers).

Buffer margins (minimum of 10 m):	
Actions	Planting completed by September Ongoing weed/ pest control, infill planting monitoring and reporting for 5 years
Site planting area	XX m^2 (XX ha) to be planted in eco-sourced native plants, average of 10 m buffer around streams, wetlands and SNAs.
Revegetation objective	Plant weed tolerant, fast-growing, native plantings to provide buffering to high ecological values
Existing vegetation	Pasture grasses, gorse, seral scrub (tauhinu, kanuka, manuka, small leaved coprosma, patches of young kanuka, mature exotic trees (e.g. willows)
Site Preparation	Fence area, remove ecological weeds where present.
Planting	Mark plants with stake and plant guard with EmGuard ™ or similar. Planting at 1 m to 1.5 m centers, as appropriate.
Monitoring	Assess planted area and tree survival/ health/ canopy closure annually in Years 2 to 5 following completion of the planting programme. Monitor ecological weeds and animal pest damage.
Maintenance (up to five years)	Ecological weed control a minimum of 2 times/ year for Years 1-5, in spring and summer. Infill planting as required to ensure canopy closure. Undertake pest animal control as needed.

Recommended species list – Stream buffer riparian margin. Based on GWRC Eco zone 13. MF6 Broad-leaved kohekohe tawa.	
Species	**Common Name**
Alectryon excelsus	Titoki
Aristotelia serrata	Makomako
Austroderia fulvida	Toetoe
Austroderia toetoe	Toetoe
Carex flagellifera	Glen Murray tussock
Carex virgata	Purei
Carex geminata	Rautahi
Carex secta	Purei
Carpodetus serratus	Putaputaweta
Cordyline australis	Cabbage tree
Coprosma lucida	Shiny karamu
Coprosma robusta	Karamu
Coprosma tenuicaulis	Swamp coprosma
Beilschmiedia tawa	Tawa
Dacrycarpus dacrydioides	Kahikatea
Dysoxylum spectabile	Kohekohe
Fuchsia excorticata	Kotukutuku
Geniostoma rupestre var. ligustrifolium	Hangehange
Hoheria angustifolia	Houhi
Kunzea robusta	Kanuka
Leptospermum scoparium	Manuka
Lophomyrtus bullata	Ramarama
Melicope ternata	Wharangi
Melicytus ramiflorus	Mahoe
Melicytus lanceolatus	Mahoe wao
Myoporum laetum	Ngaio
Neomyrtus pedunculata	Rohutu
Olearia arborescens	
Olearia cheesemanii	Streamside tree daisy
Olearia solandri	Coastal tree daisy
Pennantia corymbosa	Kaikomako
Pittosporum eugenioides	Tarata
Phormium tenax	Harakeke
Plagianthus regius	Lowland ribbonbwood
Podocarpus totara	Totara
Prumnopitys taxifolia	Matai
Pseudopanax crassifolius	Horoeka
Rhopalostylis sapida	Nikau
Schefflera digitata	Pate
Sophora microphylla	Kowhai
Streblus heterophyllus	Turepo
Teucrium parvifolium	
Veronica arborea	Koromiko

Veronica stricta var. atkinsonii	Koromiko
Recommended species list –Wetland and 10 m buffer Based on GWRC 'wetland'	
Species	**Common Name**
Austroderia fulvida	toetoe
Austroderia toetoe	toetoe
Carex flagellifera	Glen Murray tussock
Carex geminata	Rautahi
Carex secta	Purei
Carpodetus serratus	Putaputaweta
Cyperus ustulatus	Giant umbrella sedge
Cordyline australis	Cabbage tree
Coprosma robusta	Karamu
Coprosma tenuicaulis	Swamp coprosma
Dacrycarpus dacrydioides	Kahikatea
Dicksonia fibrosa	Wheki ponga
Dicksonia squarrosa	Wheki
Hoheria angustifolia	Houhi
Freycinetia banksii	
Fuchsia excorticata	Kotukutuku
Laurelia novae zelandiae	Pukatea
Leptospermum scoparium	Manuka
Melicytus micranthus	Swamp mahoe
Schefflera digitata	Pate
Phormium tenax	Harakeke
Pseudopanax arboreus	Whauwhaupaku
Rhopalostylis sapida	Nikau
Schoenus pauciflorus	Bog rush
Sophora microphylla	Kowhai
Syzygium maire	Swamp maire

Recommended species list – Hill slope and 10 m buffer Based on GWRC Eco zone 13. MF6 Broad-leaved kohekohe tawa.	
Species	**Common Name**
Brachyglottis repanda	Rangiora
Carmichaelia australis	Neinei
Cordyline australis	Cabbage tree
Coprosma lucida	Shiny karamu
Coprosma propinqua	Mingimingi
Coprosma rigida	
Coprosma rhamnoides	
Coprosma robusta	Karamu
Coprosma virescens	
Beilschmiedia tawa	Tawa
Dacrydium cupressinum	Rimu
Dodonaea viscosa	Akeake
Dysoxylum spectabile	Kohekohe
Elaeocarpus dentatus	Hinau
Elaeocarpus hookerianus	Pokaka
Geniostoma rupestre var. ligustrifolium	Hangehange
Griselinia littoralis	Kapuka
Hoheria sexstylosa	Houhere
Knightia excelsa	Rewarewa
Kunzea robusta	Kanuka
Melicytus ramiflorus	Mahoe
Myrsine salicina	toro
Olearia paniculata	Akiharo
Olearia rani	Heketara
Olearia solandri	Coastal tree daisy
Ozothamnus leptophylla	Tauhinu
Nestegis cunninghamii	Black maire
Piper excelsum	Kawakawa
Pennantia corymbosa	Kaikomako
Podocarpus totara	Totara
Pseudopanax arboreus	Whauhaupaku
Pseudopanax crassifolius	Horoeka
Prumnopitys ferruginea	Miro
Prumnopitys taxifolia	Matai
Raukaua anomalus	Raukawa
Sophora chathamica	Kowhai
Veronica arborea	Koromiko
Veronica stricta var. atkinsonii	Koromiko
Weinmannia racemosa	Kamahi

Appendix D – Relevant Plimmerton Farm Zone Definitions

AREA OF SIGNIFICANT TERRESTRIAL, INDIGENOUS BIODIVERSITY means an area of significant terrestrial, indigenous biodiversity outside of Significant Natural Areas and Biodiversity Offsetting and Restoration Areas that meets the criteria in Policy 23 of the Wellington Regional Policy Statement. It excludes wetlands and other waterbodies.

BED has the same meaning as in section 2 of the RMA: means—

a. in relation to any river—

i. for the purposes of esplanade reserves, esplanade strips, and subdivision, the space of land which the waters of the river cover at its annual fullest flow without overtopping its banks:

ii. in all other cases, the space of land which the waters of the river cover at its fullest flow without overtopping its banks; and

b. in relation to any lake, except a lake controlled by artificial means,—

iii. for the purposes of esplanade reserves, esplanade strips, and subdivision, the space of land which the waters of the lake cover at its annual highest level without exceeding its margin:

iv. in all other cases, the space of land which the waters of the lake cover at its highest level without exceeding its margin; and

c. in relation to any lake controlled by artificial means, the space of land which the waters of the lake cover at its maximum permitted operating level; and

d. in relation to the sea, the submarine areas covered by the internal waters and the territorial sea.

BIODIVERSITY OFFSET means a measurable positive environmental outcome resulting from actions designed to redress the residual adverse effects on biodiversity arising from activities after appropriate avoidance, minimisation, and remediation measures have been applied. The goal of a biodiversity offset is to achieve no net loss, and preferably a net gain, of indigenous biodiversity values.

BIODIVERSITY OFFSETTING AND RESTORATION AREA means an area identified on the Planning Map to buffer and augment Significant Natural Areas and provide opportunities for biodiversity offsetting as well as restoration and assisted natural revegetation to protect and enhance landscape values and indigenous biodiversity. Over time as the Biodiversity Offsetting and Restoration Areas establish they are likely to become part of the Significant Natural Areas. For the avoidance of doubt, offsetting is not confined to Biodiversity Offsetting and Restoration Areas and may be undertaken elsewhere.

DRAIN means any artificial watercourse designed, constructed, or used for the drainage of surface or subsurface water, but excludes artificial watercourses used for the conveyance of water for electricity generation, irrigation, or water supply purposes.

EFFECT has the same meaning as in section 3 of the RMA:

includes –

a. Any positive or adverse effect; and

b. Any temporary or permanent effect; and

c. Any past, present, or future effect; and

d. Any cumulative effect which arises over time or in combination with other effects – regardless of the scale, intensity, duration, or frequency of the effect, and also includes –

e. Any potential effect of high probability; and

f. Any potential effect of low probability which has a high potential impact.

ENVIRONMENT has the same meaning as in section 2 of the RMA:

includes:

a. Ecosystems and their constituent parts, including people and communities; and

b. All natural and physical resources; and

c. Amenity values; and

d. The social, economic, aesthetic, and cultural conditions which affect the matters stated in paragraphs (a) to (c) or which are affected by those matters.

FRESHWATER has the same meaning as in section 2 of the RMA: means all water except coastal water and geothermal water.

FUNCTIONAL NEED means the need for a proposal or activity to traverse, locate or operate in a particular environment because the activity can only occur in that environment.

PEST Means any species that is:

a. A pest or unwanted organism as defined in the Biosecurity Act 1993; or

b. Identified as a pest species in a relevant site-specific restoration plan or Ecosystems and Indigenous Biodiversity Management Plan approved by Porirua City Council.

RIVER has the same meaning as in section 2 of the RMA: means a continually or intermittently flowing body of fresh water; and includes a stream and modified watercourse; but does not include

any artificial watercourse (including an irrigation canal, water supply race, canal for the supply of water for electricity power generation, and farm drainage canal).

SIGNIFICANT NATURAL AREA means an area of significant indigenous vegetation or significant habitat of indigenous fauna that meets the criteria in Policy 23 of the Wellington Regional Policy Statement 2013 and is identified in ECOPFZ-Appendix-1: Schedule of Significant Natural Areas. It excludes wetlands and other waterbodies.

TE MANA O TE WAI has the same meaning as in the National Policy Statement for Freshwater Management 2020.

Concept

(1) Te Mana o te Wai is a concept that refers to the fundamental importance of water and recognises that protecting the health of freshwater protects the health and well-being of the wider environment. It protects the mauri of the wai. Te Mana o te Wai is about restoring and preserving the balance between the water, the wider environment, and the community.

(2) Te Mana o te Wai is relevant to all freshwater management and not just to the specific aspects of freshwater management referred to in this National Policy Statement.

Framework

(3) Te Mana o te Wai encompasses 6 principles relating to the roles of tangata whenua and other New Zealanders in the management of freshwater, and these principles inform this National Policy Statement and its implementation.

(4) The 6 principles are:

(a) Mana whakahaere: the power, authority, and obligations of tangata whenua to make decisions that maintain, protect, and sustain the health and well-being of, and their relationship with, freshwater

(b) Kaitiakitanga: the obligation of tangata whenua to preserve, restore, enhance, and sustainably use freshwater for the benefit of present and future generations

(c) Manaakitanga: the process by which tangata whenua show respect, generosity, and care for freshwater and for others

(d) Governance: the responsibility of those with authority for making decisions about freshwater to do so in a way that prioritises the health and well-being of freshwater now and into the future

(e) Stewardship: the obligation of all New Zealanders to manage freshwater in a way that ensures it sustains present and future generations

(f) Care and respect: the responsibility of all New Zealanders to care for freshwater in providing for the health of the nation.

(5) There is a hierarchy of obligations in Te Mana o te Wai that prioritises:

(a) first, the health and well-being of water bodies and freshwater ecosystems

(b) second, the health needs of people (such as drinking water)

(c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.

VEGETATION REMOVAL The removal or destruction of vegetation (exotic or native) by mechanical or chemical means, including felling vegetation, spraying of vegetation by hand or aerial means, hand removal, and the burning of vegetation. Vegetation removal does not include:

a. any vegetation removal, tree removal, or trimming of vegetation associated with the Electricity (Hazards from Trees) Regulations 2003; and

b. any vegetation removal or vegetation disturbance covered by the Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017.

WATERBODY has the same meaning as in section 2 of the RMA: means fresh water or geothermal water in a river, lake, stream, pond, wetland, or aquifer, or any part thereof, that is not located within the coastal marine area.

WETLAND has the same meaning as in section 2 of the RMA: includes permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions.

Policy 23: Identifying indigenous ecosystems and habitats with significant indigenous biodiversity values – district and regional plans

District and regional plans shall identify and evaluate indigenous ecosystems and habitats with significant indigenous biodiversity values; these ecosystems and habitats will be considered significant if they meet one or more of the following criteria:

(a) Representativeness: the ecosystems or habitats that are typical and characteristic examples of the full range of the original or current natural diversity of ecosystem and habitat types in a district or in the region, and:
   (i) are no longer commonplace (less than about 30% remaining); or
   (ii) are poorly represented in existing protected areas (less than about 20% legally protected).

(b) Rarity: the ecosystem or habitat has biological or physical features that are scarce or threatened in a local, regional or national context. This can include individual species, rare and distinctive biological communities and physical features that are unusual or rare.

(c) Diversity: the ecosystem or habitat has a natural diversity of ecological units, ecosystems, species and physical features within an area.

(d) Ecological context of an area: the ecosystem or habitat:
   (i) enhances connectivity or otherwise buffers representative, rare or diverse indigenous ecosystems and habitats; or
   (ii) provides seasonal or core habitat for protected or threatened indigenous species.

(e) Tangata whenua values: the ecosystem or habitat contains characteristics of special spiritual, historical or cultural significance to tangata whenua, identified in accordance with tikanga Māori.