SCHEDULE B

RESOURCE CONSENTS GRANTED

The following resource consents are granted to Waka Kotahi – The New Zealand Transport Agency under the Resource Management Act 1991 and Auckland Unitary Plan (Operative in Part) to undertake the construction, operation and maintenance of a state highway and associated activities between Warkworth and north of Te Hana within the Designation.

Land use consent (s9)

E26 Infrastructure (LUC60354952)

- To create stormwater detention/retention ponds and wetlands associated with the project as a controlled activity under rule E26.2.3.1 (A55).
- The removal and alteration of vegetation that does not comply with standards E26.3.5.1 to E26.3.5.4 as a restricted discretionary activity under rule E26.3.3.1 (A77).
- Earthworks activity greater than 50,000m² where land has a slope less than 10 degrees outside the Sediment Control Protection Area as a restricted discretionary activity under rule E26.5.3.2 (A103).
- Earthworks activity greater than 2,500m² where the land has a slope equal to or greater than 10 degrees as a restricted discretionary activity under rule E26.5.3.2 (A106).
- Earthworks activity greater than 2,500m² within the Sediment Control Protection Area as a restricted discretionary activity under rule E26.5.3.2 (A107).
- Earthworks activity between 10m² - 2500m² and from 5m³ - 2500m³ within an SEA as a restricted discretionary activity under rule E26.6.3.1 (A117).
- Earthworks activity greater than 2500m² or 2500m³ within a SEA as a discretionary activity under rule E26.6.3.1 (A118).

E9 Stormwater quality – High contaminant generating car parks and high use roads (LUC60355185)

- Development of a new or redevelopment of an existing high use road greater than 5000m² as a controlled activity under Rule E9.4.1 (A7).

Streamworks (ss 13 & 14)

E3 Lakes, rivers, streams and wetlands

- Diversion of a stream with associated disturbance and sediment discharge outside of any overlays as a discretionary activity under rule E3.4.1 (A19).
- Any activities not complying with the general permitted activity standards in E3.6.1.1 or the specific standards in E3.6.1.10 – E3.6.1.13 (outside overlays) as a discretionary activity under rule E3.4.1 (A26).
- Temporary structures that comply with the standards within E3.6.1.15 within overlays, as a discretionary activity under E3.4.1 (A27).

- Bridges or pipe bridges within overlays that comply with the standards in E3.6.1.16 as a discretionary activity under rule E3.4.1 (A29).
- Culverts more than 30m in length when measured parallel to the direction of water flow outside of any overlay as a discretionary activity under rule E3.4.1 (A33).
- Erosion control structures within an overlay that is less than 30m in length when measured parallel to the direction of water flow and complies with the standards in E3.6.1.14 as a discretionary activity under rule E3.4.1 (A34).
- Stormwater outfalls within an overlay that comply with the standards in E3.6.1.14 as a discretionary activity under rule E3.4.1 (A39).
- Activities outside of any overlay not complying with the general permitted activity standards in E3.6.1.1 or the specific activity standards in E3.6.1.14 to E3.6.1.23 as a discretionary activity under rule E3.4.1 (A44).

Water Permits (s14)

E7 Taking, using, damming and diversion of water and drilling (WAT60355184)

- Dewatering and groundwater level control for the long-term operation of the road cuts, not complying with standards E7.6.1.6(2) and (3) as a restricted discretionary activity under rule E7.4.1 (A20).
- Excavations for the road alignment will exceed 1ha in total area and 6m depth below natural ground level and the diversion cannot comply with standard E7.6.1.10(2), requiring consent as a restricted discretionary activity under rule E7.4.1 (A26).

E8 Stormwater – Discharge and diversion (WAT60356979)

- Diversion of stormwater runoff from new impervious surface areas which exceeds 5000m² and which does not comply with standards E8.6.1 and E8.6.4.1 as a discretionary activity under Rule E8.4.1 (A10).

Discharge Permits (s15)

E8 Stormwater – Discharge and diversion (DIS60354954)

- Discharge of stormwater runoff from new impervious surface areas which exceeds 5000m² and which does not comply with standards E8.6.1 and E8.6.4.1 as a discretionary activity under Rule E8.4.1 (A10).

E14 Air Quality (DIS603551896)

- Temporary crushing of aggregates greater than 60 tonnes per hour where the activity complies with permitted standards in E14.6.1.13, as a restricted discretionary activity under rule E14.4.1 (A94).

THE RESOURCE CONSENTS ARE SUBJECT TO THE FOLLOWING CONDITIONS

CONTENTS

DEFINITIONS

The table below defines the acronyms and terms used in the conditions. Defined terms are capitalised throughout the conditions.

<table>
<tr><th>Acronym / Term</th><th colspan="3">Definition / Meaning</th></tr>
<tr><td>Active Roost Site</td><td colspan="3">An area within the home range of a bat population and where there is potential for bats to be roosting in any suitable tree or cluster of trees</td></tr>
<tr><td>Acute Event Threshold</td><td colspan="3"><table>
<tr><th>Catchment</th><th>Acute Event (events equal to or greater than)</th><th>Acute Event Threshold (tonnes/Acute Event)</th></tr>
<tr><td>Hōteo Catchment</td><td>24 hour 10-year ARI event</td><td>512</td></tr>
<tr><td>Mahurangi Catchment</td><td>24 hour 30-year ARI event</td><td>600</td></tr>
</table></td></tr>
<tr><td>Acute Event Sediment</td><td colspan="3">Total sediment (tonnes) discharged from Project Works over the total Project construction period (excluding total sediment generated by a greater than or equal to 100-year ARI event) above the Acute Event Threshold(s)</td></tr>
<tr><td>AMP</td><td colspan="3">Adaptive Monitoring Plan</td></tr>
<tr><td>AMOP</td><td colspan="3">Annual Monitoring and Offset Plan</td></tr>
<tr><td>ARI</td><td colspan="3">Average Return Interval</td></tr>
<tr><td>AUP(OP)</td><td colspan="3">Auckland Unitary Plan Operative in Part</td></tr>
<tr><td>Avifauna</td><td colspan="3">Indigenous bird species of NZ</td></tr>
<tr><td>Bed</td><td colspan="3">As defined in the RMA</td></tr>
<tr><td>CEMP</td><td colspan="3">Construction Environmental Management Plan</td></tr>
<tr><td>CESCP</td><td colspan="3">Construction Erosion and Sediment Control Plan</td></tr>
<tr><td>CIR</td><td colspan="3">Cultural Indicators Report</td></tr>
<tr><td>CMA</td><td colspan="3">Coastal Marine Area</td></tr>
<tr><td>Construction Works</td><td colspan="3">Activities undertaken to construct the Project excluding Enabling Works</td></tr>
<tr><td>CTMP</td><td colspan="3">Construction Traffic Management Plan</td></tr>
</table>

<table>
<tr><td>Cumulative Sediment</td><td colspan="2">Total sediment (tonnes) discharged from Project Works above the Cumulative Threshold(s) over the total Project construction period minus any Acute Event Sediment</td></tr>
<tr><td>Cumulative Threshold</td><td colspan="2"><table>
<tr><th>Catchment</th><th>Cumulative Threshold (tonnes)</th></tr>
<tr><td>Hōteo Catchment</td><td>9000 [x total years of Construction Works]</td></tr>
<tr><td>Mahurangi Catchment</td><td>4300 [x total years of Construction Works]</td></tr>
<tr><td>Oruawharo Catchment</td><td>3300 [x total years of Construction Works]</td></tr>
</table></td></tr>
<tr><td>Day(s)</td><td colspan="2">Has the same meaning as “working day” under section 2 of the RMA</td></tr>
<tr><td>DEB</td><td colspan="2">Decanting earth bund</td></tr>
<tr><td>Designation</td><td colspan="2">The designation for the Project included in the AUP(OP)</td></tr>
<tr><td>EMP</td><td colspan="2">Ecology Management Plan</td></tr>
<tr><td>Ecological Site</td><td colspan="2">The areas described in Appendix A as identified on Maps 18 – 20</td></tr>
<tr><td>Ecological Value</td><td colspan="2">The value of an Ecological Site (i.e. Low-Moderate or High-Very High) identified using the criteria in the EIANZ Guidelines</td></tr>
<tr><td>EIANZ Guidelines</td><td colspan="2">Ecological Impact Assessment Guidelines for New Zealand 2nd Edition, EIANZ, 2018, or any subsequent version.</td></tr>
<tr><td>Enabling Works</td><td colspan="2">Preliminary construction activities as follows:
geotechnical investigations (including trial embankments);
formation of access for geotechnical investigations;
establishment of site yards, site offices, site entrances and fencing;
constructing and sealing site access roads;
demolition or removal of buildings and structures;
relocation of services; and
establishment of mitigation measures (such as erosion and sediment control measures, temporary noise walls, earth bunds and screen planting)</td></tr>
<tr><td>Erosion Prone Stream</td><td colspan="2">Streams with soft beds (not rock) that are predicted to be subject to flow changes of >15% to peak 2-year and 10-year ARI flows compared to predevelopment</td></tr>
<tr><td>ESCP</td><td colspan="2">Erosion and Sediment Control Plan</td></tr>
<tr><td>EWCEMP</td><td colspan="2">Enabling Works Construction Environmental Management Plan</td></tr>
</table>

EWCESCP	Enabling Works Construction Erosion Sediment Control Plan
EWCTMP	Enabling Works Construction Traffic Management Plan
Fauna	Indigenous fauna of NZ, excluding fauna as defined in Avifauna above
GD01	Auckland Council Guideline Document 2017/001: Stormwater Management Devices in the Auckland Region (December 2017), or any subsequent version
GD05	Auckland Council Guideline Document 2016/005: Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (June 2016), Incorporating Amendment 1, or any subsequent version
Highly Sensitive Receiver (HSR)	Residential dwellings within: • 200m of the Designation boundary; • 50m of sealed access roads used for Project Works up to 500 m outside of the Designation boundary; and • 100m of unsealed access roads used for Project Works outside of the Designation boundary.
Hōkai Nuku	The iwi collective being comprised of the representatives for Ngāti Manuhiri, Ngāti Mauku/Ngāti Kauae of Te Uri o Hau, Ngāti Rango of Ngāti Whātua o Kaipara and Ngāti Whātua.
Incident	A release of contaminants (including sediment) or materials into a waterbody that exceeds typical background levels
Iwi Advisor	The advisor (or other nominated kaitiaki) appointed by Hōkai Nuku in accordance with Condition 9G.
Kourawhero Wetland Complex	The wetland complex associated with the Kourawhero Stream as identified on Map 17
Intermittent Stream	As defined in the AUP(OP)
Manager	The Team Manager – Compliance Monitoring, of Auckland Council, or authorised delegate
Mana Whenua	Māori who can demonstrate customary rights through occupation to resources within the Project area, and who have responsibilities as kaitiaki over their tribal lands, waterways and other taonga
Maximum Open Earthworks Area	Maximum area of earthworks allowed to be open (unstabilised) at any one time

Mitigation Sites	The 'Ecology vegetation mitigation' areas identified on Maps 1 – 6
NFFCRP	Native Freshwater Fish Capture and Relocation Plan
Permanent stream	As defined in the AUP(OP)
Project	The construction, maintenance and operation of the Ara Tūhono Warkworth to Wellsford Project, which extends from Warkworth to north of Te Hana
Project Liaison Person	The person or persons appointed for the duration of the construction phase of the Project to be the main and readily accessible point of contact for persons affected by the construction work
Project Works	All activities undertaken to construct the Project (both Construction Works and Enabling Works) and including ecological and landscape mitigation activities) but excluding operation of the highway
Representative Watercourses	The watercourses set out in Maps 7-12.
RMA	Resource Management Act 1991
RCMP	Rock Crusher Management Plan
SCMP	Stakeholder and Communications Management Plan
SEEMP	Streamworks Ecological Effects Management Plan
Sediment Reduction Activity	Works or activities that reduce sediment discharging into the CMA. Such works or activities may include any Project Works, land retirement (e.g. retirement of commercial plantation forest and/or pasture), planting or other sediment reduction works or activities.
Sediment Reduction Factors	Tonnes of sediment per hectare discharging into the CMA that will be reduced by a Sediment Reduction Activity.
SH1	State Highway 1
SOMP	Stormwater Operations and Maintenance Plan
SRP	Sediment Retention Pond
SSTMP	Site Specific Traffic Management Plan
Stabilisation	The activity to achieve a Stabilised Area

Stabilised, Stabilised Area	Refers to an area inherently resistant to erosion such as rock or an area that has been stabilised after earthworks and is excluded from the definition of Maximum Open Earthworks Area. Stabilisation methods may include use of mulch and/or other woody organic matter, geotextile, the use of hard fill material and exposing rock as set out in GD05 or as approved through conditions or certified CESCPs. Where vegetation is used on a surface that is not otherwise resistant to erosion, the surface is considered stabilised once an 80% vegetation cover has been established.
Stage(s)	A specific works area or new land disturbing activity associated with construction of the Project as nominated by the Consent Holder.
Stormwater Management Wetland	A permanent stormwater management device in the form of a constructed wetland designed to manage stormwater runoff volume, flow and/or contaminant loads prior to discharge
Suitably Qualified and Experienced Person or SEQP	A person (or persons) who can provide sufficient evidence to demonstrate their suitability and competence
Trigger Event	An event in which the following occurs: • Greater than 25mm of rainfall over any 24-hour period (as measured by the automatic onsite rainfall devices) where Project Works subject to a CESCP are not Stabilised; or • Greater than 15mm of rainfall within an hour period where Project Works subject to a CESCP are not Stabilised
TSS	Total Suspended Solids
Watercourse	Permanent and intermittent rivers and streams but not ephemeral streams or Wetlands.
Wetland(s)	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, excluding Stormwater Management Wetlands.

GENERAL CONDITIONS

1. These consents authorise the activities described in Table 1 for the purposes of the construction, operation and maintenance of the Project within the Designation.

Consent Lapse and Expiry

1A. Pursuant to sections 123 and 125(1) of the RMA (and where relevant in accordance with section 116 of the RMA), the lapse and expiry dates for the various resource consents are as set out in Table 1 unless they have been given effect to, surrendered or been cancelled at an earlier date.

Table 1: Resource consent lapse and expiry dates

Ref.	Resource consents	Lapse date	Expiry date
Land disturbance activities			
LUC60354952	Land use (s.9(2)) – earthworks	15 years	Unlimited duration
LUC60354952	Land use (s.9(2)) – vegetation alteration and removal.	15 years	Unlimited duration
LUC60354952	Land use (s.9(2)) – construction of stormwater detention/retention ponds	15 years	Unlimited duration
Works in watercourses and wetlands			
LUS60354955	Land use (s.13) - new structures in, on, under or over the bed of rivers, streams (including intermittent streams) and wetlands.	15 years	35 years from the date of commencement
LUS60354955	Water permit (s.14) - diversion and temporary damming of water	15 years	35 years from the date of commencement
WAT60354953	Water permit (s.14) - diversion of intermittent and permanent watercourses and associated disturbance and sediment discharge throughout the Project area during construction and operation.	15 years	35 years from the date of commencement
Diversion of groundwater			
WAT60355184	Water permit (s.14) - diversion of groundwater and dewatering construction and operation.	15 years	35 years from the date of commencement

Ref.	Resource consents	Lapse date	Expiry date
Diversion and discharge of stormwater			
WAT60356979	Water permit (s.14) - diversion of stormwater associated with new permanent impervious surfaces.	15 years	35 years from the date of commencement
DIS60354954	Discharge permit (s.15) - discharge of stormwater runoff from new permanent impervious surfaces into or onto land or water.	15 years	35 years from the date of commencement
LUC60355185	Land use (s.9(2)) – development of all new impervious surfaces for high use roads within the Project area.	15 years	Unlimited duration
Discharges to air			
DIS60355186	Discharge permit (s.15) – temporary discharges to air during construction	15 years	15 years from the date of commencement

Review

2. These conditions may be reviewed by the Manager under section 128 of the Act, by giving notice pursuant to section 129 of the Act, at any time within six months of the first, second, third, fourth, and fifth anniversaries of the date of commencement of the construction of the Project authorised by this consent:

    a. To deal with any adverse effect on the environment that may arise from the exercise of the consent and which it is appropriate to deal with at a later stage; or
    b. To review the adequacy of any monitoring.

Management plans

3. The Consent Holder shall prepare, submit to the Manager, have certified, and implement the resource consent management plans in accordance with Table 2 and the specific resource consent conditions which apply to each management plan.

4. The Consent Holder may prepare management plans in parts or in stages to address specific activities or to reflect the staged implementation of the Project Works.

Condition 5 is intentionally left blank

6. The Consent Holder shall not commence Project Works within the area to which a management plan applies until the required management plan(s) has been certified.

7. The Consent Holder may seek to amend a management plan in accordance with the Decision Pathway prescribed for the plan in Table 2.

7A. The Consent Holder shall make each management plan publicly available online once a management plan is finalised and if it is amended or updated, and for the duration of Project Works.

Table 2: Management Plan Table

Management Plan	Decision Pathway	When to submit	Duration for implementation
Construction Environmental	To Manager for Information	At least 20 Days prior to start of Construction Works	Duration of Construction Works
Enabling Works Construction Environmental	To Manager for Information	At least 20 Days prior to start of Enabling Works	Duration of Enabling Works
Erosion and Sediment Control	Certified by Manager	Prior to start of Construction Works	Duration of Construction Works
Chemical Treatment	Certified by Manager	Prior to start of Construction Works	Duration of Construction Works
Construction Erosion and Sediment Control	Certified by Manager	Prior to start of Construction Works for specific area and/or activity	Duration of specific works and/or activity
Enabling Works Construction Erosion and Sediment Control	Certified by Manager	Prior to start of Enabling Works	Duration of Enabling Works
Adaptive Monitoring	Certified by Manager	Prior to start of Construction Works	Duration of Construction Works
Sediment Reduction Factors methodology	Certified by Manager	Prior to start of Construction Works	N/A
Ecological Management Plan	Certified by Manager	At least 6 months prior to start of Project Works	As specified in the EMP

Management Plan	Decision Pathway	When to submit	Duration for implementation
Biosecurity Plan	Certified by Manager	Prior to start of Project Works	Duration of Project Works
Streamworks Ecological Effects Management Plan	Certified by Manager	Prior to start of Construction Works	N/A
Native Freshwater Fish Capture and Relocation Plan	Certified by Manager	Prior to any Wetland or Watercourse activity commencing	Prior to Construction/ Enabling Works period
Stormwater Operations and Maintenance	Provided to Manager for information	Prior to operation of stormwater treatment devices	Throughout operation of Project
Rock Crusher	Certified by Manager	Prior to start of Construction Works	Duration of Construction Works
Cultural Engagement	To the Manager for information	At least 1 month prior to the start of Project Works	Throughout the Project Works
Wetland Ecological Effects Management Plan	Certified by Manager	Prior to start of Construction Works	Throughout the Project Works and for 3 years following completion of the Project Works
Annual Mitigation and Offset Plan	Certified by Manager	30 June annually	Throughout the Project Works

MANA WHENUA

Cultural Indicators Report

8. At least 12 months prior to the Consent Holder's nominated start date for detailed design of the Project, the Consent Holder shall invite Mana Whenua to prepare a Cultural Indicators Report for the Project, or to nominate a person or organisation to prepare a Cultural Indicators Report on their behalf. To assist with preparation of any Cultural Indicators Report, the Consent Holder shall provide access to Crown owned land within the Project Area for Mana Whenua to undertake surveys. The purpose of any Cultural Indicators Report is to assist with the protection and management of Ngā Taonga Tuku Iho (treasures handed down by our ancestors) during Construction Works.

9. Any Cultural Indicators Report should be completed and provided to the Consent Holder at least 6 months prior to the Consent Holder's nominated start date for detailed design of the Project and should:

a. Describe Mana Whenua's customary rights through occupation to resources within the Designation.
b. Identify and map cultural sites, landscapes and values that have the potential to be affected by Project Works;
c. Set out Mana Whenua's desired outcomes and recommended methods for management of potential effects on cultural values;
d. Identify cultural indicators of cultural stream health as relevant to the Project Works;
e. Set out recommended methods to measure the effects on identified cultural indicators during Project Works;
f. Identify opportunities for restoration and enhancement of Mauri and mahinga kai within the Designation; and
g. Identify cultural criteria that should be acknowledged in the development of the CEMP, SEEMP, the EMP, and the NFFCRP.

Cultural Engagement Plan

9A. At least 1 month prior to start of the Consent Holder's nominated start date for detailed design of the Project, the Consent Holder shall complete a Cultural Engagement Plan if it has received any Cultural Indicators Report(s) in accordance with Conditions 8 and 9. The purpose of the Cultural Engagement Plan is to identify:

a. The measures and methods to implement the recommendations within the Cultural Indicators Report(s) where the Consent Holder considers it is practicable to do so.
b. Written reasons where the Consent Holder considers any recommendations in the Cultural Indicators Report(s) cannot be practicably implemented, for example due to the operational, technical, financial, health and safety or engineering needs of the Project.
c. The roles and responsibilities of Mana Whenua during the Project Works.
d. The roles and responsibilities of the Iwi Advisor, which shall include but not be limited to:
    i. Engaging with the Consent Holder on the preparation of the CEMP, the SEEMP, the EMP, and the NFFCRP;
    ii. Onsite monitoring of Project Works involving top soil removal up to 1.5m below ground level (as defined in the AUP(OP));
e. Requirements for formal dedication or cultural interpretation prior to the start of Construction Works in areas identified as having significance to Mana Whenua.
f. A written record of the engagement undertaken in accordance with Condition 9B.

9B. In preparing the Cultural Engagement Plan the Consent Holder shall engage with Mana Whenua who have prepared a Cultural Indicators Report over a period of not less than 3 months prior to the Consent Holder's nominated start date for detailed design of the Project to better understand any Cultural Indicators Report and to discuss the recommendations in it.

9C. The Consent Holder shall implement the Cultural Engagement Plan throughout the Project Works.

Iwi Advisor

9D. At least 12 months prior to commencement of Construction Works, the Consent Holder shall invite Hōkai Nuku to appoint an Iwi Advisor or other nominated kaitiaki (*Iwi Advisor*) to undertake the roles and responsibilities set out, or to be set out in the Cultural Engagement Plan.

9E. Conditions 9A to 9C will cease to apply if Mana Whenua have been invited to prepare a Cultural Indicators Report in accordance with Condition 8 and have not provided that report within six months of the Consent Holder's nominated start date for detailed design of the Project**.**

Conditions 10-15 are intentionally left blank

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

16. The Consent Holder shall prepare a Construction Environmental Management Plan (*CEMP*) prior to commencement of Construction Works to set out management procedures and methods to be implemented to ensure ongoing compliance with these conditions and to address complaints and Incidents in a timely manner during Construction Works.

17. The CEMP shall be prepared, having regard to the NZ Transport Agency Guideline for Preparing Environmental and Social Management Plans (April 2014), or any subsequent version. The CEMP shall include, but not be limited to:

a. Roles and responsibilities of construction management staff, including the overall manager responsible for environmental management.
b. An outline construction programme, proposed staging, proposed hours of work and methods to inform the Manager of upcoming Construction Works, which shall occur at annual intervals or key construction times throughout the duration of Construction Works.
c. Contact details of the site supervisor or Project manager and the Project Liaison Person (telephone number and email or other contact address).
d. Methods and systems to inform and train all persons working on the site of potential environmental sensitivities and how to comply with these conditions.
e. Measures to be adopted to maintain the land affected by Construction Works in a tidy condition in terms of disposal / storage of rubbish, storage and unloading of construction materials and similar activities.
f. The location of construction site infrastructure including site offices, site amenities, contractors' yard access, equipment unloading and storage areas, contractor car parking and security.
g. Means of providing for the health and safety of the general public.
h. Procedures for the refuelling and maintenance of plant and equipment to avoid discharges of fuels or lubricants to Watercourses.

i. Measures to address the storage of fuels, lubricants, hazardous and/or dangerous materials, along with contingency procedures to address emergency spill response(s) and clean up.
j. Procedures for responding to complaints about Construction Works.
k. Procedures for Incident management.
l. Methods for updating the CEMP as required.

18. The CEMP shall be prepared in engagement with Mana Whenua and in consultation with the owner of the commercial plantation forest (Mahurangi Forest) located west of SH1, with respect to construction activities which directly interface with forestry operations. If the Consent Holder has not received any comment from the owner of the Mahurangi Forest within 20 Days of providing the CEMP to them, the Consent Holder may consider the relevant party has no comments.

Enabling Works Construction Environmental Management Plan

19. Where Enabling Works are to be undertaken, the Consent Holder shall prepare a site or activity specific Enabling Works Construction Environmental Management Plan (*EWCEMP*) prior to commencing the relevant Enabling Works.

20. The EWCEMP shall be prepared in general accordance with Condition 17, with the scope modified to be commensurate with the scale and effects of the proposed enabling works.

EROSION AND SEDIMENT CONTROL

Erosion and Sediment Control Outcomes

21. The Consent Holder shall design and construct the Project to achieve the following erosion and sediment control (*ESC*) Outcomes (*ESC Outcomes*):

a. Prioritise minimisation of sediment generation by:
   i. minimising the volume and area of the proposed earthworks required for the Project through earthworks design appropriate to slope and expected soil types and geology;
   ii. maximising the effectiveness of ESC measures associated with earthworks by minimising potential for sediment generation and sediment yield; and
   iii. Minimisation of discharges of all construction water related contaminants.

b. Monitor sediment yields and assess and remedy effects on freshwater and marine environments at the prescribed thresholds in Conditions 34 to 42.

22. The Consent Holder shall develop, construct and maintain all ESC plans and devices to achieve the requirements of GD05, except where otherwise certified by the Manager or a specific standard is detailed in a condition of this consent, in which case the specific standard shall apply.

Erosion and Sediment Control Plan

23. The Consent Holder shall prepare an Erosion and Sediment Control Plan (*ESCP*) for the Construction Works for the entire Project prior to Construction Work

identifying the construction water management measures to be used on the Project to meet the ESC Outcomes.

24. The ESCP shall be prepared by a Suitably Qualified and Experienced Person and shall include the following:

General

a. Methods of achieving the ESC Outcomes;
b. Identification of a suite of appropriate structural and non-structural erosion and sediment control measures to be installed prior to and during all Construction Works for representative parts of the Project, including earthworks, and works within Watercourses;
c. Identification of a process and methods to ensure that offsite (clean) water runoff is prevented from entering active work areas, including the use of clean water diversion (CWD) channels and/or bunds to divert runoff;
d. Identification of a process, methods and measures to ensure that any sediment laden runoff will be captured and directed to an appropriate sediment control device, including the use of dirty water diversion (DWD) channels and/or bunds;
e. The approach and procedures for ensuring advance warning of a rainfall event;
f. The procedures for decommissioning the erosion and sediment control measures;
g. The procedures for determining staging and sequencing of earthworks to minimise the length of time and extent of exposed/disturbed soil and the details of progressive stabilisation of these earthwork areas;
h. A procedure to establish and define minor changes to erosion and sediment control, which would not require further certification by the Manager prior to implementation; and
i. Methods for amending and updating the ESCP as required.

Responsibilities

j. Identification of:
    i. Appropriately qualified and experienced staff to manage the erosion and sediment control devices, associated maintenance procedures and monitoring requirements;
    ii. Staff directly responsible for supervising installation, maintenance and decommissioning of erosion and sediment control devices and the associated works;
    iii. A chain of responsibility for both the Project and its Stages, including the overall manager (with authority to stop works), for managing erosion and sediment control on site;
    iv. An erosion and sediment control management team (including representatives from the contractor, Council and the Consent Holder) to meet and review erosion and sediment control practices and procedures as required; and
    v. Training requirements for staff to assist with their understanding of the environmental effects that need to be managed and the requirements of the consent conditions, including specific training at the start of Construction Works in any Stage.

Incident management

k. Identification of the process to ensure compliance with Condition 48 and 49.

Chemical Treatment Management

25. The Consent Holder shall prepare a Chemical Treatment Management Plan (ChemTMP). The ChemTMP shall be prepared by a Suitably Qualified and Experienced Person and shall include:

a. Specific design details of the flocculation treatment system which shall include:
   i. a rainfall or flow activated flocculation system excluding flocculation socks for all sediment retention ponds (*SRPs*) and decanting earth bunds (*DEBs*) for areas that have a contributing catchment greater than 500m^2;
   ii. all rainfall activated flocculation systems to incorporate robust design, construction and operation systems including provision of sufficient chemical at a minimum in accordance with GD05 and sufficient to meet the overall ESC Outcomes of Condition 21 and to minimise the effects of any malfunction of the rainfall activated flocculation systems; and
   iii. a rainfall activated flocculation system (including flocculation socks) for all other DEBs and any other sediment detention or flow device system as may be employed on site.
b. Monitoring, maintenance (including post storm) and a contingency programme (including a record sheet) for the flocculation treatment system;
c. Results of any initial treatment trials and details of optimum dosage (including assumptions) specific to a given CESCP;
d. Consideration of the use of organic flocculants where practicable, provided that the most effective flocculent in terms of sediment removal is selected based on the results of any initial treatment trials;
e. A spill contingency plan;
f. Details of the person or bodies that will hold responsibility for the operation and maintenance of the chemical treatment system and the organisational structure which will support this system; and
g. Details for the checking and calibration of dosing and monitoring equipment.

Erosion and sediment control standards

26. The Consent Holder shall design and construct all erosion and sediment control measures and devices to achieve compliance with Conditions 22 and 24 and shall include the following design requirements:

a. All Sediment Retention Ponds and decanting earth bunds shall be designed, constructed and maintained at a volume equivalent to or greater than 3% of the catchment area (i.e., 300m^3 per 1ha of contributing catchment) unless otherwise varied through an approved CESCP;
b. Silt fence design and super silt fence design shall be in accordance with TP90 and NZ Transport Agency Erosion and Sediment Control Guidelines for State Highway Infrastructure (Sept 2014), or any subsequent version, with a return upslope to provide robustness of the device;

c. Clean and dirty water diversion channels, shall be sized to accommodate the flow from a 100 year ARI storm event where practicable, but if this sizing cannot be achieved, an alternative design shall be provided including reasons why the 100 year sizing criterion cannot be achieved and this alternative design will need to be certified through the CESCP;
d. Sufficient and safe access to enable monitoring and maintenance (including forebay clean out) shall be provided at all times to all Sediment Retention Ponds and decanting earth bunds.

Construction Erosion and Sediment Control Plans for Stages

27. The Consent Holder shall prepare CESCPs for each Stage of the Project, or a specific activity to set out how the requirements of the certified ESCP and the ESC standards in Condition 26 will be met for that Stage or activity.

28. The CESCPs shall be prepared by a Suitably Qualified and Experienced Person and shall include:

a. Methods of achieving the ESC Outcomes.
b. Identify how the requirements of the certified ESCP and the standards in Condition 26 will be met (where applicable).
c. Include a schedule of current and planned open earthworks areas as applicable to that CESCP catchment location at the time of preparation of that CESCP.
d. Identify alternative Stabilisation measures based on Project specific field trials to demonstrate its effectiveness in Stabilisation. The Project specific trials and results must be submitted to the Manager in that CESCP.
e. Confirm catchment boundaries.
f. Confirm the location of the Construction Works, and the boundary and extent of works for that specific CESCP.
g. Provide design criteria, typical and site-specific details of ESC measures, including supporting calculations, contributing catchment area, retention volume of structure, dimensions of structure and design drawings of erosion and sediment controls.
h. Provide identification of risk and sensitive area locations and the details of management (including contingency measures) around these aspects.
i. Confirm chemical treatment design and details consistent with the ChemTMP certified under the ESCP.
j. Provide a programme for managing ongoing non-Stabilised Areas.
k. Provide design details for managing the treatment, disposal and/or discharge of contaminants (e.g. concrete wash water).
l. Provide an estimated sediment yield for the Stage of work.
m. Provide details of construction methods to be employed, including timing and duration. This shall include:
    i. Streamworks methodologies;
    ii. Programme for managing exposed area, including progressive Stabilisation considerations;
    iii. Identification of areas susceptible to erosion and sediment generation or high-risk areas including specific measures for managing this risk; and
    iv. Access and maintenance provisions.

n. Include plans showing contour information at suitable intervals, cut and fill operations, erosion and sediment controls, stream diversions, discharge points to Watercourses.
o. Provide procedures for decommissioning of ESC measures.
p. Contact details of the site supervisor or Project manager and the Project Liaison Person (telephone number and email or other contact address).

***Advice Note**: In relation to Condition 28(h), risk will be confirmed for each specific CESCP, however each specific CESCP will need to include areas of earthworks adjacent to and within stream systems, on slopes greater than 15 degrees, the Kourawhero Stream, the Waiteraire Stream, the unnamed tributaries H1 and H2 of the Hōteo River (as shown on the map in Appendix D), and Te Hana Creek.*

CESCP As-built certification

29. Prior to Construction Works in the Stage that the CESCP applies commencing (excluding the construction of the erosion and sediment controls themselves) as-built plans signed by a Suitably Qualified and Experienced Person shall be submitted to the Manager for information and as confirmation that the erosion and sediment control measures for that CESCP have been constructed in accordance with the certified CESCP.

Enabling Works

30. The Consent Holder shall prepare specific CESCPs for the Enabling Works for the Project. The CESCPs shall be prepared by a Suitably Qualified and Experienced Person and shall address the requirements of a CESCP under Conditions 27 and 28 but with the scope modified as appropriate to reflect the timing, location and scale of the Enabling Works.

Adaptive Monitoring Programme

31. Prior to Construction Works commencing, the Consent Holder shall prepare an Adaptive Monitoring Plan (*AMP*) with the purposes of:

a. ensuring the ESC Outcomes are met;
b. setting out the methodology for calculating and recording sediment released in relation to the Acute Event and Cumulative Thresholds; and
c. ensuring continuous improvement as to the effectiveness of the erosion and sediment controls employed on site.

32. The AMP shall be prepared by a Suitably Qualified and Experienced Person and shall include methods to meet the purposes in Condition 31 for undertaking:

a. Ongoing site visual assessments of all erosion and sediment devices;
b. Ongoing monitoring of devices and processes, including flocculation;
c. Identification of four representative SRPs or selected DEBs as approved by the Manager;
d. Automatic onsite rainfall monitoring using at least 2 rain gauges, including automatic notification of a Trigger Event occurring;
e. Pre-Trigger Event inspections including outlining maintenance procedures and installing any additional measures required in response to the severity of the forecasted Trigger Event (including Stabilisation);

f. Trigger Event sampling, monitoring and response procedures in accordance with Condition 34;
g. Outflow monitoring (measured in m^3/sec) of the discharges of a representative number (at least four SRPs or DEBs) with:
    i. two SRPs or DEBs to best represent a high-risk location of the earthworks on the Project (steeper locations or those with a catchment greater than 5ha); and
    ii. two SRPs to represent the design and construction for general earthwork activities.
h. Automatic sediment sampling at the same selected SRPs to measure outflow TSS (or an alternative water quality parameter that can be related to suspended solids concentrations).
i. Monitoring of TSS, or alternative water quality parameter that can be correlated to suspended solid concentrations, in the freshwater receiving environment, upstream and downstream of the most upstream and downstream discharges within the area of Project Works in each of the Hōteo, Mahurangi and Oruawharo catchments; and
j. An analysis of the monitoring detailed in Conditions 32(g) (flow) and 32(h) (TSS) to allow for calculation of Cumulative Sediment to the Hōteo, Mahurangi and Oruawharo catchments and for calculating Acute Sediment during the following events:
    i. 24 hour 10-year or greater ARI event in the Hōteo Catchment (with a sediment load of >512 tonnes); and
    ii. 24 hours 30-year or greater ARI event in the Mahurangi Catchment (with a sediment load of >600 tonnes).
k. Processes for collection of samples in the event grab sampling is not achievable due to health and safety risks

33. The Consent Holder shall keep a record of implemented adaptation methods and provide the record to the Manager on request.

Trigger Event Procedures

34. Within 12 hours of a Trigger Event occurring, the Consent Holder shall complete a Trigger Event monitoring programme as detailed within the AMP which includes the collection of grab samples (unless it shall be unsafe or dangerous to do so) to measure TSS, or alternative water quality parameter that can be related to suspended solid concentrations, at discharge points of all SRPs and a selection of DEBs (a minimum of 50% of the operational DEBs) at the time of a discharge, and in the freshwater receiving environment, upstream and downstream of the area of Project Works in each of the Hōteo, Mahurangi and Oruawharo catchments.

34A. Within 12 hours of a Trigger Event occurring the Consent Holder shall instruct a Suitably Qualified and Experienced Person to undertake the following additional procedures:

a. Inspect and record observations of the earthworks site and erosion and sediment control devices to identify any problems or activities likely to have contributed to an increased sediment discharge;

b. Remedy any identified problems, and implement any further controls on activities or areas of the site that are likely to contribute to sediment discharge into the receiving environment to the extent practicable; and
c. Notify the Manager of the Trigger Event occurring, and any actions undertaken.

35. Within 2 weeks of Trigger Event procedures having been undertaken in accordance with Condition 34, the Consent Holder shall provide the Manager with an adaptive monitoring programme report, summarising the TSS results, or alternative water quality parameter that can be correlated to suspended solid concentrations of the automatic and grab samples collected during the Trigger Event, including any observations made and actions taken to remedy improper ESC device performance.

Condition 36 is intentionally left blank

Sediment reduction activities

37. Where there is Acute Event Sediment and/or Cumulative Sediment (greater than zero) (determined using the data collected from the representative SRPs or DEBs as required by Conditions 37 to 42, the Consent Holder shall:

a. for Acute Event Sediment, implement Sediment Reduction Activities within the affected catchment to offset the effects of that sediment within 25 years of the date of the Acute Event that caused the Acute Event Sediment; and
b. For Cumulative Sediment, implement Sediment Reduction Activities within the affected catchment to offset the effects of that sediment within 25 years of the Project becoming operational.

38. A Suitably Qualified and Experienced Person shall prepare a methodology identifying:

a. Sediment Reduction Factors for any Sediment Reduction Activities; and
b. Any measures necessary for the Sediment Reduction Activities to achieve the predicted sediment reduction over a 25-year period.

39. The Sediment Reduction Factors shall be calculated by the Suitably Qualified and Experienced Person using:

a. The methodology set out in Appendix B; or
b. Other best practice methods for assessing sediment generation and identifying Sediment Reduction Factors.

40. The methodology for calculating Sediment Reduction Factors identified through Condition 38 for any Sediment Reduction Activities and related measures to achieve the predicted sediment reduction over a 25-year period, shall be provided to the Manager for certification prior to commencement of Construction Works.

41. The following information shall be provided to the Manager on an annual basis to demonstrate how Condition 37(a) will be met:

a. A record of the Acute Event Sediment including any exceedance beyond the Acute Event Thresholds for each catchment.
b. Documentation outlining the location where Sediment Reduction Activities have been applied and how they will offset the Acute Event Sediment within 25 years of the relevant Acute Event.

42. The following information shall be provided to the Manager within six months of the Project becoming operational to demonstrate how Condition 37(b)will be met:

a. A record of the Cumulative Sediment, including any exceedance beyond the Cumulative Thresholds for each catchment.
b. Documentation outlining the location where Sediment Reduction Activities have been applied and how they will offset the Cumulative Sediment within 25 years of the Project becoming operational.

***Advice note**: For the avoidance of doubt, in the event that the Cumulative Threshold is less than the Acute Event Sediment for which Sediment Reduction Activities have been provided under Condition 37, no further Sediment Reduction Activities will be required for the Project*

Earthworks Season Restrictions

43. The Consent Holder shall not undertake earthworks activities between 1 May and 30 September (winter period) in any one year unless otherwise approved by the Manager.

Maximum Open Earthwork Area limits

44. Unless otherwise approved in writing by the Manager following provision of the information required by Condition 46, the Maximum Open Earthworks Area for Project Works:

a. within the Hōteo catchment at any one time is 75ha;
b. within the Oruawharo catchment at any one time is 25ha; and
c. within the Mahurangi catchment at any one time is 43.3ha.

Condition 45 is intentionally left blank

46. Any request to the Manager for approval to open an earthworks area that is greater than the limits stated in Condition 44 shall include the following information:

a. The proposed earthworks programme and ESC measures implemented;
b. A comparison showing the modelled sediment yields compared to the actual sediment yields generated to date;
c. A minimum of 12 months monitoring data to support an increased earthworks area. This must include water quality results from the automated sampling devices that gathered data from a comparable catchment; and
d. Identification of areas for continuous improvement opportunities (e.g., modifications to current ESC practice) for future earthworks to support the new open areas

Operational effectiveness and efficiency

47. The Consent Holder shall maintain all ESC measures to ensure they continue to achieve their design function throughout the duration of land disturbance and earthworks activity, and until the relevant site is Stabilised.

Construction Incident Management

48. The Consent Holder shall notify the Manager within one Day or as soon as practicable after identifying that any contaminants (including sediment) or materials that exceed typical background levels have been released in the undertaking of the work and which have entered any water body due to any of the following incidents:

    a. discharges from non-Stabilised Areas that are not treated by erosion and sediment control measures as required under this consent;
    b. failure of any erosion and sediment control measures;
    c. discharge of a hazardous substances, including cement, to a water body;
    d. failure of any temporary stream diversion;
    e. un-consented removal, loss or damage to vegetation or other habitats;
    f. any other Incident which either directly or indirectly causes, or is likely to cause, adverse ecological effects in any water body that is not authorised by a resource consent held by the Consent Holder;
    g. Any other Incident which is likely to adversely affect the quality of the water used for public reticulated water purposes, including notifying Watercare Services Limited within 48 hours of an Incident if the spill is within the Water Intake Catchment shown in Appendix C.

    This notification shall be either by telephone or email, or via an alternative method as agreed with the Manager.

49. If any of the incidents identified in Condition 48 occur, the Consent Holder shall:

    a. re-establish control measures where these have failed or have not been implemented in accordance with the relevant management plan as soon as practicable;
    b. liaise with the Manager to establish what remediation or rehabilitation is required and whether such remediation or rehabilitation is practical to implement;
    c. carry out any remedial action as required by and to the satisfaction of the Manager; and
    d. maintain a permanent record of the Incidents at the site, which shall include the date and time of the incident, the nature, manner and cause of the release of the contaminants, weather conditions at the time of the Incident and the steps taken to prevent any further Incidents and to remedy any adverse effects.

    This notification (if not in person) shall be either by telephone or email, or via an alternative method as agreed with the Manager.

Stabilisation and decommissioning

50. The Consent Holder shall stabilise sites against erosion as soon as practicable, and in a progressive manner, as earthworks are completed over various areas of Project Works.

51. If an area is not subject to earthworks activity (including cut and fill batters) for a 14-Day period, or time otherwise certified with the Manager within a CESCP, the area shall be Stabilised. The Manager shall take into account the following when determining a change to this 14-day period:

    a. The duration of the extension;
    b. Any interim Stabilisation;
    c. Risk of the change as identified in the CESCP;
    d. Topography;
    e. Extent of open area;
    f. Reason for the extension of duration; and
    g. Environmental effects of extension.

    The 14-Day period (or otherwise agreed) will apply to all earthworks and will include parts of larger earthwork footprint locations.

Completion or abandonment of works

52. Upon completion or abandonment of earthworks on the Project site, the Consent Holder shall stabilise all areas of bare earth against erosion to the satisfaction of the Manager.

Condition 53 is intentionally left blank

WORKS IN A WATERCOURSES AND WETLANDS AND ECOLOGY

Crossing watercourses - Location of bridge structures

54. The Consent Holder shall design and construct the Project to include bridge structures with no piers in the Bed of the following Watercourses (as identified on Maps 14 – 16):

    a. Mahurangi River (Left Branch);
    b. Hōteo River and the riparian margins where practicable;
    c. Waitaraire Stream; and
    d. Maeneene Stream.

Biosecurity Plan

54A. Prior to Project Works commencing, the Consent Holder shall prepare a Biosecurity Plan in consultation with the Operations Manager and Department of Conservation. The kauri management aspects of the Biosecurity Plan shall apply to all areas in the Designation within 3 times the radius of the canopy drip line of any New Zealand kauri. The purpose of the Biosecurity Plan is to set out the procedures to be used to prevent the introduction and/or spread of kauri dieback disease, and other biosecurity hazards such as Myrtle rust, Argentine ants and plague skink.

54B. The Biosecurity Plan shall be prepared by a Suitably Qualified and Experienced Person to meet the purpose in Condition 54A and, as a minimum, shall:

    a. be consistent with “Hygiene Procedures for Kauri Dieback”, “Land disturbance activities (including earthworks) around kauri”, “Vehicle and

Heavy Machinery Hygiene", "Landfill Disposal of Contaminated Material" and "Procedures for Tree Removal and Pruning" and any other relevant guidelines published by the Ministry for Primary Industries Kauri Dieback Management Programme, or any subsequent revision which can be found at www.kauridieback.co.nz or copies can be obtained from Auckland Council;

b. contain measures that address the removal of any material (including soil) from within the "kauri contamination zone" and safe disposal thereof;
c. contain best practice biosecurity protocols to respond to any other identified biosecurity risk (e.g. Myrtle Rust) where required to do so by legislation; and
d. contain methods for updating the Biosecurity Plan in the event of significant changes in scientific knowledge relating to the effective management of kauri dieback or other biosecurity risks that occur after the plan is approved.

Ecological outcomes

Ecological Outcomes

54C. In designing and managing the construction of the Project, the Consent Holder shall achieve the following Ecological Outcomes:

a. Limit encroachment of Project Works into Ecological Sites where practicable to do so, and otherwise minimise impacts on such areas;
b. Protect Fauna and Avifauna from harm or mortality resulting from the Project as far as practicable through adopting best practice capture and relocation protocols;
c. Avoid where practicable and where not practicable minimise any such intrusion into the Kourawhero Wetland Complex;
d. Avoid the escarpment feature in the Dome Valley Forest Section identified on Map 21;
e. Avoid, where practicable the Significant Ecological Area at the Hōteo River crossing and where not practicable minimise any encroachment into this area;
f. Restore, maintain or enhance ecology and habitat affected by the Project by designing and implementing restoration planting and habitat rehabilitation to:
    i. Connect and enhance existing natural ecosystems;
    ii. Establish ecological connectivity between the Mahurangi River (left branch) catchment and the Upper Kourawhero Stream catchment;
    iii. Enhance Fauna and Avifauna habitat within the Mitigation Sites, the Fauna habitat and flyway mitigation area and other planting areas; and
    iv. Provide restoration of habitats within the Designation that are resilient through minimising edge effects and other factors causing degradation, and which are protected and managed in perpetuity to maintain the Ecological Outcomes identified above.

54D. At least 6 months prior to start of Project Works, the Consent Holder shall prepare an Ecology Management Plan (*EMP*) to identify how the Ecological Outcomes will be met. The EMP shall be prepared by a Suitably Qualified and Experienced Person and shall be provided to the Manager for certification and shall include the following topic sections:

Ecological Outcomes

a. Provide detail as to how the Project design and management of the construction of the Project will achieve the Ecological Outcomes. This shall, as a minimum, include a description of how:
   i. the Project responds to each element of the Ecological Outcomes;
   ii. the Ecological Outcomes are achieved in each subtopic (b), (c), (d) and (e) of the Ecology Management Plan.

Ecological Sites

b. Recommended measures to be adopted to limit encroachment of Project Works into Ecological Sites including:
   i. The steps taken to reduce the footprint of Project Works in such areas and documenting the reasons where it is not practicable to do so; and
   ii. Measures to fence off or otherwise clearly demarcate such areas during Project Works to protect those sites from accidental damage during Project Works;

Fauna habitat and flyway mitigation area

c. The location and measures for the Fauna habitat and flyway mitigation area under Conditions 54F-54I.

Restoration planting and habitat rehabilitation

d. The locations and measures for restoration planting and habitat rehabilitation under Conditions 54J-54N.

Fauna relocation protocols and sites

e. The locations and measures for the Fauna and Avifauna relocation required under Conditions 54Q-54R.

54E. In preparing the EMP and the relevant topic sections the Consent Holder shall engage with Mana Whenua and consult with:

a. Auckland Council;
b. Department of Conservation; and
c. The owner of the commercial plantation forest (Mahurangi Forest) located west of SH1, with respect to ecological management activities which directly interface with forestry operations.

If the Consent Holder has not received any comment from such parties within 20 Days of providing the EMP to them, the Consent Holder may consider that the relevant party has no comment.

Fauna habitat and flyway mitigation area

54F. At least 6 months prior to the start of Project Works the Consent Holder shall provide a Fauna habitat and flyway mitigation area at the area identified on Map 13, to achieve the following “Fauna Habitat and flyway mitigation area” outcomes:

a. Provides a suitable location for the relocation of some or all fauna captured and relocated under Conditions 54Q–54X;

b. Maintains an east-west link across the Designation to allow for the movement of Fauna and dispersal of seeds;
c. Maintains a flyway for Avifauna and long-tailed bats to move across and along the Designation; and
d. Contains mature vegetation suitable for long-tailed bat roosts and bat and avifauna breeding sites.

54G. If, in the opinion of a Suitably Qualified and Experienced Person, the area identified on Map 13 will not achieve the Fauna habitat and flyway mitigation area outcomes an alternative area(s) for mitigation shall be identified by a Suitably Qualified and Experienced Person within the Designation that will achieve those outcomes.

54H. The Consent Holder shall fence off (or otherwise clearly demarcate) the Fauna habitat and flyway mitigation area during Project Works to prevent access and any accidental damage during adjacent construction activities apart from access for pest animal and pest plant management and restoration planting and habitat rehabilitation works.

54I The Consent Holder shall include the location and measures for the Fauna habitat and flyway mitigation area in a topic section in the EMP.

54IA. The Consent Holder shall not undertake Project Works above ground within the escarpment feature identified on Map 21.

Restoration planting and habitat rehabilitation

54J. Prior to commencing Enabling Works, the Consent Holder shall engage a Suitably Qualified and Experienced Person to conduct surveys of areas of Project Works to determine the areas of (i) terrestrial vegetation with at least 'Low' Ecological Value, and (ii) Wetland(s) with at least 'Low' Ecological Value, that are impacted by the Project Works.

54K. The Consent Holder shall undertake restoration planting and habitat rehabilitation to mitigate/offset the effects of Project Works on areas of (i) terrestrial vegetation with at least 'Low' Ecological Value, and (ii) Wetland(s) with at least 'Low' Ecological Value, that are impacted by Project Works, as assessed by a Suitably Qualified and Experienced Person to achieve:

a. Like for like replacement having regard to ecosystem type; and
b. No net loss of the ecological value of the impacted Wetland(s) and terrestrial vegetation.

54KAA. To achieve 54K a Suitably Qualified and Experienced Person shall:

a. Calculate the quantum of restoration planting and habitat rehabilitation required in accordance with the following replanting ratios:
    i. For Wetlands with at least 'Low' Ecological Value, mitigation/offsetting shall be provided at a ratio of 6:1 of the area impacted by the Project Works;
    ii. For Ecological Sites, mitigation/offsetting shall be provided at a ratio of 6:1 of the area impacted by the Project Works;

iii. For other areas of Low to Moderate Ecological Value, mitigation/offsetting shall be provided at a ratio of 3:1 of the area impacted by the Project Works; and

b. Assess whether the calculation in (i) will achieve no net loss of the Ecological Value of the impacted Wetland(s) and terrestrial vegetation using a best practice offset accounting method or other such method certified by Council; and

c. If the calculation in (i) does not achieve no net loss of the Ecological Value of the impacted Wetland(s) and terrestrial vegetation, the Suitably Qualified and Experienced Person shall add to the calculation any Project landscape mitigation planting that, once mature, will achieve at least moderate Ecological Value and which is not designed solely for screening residential properties; and

d. If the calculation in (iii) does not achieve no net loss of the Ecological Value of the impacted Wetland(s) and terrestrial vegetation, the Suitably Qualified and Experienced Person shall determine any such further restoration planting and habitat rehabilitation required to achieve that outcome, using a best practice offset accounting method or other such method certified by the Council.

e. The Consent Holder shall provide to Council for certification a report outlining the proposed best practice offset accounting method to be used to assess no net loss of Ecological Value. At a minimum the report shall include:

i. The proposed offset accounting framework;

ii. The parameters used to measure Ecological Value of both Wetland and terrestrial environments; and

iii. How time lag is accounted for.

54KA The Consent Holder shall locate the restoration planting and habitat rehabilitation required by condition 54K at each of the “ecology vegetation mitigation” areas shown on Maps 1-6 where practicable. Where it is not practicable to locate such restoration planting and habitat rehabilitation in those areas, a similar location shall be determined by a Suitably Qualified and Experienced Person.

Fauna habitat and flyway mitigation area

54KB In addition to restoration planting and habitat rehabilitation required by other conditions, the Consent Holder shall undertake restoration planting and habitat rehabilitation as designed by a Suitably Qualified and Experienced Person at the Fauna habitat and flyway mitigation area identified under conditions 54F-54L where the Suitably Qualified and Experienced Person determines such works are necessary to achieve the outcomes in condition 54F.

Fragmentation sites

54KC In addition to restoration planting and habitat rehabilitation required by other conditions the Consent Holder shall locate restoration planting and habitat rehabilitation at areas identified as “Mitigation for fragmentation” as shown in Maps 1-6 where practicable. Where it is not practicable to locate such restoration planting and habitat rehabilitation in those areas, a similar location as determined shall be by a Suitably Qualified and Experienced Person to minimise fragmentation effects of the Project.

Condition 54L is intentionally left blank

Detailed planting and habitat rehabilitation plans

54M. The Consent Holder shall instruct a Suitably Qualified and Experienced Person to prepare a topic section to be included in the EMP describing and illustrating the proposed restoration planting and habitat rehabilitation required by conditions 54K-54KC, that includes:

a. A report on the surveys undertaken under condition 54J and the survey results, including:
   i. the location, the total area (delineated using best practice) and types of (i) terrestrial vegetation with at least 'Low' Ecological Value, and (ii) Wetland(s) with at least 'Low' Ecological Value, impacted by Project Works and the Ecological Value of those Wetland(s) and terrestrial vegetation;
b. The calculations and related evidence, for the restoration planting and habitat rehabilitation quantum required by Condition 54KAA and a statement as to how the quantum achieves Condition 54K, and if any landscape mitigation planting is included in the calculation;
c. The design and locations of the restoration planting and habitat rehabilitation required under Condition 54K-54KC;
d. A statement as to how the restoration planting and habitat rehabilitation will achieve the Ecological Outcomes at Condition 54C(f);
e. A planting schedule containing a mix of native plants including genetic sourcing of native plants from the Rodney Ecological District;
f. Detail of monitoring methods and frequency to ensure planting and habitat rehabilitation survives, including annual reporting to Council for a period of no less than 5 years or until canopy closure is achieved;
g. Methods to ensure restoration planting and habitat rehabilitation is on track to achieve the outcomes of Condition 54K and any anticipated outcomes used in the offset calculations at Condition 54KAA, including but not limited to:
   i. A statement of the anticipated progress towards achieving those outcomes at a date that is 5 years from completion of the relevant planting and habitat rehabilitation works (*year 5*);
   ii. Monitoring at year 5 to assess that progress;
   iii. A response plan and any further works required should progress towards achieving the expected targets in the rehabilitation process not be met, including monitoring of those further works in accordance with condition 54M(f).
h. A statement as to how the AUP(OP) Appendix 16: Guideline for native revegetation plantings has been taken into account;
i. Proposed pest animal and pest plant management of restoration planting and habitat rehabilitation areas for a period of no less than five years or until canopy closure is achieved, including:
   i. Timing and implementation;
   ii. Methods for survey and monitoring to establish presence and abundance of pest animals and pest plants;

iii. Pest control methods;
iv. Performance monitoring;
v. Maintenance periods.

j. Detail as to how any landscape planting to be established through an "Urban and Landscape Design Management" as defined in the Designation or other Project planting has been integrated;
k. A statement as to how cultural values relating to restoration planting and habitat rehabilitation identified through the Cultural Engagement Plan, have been acknowledged where feasible and practicable to do so; and
l. Methods to exclude stock where necessary.

54N. The Consent Holder shall complete the restoration planting and habitat rehabilitation in accordance with the EMP by no later than 2 years from the date of the Project becoming operational or as otherwise specified in these conditions.

Long-tailed bats

54O. The Consent Holder shall engage a Suitably Qualified and Experienced Person to conduct long-tailed bat habitat and presence surveys within the Designation in the period of 6 months prior to start of works before construction of Project Works in areas where long-tailed bat may be impacted by Project Works.

54P. In the event that the surveys confirm long-tailed bat habitat or presence, the Consent Holder shall:

a. Instruct a Suitably Qualified and Experienced Person to undertake surveys of the relevant areas prior to Project Works to identify Active Roost Sites that may be affected by Project Works and to recommend vegetation clearance methods that will avoid injury or mortality of bats associated with Project Works around Active Roost Sites;
b. Instruct a Suitably Qualified and Experienced Person to recommend methods to mitigate Project effects on long-tailed bat habitat through maintaining or enhancing long-tailed bat roost habitat and flyways in the Designation, having regard to Appendix D: Bat management framework for linear transport infrastructure projects of the Transport Agency research report 623 (Smith et al., 2017) and any other best practice guide; and
c. Provide a report on the surveys undertaken and the results and the Suitably Qualified and Experienced Person's recommendations in the relevant topic section of the EMP.

Advice Note*: long-tailed bats management will be carried out in accordance with a Wildlife Act Authority.*

Avifauna

54Q. The Consent Holder shall engage a Suitably Qualified and Experienced Person to conduct Avifauna habitat and presence surveys within the Designation 6 months prior to the start of Project Works in areas that may be impacted by Project Works. The Suitably Qualified and Experienced Person shall, in particular, survey Wetland bird species (including banded rail, fernbird, Australasian bittern, marsh crake and spotless crake) in Wetlands WN_W_Koura_02 and WN_W_Koura_05 (refer Map 18) at the beginning of the bird breeding season prior to Project Works commencing in those locations.

54R. In the event that the surveys confirm Avifauna habitat or presence, the Consent Holder shall:

a. Not undertake vegetation clearance of the relevant areas (excluding clearance of pasture) during breeding season, September to December inclusive of any year, unless a Suitably Qualified and Experienced Person confirms there are no nesting Avifauna likely to be impacted by Project Works;
b. In relation to Wetland bird species (including banded rail, fernbird, Australasian bittern, marsh crake and spotless crake) in all impacted Wetlands including WN_W_Koura_02 and WN_W_Koura_05 (refer Map 18) instruct a Suitably Qualified and Experienced Person to identify and implement best practice methods to capture and relocate these species prior to commencement of Project Works; and
c. provide a report on the surveys undertaken and the results and the Suitably Qualified and Experienced Person's recommendations in the relevant topic section of the EMP.

Land snails, copper skinks, forest geckos

54S. The Consent Holder shall engage a Suitably Qualified and Experienced Person to conduct habitat and presence surveys within the Designation 6 months prior to the start of Project Works in areas that may be impacted by Project Works for the following species:

a. land snail (*Amborhytida spp*, *Paryphanta spp*);
b. all native skinks (eg copper skink); and
c. all native geckos (eg. forest gecko).

54T. In the event that the surveys confirm the presence of any such species, the Consent Holder shall:

a. instruct a Suitably Qualified and Experienced Person to recommend best practice methods to capture and relocate the species to the Fauna habitat and flyway mitigation area or other suitable site, provided the site with the required habitat has been subject to predator control measures for at least 6 months prior to the first transfer and will receive ongoing predator control for three years after the last transfer;
b. undertake capture and relocation under the supervision of a Suitably Qualified and Experienced Person;
c. where practicable, relocate land snails along with their leaf-litter habitat;
d. Not relocate land snails captured within 30 metres of any kauri to a site within 30 metres of another kauri; and
e. Provide a report on the surveys undertaken and the results and the Suitably Qualified and Experienced Person's recommendations in the relevant topic section of the EMP.

Advice Note: *Land snail, copper skink and forest gecko capture and relocation will be carried out in accordance with a Wildlife Act Authority.*

Hochstetter's frogs

54U. The Consent Holder shall engage a Suitably Qualified and Experienced Person to conduct habitat and presence surveys within the Designation *6 months* prior to the start of Project Works in all waterways and areas where suitable Hochstetter's frog (Leiopelma aff. Hochstetteri) habitat exists and may be impacted by ProjectWorks.

54V. In the event that the surveys confirm the presence of Hochstetter's frogs, the Consent Holder shall:

a. instruct a Suitably Qualified and Experienced Person to recommend best practice methods to capture and relocate frogs to a suitable site, including by:
   i. applying the Department of Conservation document "Native frog hygiene and handling protocols" (DOCDM-214757) or any subsequent revision to reduce the potential for pathogen transmission and infection;
   ii. using destructive searches during frog capture; and
   iii. setting out post-release monitoring protocols to evaluate the success of the relocations and any further steps required to maintain and enhance the relocated populations
b. consult with the Operations Manager, Department of Conservation regarding the Suitably Qualified and Experienced Person's recommendations for capture and relocation of frogs;
c. undertake capture and relocation under the supervision of a Suitably Qualified and Experienced Person;
d. instruct a Suitably Qualified and Experienced Person to recommend methods to maintain or enhance Hochstetter's frog habitats within the Designation and any other relocation sites, including but not limited to measures to reduce stream sedimentation and pest animal control; and
e. Provide a report on the surveys undertaken and the results and the Suitably Qualified and Experienced Person's recommendations in the relevant topic section of the EMP.

Advice Note*: Hochstetter's frog capture and relocation will be carried out in accordance with a Wildlife Act Authority.*

Reporting on salvage and relocation

54W. The Consent Holder shall report the results of capture and relocation programmes for Fauna and Avifauna to the Manager following implementation, including:

a. Location of any species salvaged;
b. Species types and numbers salvaged;
c. Where salvaged species have been relocated to;
d. Timing of salvage and relocations; and
e. Pest animal and pest plant management implemented.

At Risk or Threatened flora and fauna discovery protocol

54X. In the event that a Suitably Qualified and Experienced Person discovers any At Risk or Threatened flora and fauna (as defined in the current version of the New Zealand Threat Classification System) within the Designation that is not covered

by conditions 54K-54V, the Consent Holder shall immediately notify the Operations Manager, Department of Conservation and Mana Whenua. The Consent Holder shall have regard to any advice provided by the Department of Conservation and Mana Whenua in determining the appropriate course of action to be undertaken with respect to the discovered flora or fauna (eg further surveys, avoidance and/or capture and relocation).

***Advice Note**: The Consent Holder will comply with all relevant provisions of the Wildlife Act 1953.*

Crossing of the Kourawhero Stream and Kourawhero Wetland Complex

55. A Suitably Qualified and Experienced Person shall monitor over a three year period (or a shorter period as agreed with the Manager), prior to starting Project Works, the Kourawhero Wetland Complex (as identified in Map 17) to confirm pre-construction water table levels, ecological condition and Wetland extent. The monitoring shall include:

    a. The methods for monitoring water table levels;
    b. The number and locations of water level sampling sites;
    c. The methods for delineating the Wetland extents in accordance with best practice;
    d. The methods for assessing Wetland condition in accordance with best practice; and
    e. The timing and frequency of monitoring events.

    The results of the monitoring shall be provided to the Manager for information.

56. The Consent Holder shall design and construct bridges, structures, culverts and embankments to cross the Kourawhero Stream to minimise change to the Kourawhero Wetland Complex and to maintain the pre-construction water table level, Wetland extent, and Wetland condition, as far as practicable, which shall include:

    a. A bridge over the Kourawhero Stream with no piers in the Bed in the section of stream identified on Map 17 as “Section of Kourawhero Stream to be bridged”; and
    b. Minimising intrusion of diversion channels into or through the Kourawhero Wetland Complex.

56A. All Project works involving impacts on the Kourawhero Stream shall be designed and implemented to avoid any adverse effects on breeding koura females in the stream.

56B. A Suitably Qualified and Experienced Person shall undertake annual monitoring of the Kourawhero Wetland Complex until 3 years following completion of the Project Works. Should the monitoring indicate an unanticipated loss in the Wetland extent or condition directly attributed to the Project Works, the Consent Holder shall provide further mitigation and/or offset to manage the additional adverse effects in accordance with Condition 54K and 54KAA. The results of the monitoring

including any unanticipated loss and further offsets where applicable must be provided annually to the Manager for information.

Watercourse design requirements

57. The Consent Holder shall design and construct all permanent Project Works in or over any Watercourse (for example, all permanent bridges, culverts and stream diversions) to allow for capacity for 100-year ARI flood event with minimal scour and erosion to road structures e.g. culverts, bridges and embankments.

58. The Consent Holder shall design and construct all Watercourse diversions to have natural Watercourse forms and riparian planting where the diverted streams are permanent and supporting fish habitats. The Watercourse diversions shall be designed by a Suitably Qualified and Experienced Person(s). The diversions shall be designed to achieve, as far as practicable, the following outcomes:

    a. At least equivalent ecological function and habitat value to that of the potential values of the Watercourse being diverted, demonstrated using the Stream Ecological Valuation methods (Auckland Council Technical Report 2016/023 and Technical Report 2011/009);
    b. Being like for like in regard to Watercourse hydrological conditions and substrate; and
    c. Including riparian vegetation extending 10m on either side of the channel; and
    d. Where the diversions are unable to achieve (a)-(c), the residual loss of ecological function and habitat value shall be offset in accordance with Condition 76.

Advice Note: *Condition 58 does not apply to cut off drains and vertically lifted channels.*

Permanent culvert design

59. The Consent Holder shall design and construct permanent culverts to:

    a. Minimise the risks of non-performance of the culvert, such as blockage, taking into account the risk of a vegetation/soil/rock debris flow; and
    b. Incorporate energy dissipation and erosion control to minimise the occurrence of bed scour and bank erosion in receiving environments.

Temporary culvert design

60. The Consent Holder shall design and construct temporary culverts in any Watercourse (for example, all temporary bridges, culverts and stream diversions) to allow for the 100-year ARI event (by primary structure or overland flow paths) with minimal scour and erosion unless otherwise certified by the Manager.

Culvert design – fish passage and migrating fish

61. The Consent Holder shall provide fish passage in accordance with best practice in all temporary and permanent culverts unless deemed unnecessary or impracticable by a Suitably Qualified and Experienced Person.

62. Where fish passage is deemed unnecessary or impracticable, appropriate data and rationale for the decision shall be provided for certification by the Manager.

Design certification – permanent structures in Watercourses and Wetlands

63. The Consent Holder shall provide drawings of the detailed design of permanent bridges, culverts to be constructed in or over Watercourses and Wetlands, and Watercourse diversions, to the Manager for certification at least 30 Days prior to the start of construction of the relevant structures. The drawings shall be accompanied by a written report prepared by a Suitably Qualified and Experienced Person setting out how the design requirements of Conditions 54 and 56 to 61 have been met and the rationale for any departures from those requirements. The Consent Holder shall construct the Project in general accordance with the certified design.

Erosion Prone Streams: Pre-construction monitoring

64. The Consent Holder shall instruct a Suitably Qualified and Experienced Person to undertake pre-construction monitoring to identify all Erosion Prone Streams within the Project area prior to the start of Construction Works.

65. The pre-construction monitoring of Erosion Prone Streams shall include an inspection of all Erosion Prone Streams to record all erosion areas (supported by photographs and/or video footage). The purpose of monitoring Erosion Prone Streams is to identify the pre-construction condition of the Erosion Prone Stream to be used as a baseline against which to measure construction effects and identify any post-construction remedial measures.

66. The Consent Holder shall provide the results of the pre-construction baseline surveys and monitoring to the Manager for information, prior to the start of Construction Works.

Erosion Prone Streams: Post-construction monitoring

67. The Consent Holder shall undertake monitoring of Erosion Prone Streams at six-month intervals for 24 months following completion of Construction Works. The monitoring shall consist of walkovers of Erosion Prone Streams and recording of erosion-prone areas, including photographs.

68. If monitoring identifies new erosion that a Suitably Qualified and Experienced Person deems to be attributable to the Project based on the pre-construction condition of the Erosion Prone Stream, rehabilitation and/or remedial action, such as stabilisation of the stream bank or Bed, shall be implemented in accordance with the Suitably Qualified and Experienced Person's recommendations.

68A. The rehabilitation and/or remedial actions implemented in accordance with Condition 68 shall be monitored at six-month intervals for a further 24 months to determine if the actions have been successful as determined by a Suitably Qualified and Experienced Person. If these specific remedial actions are deemed not to be successful, Condition 68 will apply, as will this condition until the remedial actions are confirmed as successful to minimise ongoing erosion in that location.

Diverting Watercourses

69. Prior to Project Works within a Watercourse, including the filling of the Bed, the Consent Holder shall put in place a diversion or diversions around the area of

Project Works for all flows with a primary capacity up to the 20-year ARI flood event, unless an alternative design is certified by the Manager.

70. During weather events in excess of the 20-year ARI flood event, up to the 100-year ARI flood event (i.e., flows are greater than the capacity of the existing diversion), the Consent Holder shall put in place a Stabilised flow path to minimise the potential for scour or erosion and allow flows to pass safely around or through the area of Project Works with minimum nuisance, damage and sediment generation or discharge.

As-built certification

71. The Consent Holder shall provide as-Built Plans certified by a Chartered Professional Engineer confirming that permanent structures in and over Watercourses have been constructed in accordance with the certified design under Condition 63 to the Manager within 90 Days of completion of the Construction Works.

FRESHWATER ECOLOGY

Freshwater ecology: Pre-construction monitoring

72. The Consent Holder shall survey the Representative Watercourses or other Watercourse determined by Condition 73 for one summer and one winter period prior to Project Works commencing. The survey shall be undertaken and recorded by a Suitably Qualified and Experienced Person in accordance with the requirements of Stream Ecological Valuation: Application to Intermittent Streams (Auckland Council Technical Report 2016/023) or Stream Ecological Valuation (*SEV*): a method for assessing the ecological functions of Auckland streams (Auckland Council Technical Report 2011/009), depending on the Watercourse classification.

73. In the event that a Suitably Qualified and Experienced Person considers a Representative Watercourse is not representative of general Watercourse characteristics within the Project area, the justification and an alternative Representative Watercourse must be provided to the Manager for certification. The Consent Holder shall survey such other Watercourse recommended by a Suitably Qualified and Experienced Person, and certified by the Manager, using the same process in Condition 77.

74. The Consent Holder shall provide to the Manager the results of the pre-construction freshwater monitoring within 30 Days of the final pre-construction monitoring being undertaken.

Freshwater ecology: Recording of Watercourses affected by the Project

75. The Consent Holder shall instruct a Suitably Qualified and Experienced Person to identify and record all Watercourses that will be affected by Project Works, prior to the start of Project Works, including:

a. Location;
b. Length;
c. Width;
d. Intermittent or permanent status; and

e. Which of the Representative Watercourses surveyed under Conditions 72 and 73 the Watercourse is most similar to.

This information shall be provided to the Manager for certification of the matters at paragraph (e).

Freshwater ecology: Replacement works for loss of Watercourse ecological value and function

76. The Consent Holder shall mitigate and/or offset for loss of Watercourse ecological value and function in accordance with the requirements of the following technical reports prior to completion of Project Works:

a. Stream Ecological Valuation: application to intermittent streams (Auckland Council Technical Report 2016/023) or any subsequent version; and
b. Stream Ecological Valuation (*SEV*): a method for assessing the ecological functions of Auckland streams (Auckland Council Technical Report 2011/009) or any subsequent version.

Stream Ecological Effects Management Plan

77. The quantum of Watercourse mitigation and/or offset and its design and location shall be set out in a Stream Ecological Effects Management Plan. The SEEMP shall be prepared by a Suitably Experienced and Qualified Person and shall:

a. Confirm the Watercourses that will be directly affected by the Project;
b. Outline the method to extrapolate the SEV calculations for the Representative Watercourses to apply to all Watercourses affected by Project Works;
c. Calculate the quantum and location of mitigation and/or offset provided in accordance with SEV requirements as set out in Condition 76; and
d. Demonstrate that the proposed mitigation and/or offset is like for like in regard to Watercourse hydrology and substrate;
e. Integrate the mitigation and/or offset planting with the restoration planting and habitat rehabilitation required in the Ecology Management Plan where practicable; and
f. Provide site specific enhancement plans for the proposed mitigation and/or offset sites that:
    i. Detail how the anticipated outcomes used in the SEV calculations will be achieved;
    ii. Assess the risk of stream bank erosion and the likely successful establishment of proposed riparian planting;
    iii. Detail the planting to be carried out, including a list of species, numbers to be planted, their common and botanical names, method of planting, planting locations and densities;
    iv. Detail the timing of works and techniques of weed and plant management measures for a period of no less than 5 years or until canopy closure of planted areas is achieved;
    v. Details of monitoring methods and frequency, including annual reporting to the Manager for a period of no less than 5 years or until canopy closure of planted areas is achieved; and

vi. Have had regard to the AUP(OP) Appendix 16: Guideline for native revegetation plantings.

77A. The Consent Holder shall complete the Watercourse mitigation and/or offset in accordance with the SEEMP by no later than 2 years from the date of the Project becoming operational or as otherwise specified in these conditions.

78. The works outlined in the certified SEEMP shall be maintained in accordance with the SEEMP until canopy closure of the planted areas has been achieved. The Consent Holder shall provide a report prepared by a Suitably Qualified and Experienced Person to the Manager for certification when:

a. Canopy closure has been achieved;
b. No more than 10% loss in plant numbers has occurred;
c. Weed control has been carried out to a level where no mature fruiting or flowering weed species are present within the planting areas and no weed species that will impact on the growth rates of the planted trees and/or the potential for native regeneration are present within the planting area; and
d. All works have been undertaken in accordance with the certified SEEMP.

Native fish capture and release

79. Prior to any Wetland or Watercourse activity commencing, the Consent Holder shall submit a Native Freshwater Fish Capture and Relocation Plan, prepared by a Suitably Qualified and Experienced Person. This plan must detail how native fish will be salvaged prior to works commencing and must include but not be limited to:

a. Methodologies and timing to capture fish, and kakahi and koura, within the impacted Watercourse and Wetland habitats, or justification there is no habitat for native fish present at the time of earthworks;
b. Fishing effort;
c. Details of the relocation site;
d. Fish exclusion fencing to prevent fish movement to the Watercourse reach where works will occur;
e. Placement of appropriate fish screens on the inlets of any pumps used;
f. Methods to manage streamworks during September to November inclusive of any year, to minimise impacts on fish during the fish spawning season;
g. Storage and transport measures including prevention of predation and death during capture; and
h. Euthanasia methods for diseased or pest species.

80. The Consent Holder shall engage a Suitably Qualified and Experienced Person to confirm and implement the NFFCRP required by condition 79 and provide a report on the surveys undertaken and the results to the Manager.

STORMWATER DISCHARGE

81. The Consent Holder shall ensure that:

a. All stormwater from the impervious roadway of the Project is captured, treated and discharged through offline Stormwater Management Wetlands, except as otherwise provided for in Condition 81(c); and
b. All stormwater management devices and controls are designed to:
    i. Include adaptation for 100-years of climate change (from the date that the Project becomes operational);
    ii. Provide treatment in accordance with GD01;
    iii. Remove gross litter and floatables such as oil and volatile hydrocarbons;
    iv. Provide for the conveyance of 100 year ARI event, including provision for overland flow up to and including this event; and
    v. Minimise changes to the water flow into the Kourawhero Wetland Complex and to maintain the pre-construction water table level to the extent practicable if located upstream of the Kourawhero Wetland Complex.
c. In the event that the creation of an offline stormwater management wetland is not practicable, the consent holder must submit, prior to commencement of the construction of the stormwater management device, the design and details of an alternative stormwater management option, which achieves the same outcomes specified in Conditions 81(b)(i)-(v), for certification by council. The details must include justification for the need to implement the alternative option.

82. The Consent Holder shall ensure that stormwater outfalls are designed to include erosion control to minimise the occurrence of bed scour and bank erosion at the point of discharge in accordance with TR2013/018 and GD01.

83. The Consent Holder shall ensure that cut off drains are designed to:

a. Incorporate grassed or rock lining to prevent erosion;
b. To prevent erosion in the 100 year- ARI rainfall event;
c. Provide for the 100-year ARI rainfall event for the upstream catchment and discharge to existing streams or new culverts or where not reasonably practicable discharge to the road edge conveyance system; and
d. Minimise bed scour and bank erosion at the point of discharge.

84. The Consent Holder shall ensure that sediment traps (or similar alternative devices) are designed to minimise sediment eroded off rock cuts entered stormwater systems.

85. The Consent Holder shall design Stormwater Management Wetlands that will be:

a. Located offline from existing Watercourses;
b. Located outside of the 100-year ARI floodplain if practicable;
c. Capable of providing detention for the 95th percentile 24-hour rainfall event in accordance with GD01;
d. Shown to include:
    i. Forebays and submerged or baffled low flow outlets so that floatables and litter can be trapped at the main outlet;

ii. Planting in emergent, littoral, riparian zones except in some areas of deep zone that are to remain plant free; and

iii. Valves on low-level Wetland outlets to enable valves to be closed in the event of a spill to contain spilt material in Wetland. The treatment systems shall incorporate a minimum 20 cubic metre volume that can be isolated in the event of a spillage on the road.

86. The Consent Holder shall use pre-treatment measures where higher sediment loads are anticipated, such as sediment traps for sediment eroded off rock cuts.

87. The Consent Holder shall ensure that the Project stormwater system is designed so that water can be collected from tunnels following tunnel washdown, accidental spill, or firefighting activities, and disposed of to a facility consented to receive contaminated water.

88. The Consent Holder shall ensure that stormwater management devices associated with local roads altered by the Project convey water runoff via vegetated and/or rock lined swales adjacent to the road prior to discharge to existing streams.

89. The Consent Holder shall maintain stormwater treatment devices to ensure that the criteria in Conditions 81 to 88 of this Consent are achieved.

Planting of stormwater management devices

90. The Consent Holder shall prepare planting plan(s) for all planted stormwater management devices (including treatment/conveyance swales). The planting plans shall be prepared by a Suitably Qualified and Experienced Person and shall include:

a. Location, planting methodology and maintenance details;
b. Details of plant species, plant numbers, density and distribution; and
c. Details of proposed pest plant management.
d. Details of steps taken to integrate planting with other planting required for the Project where practicable.

Design certification – stormwater management devices

91. The Consent Holder shall submit the final detailed design of the stormwater management devices (ie excluding conveyance measures) to the Manager for certification at least 20 Days prior to the start of construction of the proposed stormwater management devices. The final detailed design shall include:

a. drawings;
b. specification design report(s); and
c. calculations and planting plans for the stormwater management devices.

Condition 92 is intentionally left blank

93. The Consent Holder shall carry out all permanent stormwater measures in general accordance with designs certified in Condition 91.

94. Stormwater management devices shall be fully operational prior to the discharge of water from any impervious area identified to discharge to each device.

As Built Plans – Stormwater management devices

95. The Consent Holder shall submit As-Built Plans for stormwater management devices to the Manager at least 20 Days prior to use of the relevant device for its intended operational purpose.

96. The As-Built Plans shall be certified by a Suitably Qualified and Experienced Person and shall include:

a. The surveyed locations and elevations of all stormwater devices which shall be measured to the nearest 0.02 metre with co-ordinates expressed in terms of the New Zealand Transverse Mercator Projection and DOSLI datum;
b. Stormwater management device details including locations, dimensions, volumes, flood levels, sections, treatment efficiencies, inlet, discharge rates and outlet structures;
c. Photographs at all stormwater systems outfall locations; and
d. Documentation of any differences between the certified design plans under Condition 91 and the As-Built Plans submitted under Condition 95.

Stormwater Operation and Maintenance Plan

97. The Consent Holder shall prepare a Stormwater Operation and Maintenance Plan (*SOMP*) prior to operation of the state highway to ensure the Project stormwater management devices are maintained to achieve their design function.

98. The SOMP shall be prepared by a Suitably Qualified and Experienced Person and shall:

a. Identify a procedure for monitoring and maintaining the Project stormwater management devices; and
b. Include the following:
    i. Location map and access arrangements;
    ii. Inspection and maintenance requirements and frequency;
    iii. Routine and emergency contacts; and
    iv. As-built drawings and stormwater system information; and
    v. Spill incident management during operation of the road

99. In preparing the SOMP the Consent Holder shall consult with the owner of the commercial plantation forest (Mahurangi Forest) located west of SH1 with respect to permanent stormwater management activities which directly interface with forestry operations. If the Consent Holder has not received any comment from the owner of the Mahurangi Forest within 20 Days of providing the SOMP to them, the Consent Holder may consider the relevant party has no comments.

99A The Consent Holder shall notify Watercare of any large discharge of contaminants that occurs upstream of and could impact on Watercare's extraction and water treatment plant located at NZTM 174870 5970390 as soon as it becomes aware of the incident if the spill is within the Water Intake Catchment shown in Appendix C.

Flooding

100. The Consent Holder shall ensure that the design of the Project does not result in an increase in flooding for events up to and including the 100 year ARI event in either of the following situations:

a. An increase in flooding levels greater than 100mm vertically outside the Designation
b. An increase in flooding above floor level to any habitable building outside the Designation.

Compliance with this Condition shall be demonstrated by a hydraulic and hydrological model with the level of detail and reporting to be confirmed by a Suitably Qualified and Experienced Person for certification by the Manager. The peak flood levels and flood flows for pre-development and post-development of the Project shall be compared upstream and downstream at the Designation boundary.

100A. The Consent Holder shall ensure that the design of the Project in the Kourawhero catchment does not result in any more than a negligible increase in downstream peak flood levels and/or flood flow up to and including the 100 year ARI event. To determine whether the increase is negligible, the peak flood levels and flood flows for pre-development and post-development of the Project shall be compared at the western Designation boundary, upstream of 214 Kaipara Flats Road. Compliance with this Condition shall be demonstrated by the hydrological and hydraulic model to be confirmed by a Suitably Qualified and Experienced Person for certification by the Manager.

100B. The Consent Holder shall ensure that the design and construction of the Project avoids any increase in flooding of the Mahurangi River at 111 Kaipara Flats Road up to and including the 100 year ARI event due to the Project.

101. The Consent Holder shall demonstrate that any headwater ponding upstream of any Project culvert in the 100 year ARI event is contained within either:

a. Land within the Designation at the time of construction; or
b. An existing floodplain.

AIR QUALITY – ROCK CRUSHER

101A. There shall be no noxious, dangerous, objectionable or offensive dust, fumes or odour to the extent that it causes an adverse effect at or beyond the proposed designation boundary.

102. The Consent Holder shall prepare a Rock Crusher Management Plan (RCMP) to outline the measures to be adopted to meet condition 101A. The RCMP shall be prepared by a Suitably Qualified and Experienced Person and shall include as a minimum:

a. A description of the works, and periods of time when emissions of odour, dust or fumes might arise from the rock crusher;

b. Identification of the location(s) of any mobile rock crusher for the duration of construction
c. Identification of HSRs that may be adversely affected by emissions of odour, dust or fumes from the rock crusher(s);
d. Methods for mitigating dust that may arise from rock crushing, potentially including minimum setbacks from HSRs where necessary, emissions control equipment (e.g. enclosure and/or water sprays at transfer points), and monitoring of weather conditions and visual inspections;
e. Methods for undertaking and reporting on the results of daily inspections of rock crushing activities that might give rise to odour, dust or fumes;
f. Methods for monitoring and reporting on the state of air quality during crushing activities, including wind speed, wind direction, air temperature and rainfall;
g. Construction operator training procedures;
h. Consideration of portable Total Suspended Particle measurement devices and associated levels; and
i. Contact details of the site supervisor or Project manager and the Project Liaison Person (telephone number and email or other contact address).

103. When preparing the RCMP the Suitably Qualified and Experienced Person shall have regard to the guidance contained in the Good Practice Guide for Assessing and Managing Dust, Ministry for Environment, 2016, or any subsequent version, and the NZ Transport Agency Guide to assessing air quality impacts from state highway projects (version 2.3, October 2019), or any subsequent version, as relevant to rock crushing activities.

103A. The Consent Holder shall ensure that the rock crushing activity is undertaken in accordance with the RCMP and minimises dust generation as far as practicable.

GROUNDWATER

104. The Consent Holder shall not undertake Project Work excavations of more than 10m depth within 300m of any of the following lawfully established activities existing as at the date of this resource consent:

a. groundwater extractions;
b. buildings;
c. infrastructure

unless it can be demonstrated by a Hydrogeological model to the satisfaction of the Manager that such excavations will not create material drawdown effects or settlement effects (greater than 1m of drawdown) causing damage to buildings or infrastructure.

Damage Avoidance

104A. All excavation, dewatering systems and works associated with the taking and diversion of groundwater shall be designed, constructed and maintained so as to avoid damage to buildings, structures and services, or impacts on lawful groundwater or surface water takes, outside that considered as part of the application process unless otherwise agreed in writing with the asset owner.

Settlement Contingency Actions

104B. If the Consent Holder becomes aware of any damage to buildings, structures or services potentially caused wholly, or in part, by the exercise of this consent, the Consent Holder must:

a. Notify the Manager and the asset owner within two Days of the Consent Holder becoming aware of the damage;
b. Provide a report prepared by a Suitably Qualified and Experienced Person (engaged by the Consent Holder at their cost) that describes the damage; identifies the cause of the damage; identifies methods to remedy and/or mitigate the damage that has been caused; identifies the potential for further damage to occur, and describes actions that will be taken to avoid further damage; and
c. Provide a copy of the report prepared under (b) above, to the Manager and the asset owner within 10 Days of notification under (a) above.

Advice Note: *It is anticipated the Consent Holder will seek the permission of the damaged / affected asset owner to access the property and asset to enable the inspection/investigation. It is understood that if access is denied the report will be of limited extent.*

MAINTENANCE OF LANDSCAPE, MITIGATION AND OFFSET PLANTING AND WORKS

105. The Consent Holder shall procure from the Crown the entering into of appropriate covenants and/or encumbrances (or similar legal mechanisms) to ensure that the following areas are protected on an ongoing basis prior to any transfer from the Crown of ownership/tenure:
a. The area identified as the Fauna Habitat and Flyway Mitigation under conditions 54F- 54I;
b. The ecology vegetation mitigation and mitigation for fragmentation areas identified under conditions 54KA and 54KC; and
c. The terrestrial mitigation and/or offsets completed in areas identified under conditions 77 and 78 of the Resource Consent.

ADVICE NOTES

The scope of these consents does not include:

- Land use activities requiring resource consents under the Resource Management (National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 or contaminant discharges under Chapter E30 of the Auckland Unitary Plan (Operative in Part).

- Plantation forest activities defined by the Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017 and related activities in the commercial plantation forest (Mahurangi Forest) located west of SH1.

- Reclamation of any Watercourse for soil disposal where such reclamation or diversion is not associated with Project structures (for example, embankments, earth bunds, bridges and other structures). However, the

scope of the consent includes the diversion of a Watercourse for the purpose of enabling soil disposal whether associated with Project structures or not.

- Reclamation or diversion of any Wetland(s) for soil disposal where such reclamation or diversion is not associated with Project structures (for example, embankments, earth bunds, bridges and other structures).

APPENDIX A

Schedule of ecological sites

Table 1. Ecological areas included on Conditions Maps 18-20. Ecological values: VH = Very High; H =High; M = Moderate.

Ecological site	Attributes	Ecological value	Impacted by proposed Indicative Alignment (Y/N)
WN_T_Mahu_01	SEA_T_2287 Kauri, podocarp, broadleaved forest	M	N
WN_T_Koura_01a	Kahikatea, pukatea forest	H	Y
WN_W_Koura_01	Exotic wetland	M	Y
WN_W_Koura_02	Raupo reedland	VH	N
WN_W_Koura_03	Exotic wetland	M	Y
WN_W_Koura_04	Exotic wetland	M	N
WN_W_Koura_05	Raupo reedland	H	Y
WN_T_Koura_02	Kanuka forest	M	Y
DVF_W_Koura_01	Exotic wetland	M	N
DVF_T_Koura_02	Kauri, podocarp, broadleaved species scrub/forest	VH	Y
DVF_T_Hoteo_01	Kauri, podocarp, broadleaved forest	VH	Y
HN_T_Hoteo_02	SEA_T_683 Taraire, tawa, podocarp forest	VH	Y
HN_W_Hoteo_01	SEA_T_6854 Flaxland	H	Y
HN_W_Hoteo_02	SEA_T_685 Kahikatea forest	H	N
HN_T_Hoteo_03a	SEA_T_685 Kahikatea, pukatea forest	H	Y
HN_T_Hoteo_08	Kahikatea forest	H	Y

APPENDIX B

Methodology for calculation of sediment reduction factors and the effectiveness of sediment reduction activities

JACOBS Memorandum

Subject	**Marine Mitigation Calculation Process**	**Project Name**	Warkworth to Wellsford
Attention	Justine Bennett	**Project No.**	IZ083000
From	Kate Clay, Lydia Cetin		
Date	May 2019		

1. Introduction

This note outlines a process to calculate the necessity and size of additional mitigation areas of land to be retired and planted to offset the quantum of sediment discharged during the project.

The quantum of sediment discharged from the Project during construction should be offset in one generation, which is nominally 25 years following the end of the Project, through land retirement and planting strategies. The types of land retirement and planting available for sediment mitigation are:

- Planting and stabilisation of riparian margins of streams;
- Retirement of pasture areas and planting with shrubs and trees;
- of plantation forest areas, which may remain as exotic forest or be replanted as native forest Retirement, and cease being harvested.

The Project already includes Landscape and Ecology (L&E) mitigation planting, which has the additional benefit of erosion reduction. If the L&E mitigation planting does not offset the full quantum of sediment discharged during construction, then additional sediment mitigation planting will be required.

2. Sediment Reduction Factors

The sediment offset of the indicative L&E planting has been estimated through modelling. This has enabled quantification of the average annual offset of different retirement and planting types within the Project Designation. These sediment reduction factors have been calculated for mitigation planting in different areas and are set out in Table 1.

Table 1 Estimated sediment reduction factors (average offset) associated with retirement and planting mitigation options over 25 years

Mitigation type	Options	Sediment reduction over 25 years
Planting and stabilisation of riparian margins of streams	Stream REC class 2-3	**0.35 Tonnes/metre**
	Stream REC 4+	*Not previously assessed
Retirement of pasture areas and planting with shrubs/trees	Flat slopes	**1.11 Tonnes/hectare**
	Flat to moderate slopes	**1.89 Tonnes/hectare**
	Moderate slopes	**2.91 Tonnes/hectare**
	Steep slopes	*Not previously assessed
Retirement of plantation forest	Retire after harvest in 2020	**1.82 Tonnes/hectare**
	Retire before harvest in 2020	**3.64 Tonnes/hectare**

Note: *the current proposed mitigation planting does not include these categories, should future planting be proposed for these typologies an appropriate Sediment Reduction factor will need to be derived.

Jacobs New Zealand Limited

GHD JACOBS Boffa Miskell

127

It should be noted that the modelled indicative L&E mitigation planting, which is based on the indicative alignment and associated level of design, is subject to change as the Project progresses. Only areas within the proposed designation were modelled, therefore retirement and planting of steep areas of pasture and planting of higher order streams has not been modelled to date. The forest reduction factors are based on literature not modelling, so there is potential that retiring steeper areas of forestry could increase the sediment offset. Additionally, the modelling focussed on those catchments discharging to the Kaipara Harbour where the greatest sediment yields were predicted, and the Mahurangi was not modelled.

Therefore, these sediment reduction factors will need to be confirmed following detailed design as the quantum and location of the proposed landscape and ecological mitigation may change through that process.

3. Outline of Sediment Quantum Calculation Process

The steps and inputs to calculate the areas and types of planting and retirement necessary to mitigate the quantum of sediment discharged during construction are as follows:

1. Identify the quantum of sediment to be mitigated from the construction site in tonnes (to be provided by on site monitoring). This will include the sediment generated through large storm events and cumulative total of small rain fall events;
2. Calculate the quantum of sediment to be offset through the final Ecology and Landscape mitigation planting in a nominal 25-year timespan, as estimated with a modelling exercise;
3. Minus the L&E mitigation quantum (step 2) from the total sediment offset quantum (step 1), to calculate the net quantum of sediment to be offset through additional mitigation (e.g. land retirement and planting).
4. Based on the sediment reduction factor, calculate the area/length required of additional sediment mitigation planting.

Figure 1 below represents the process schematically:

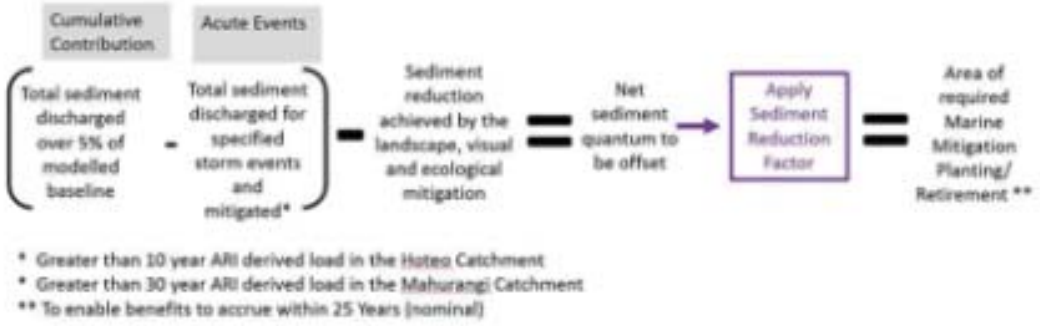
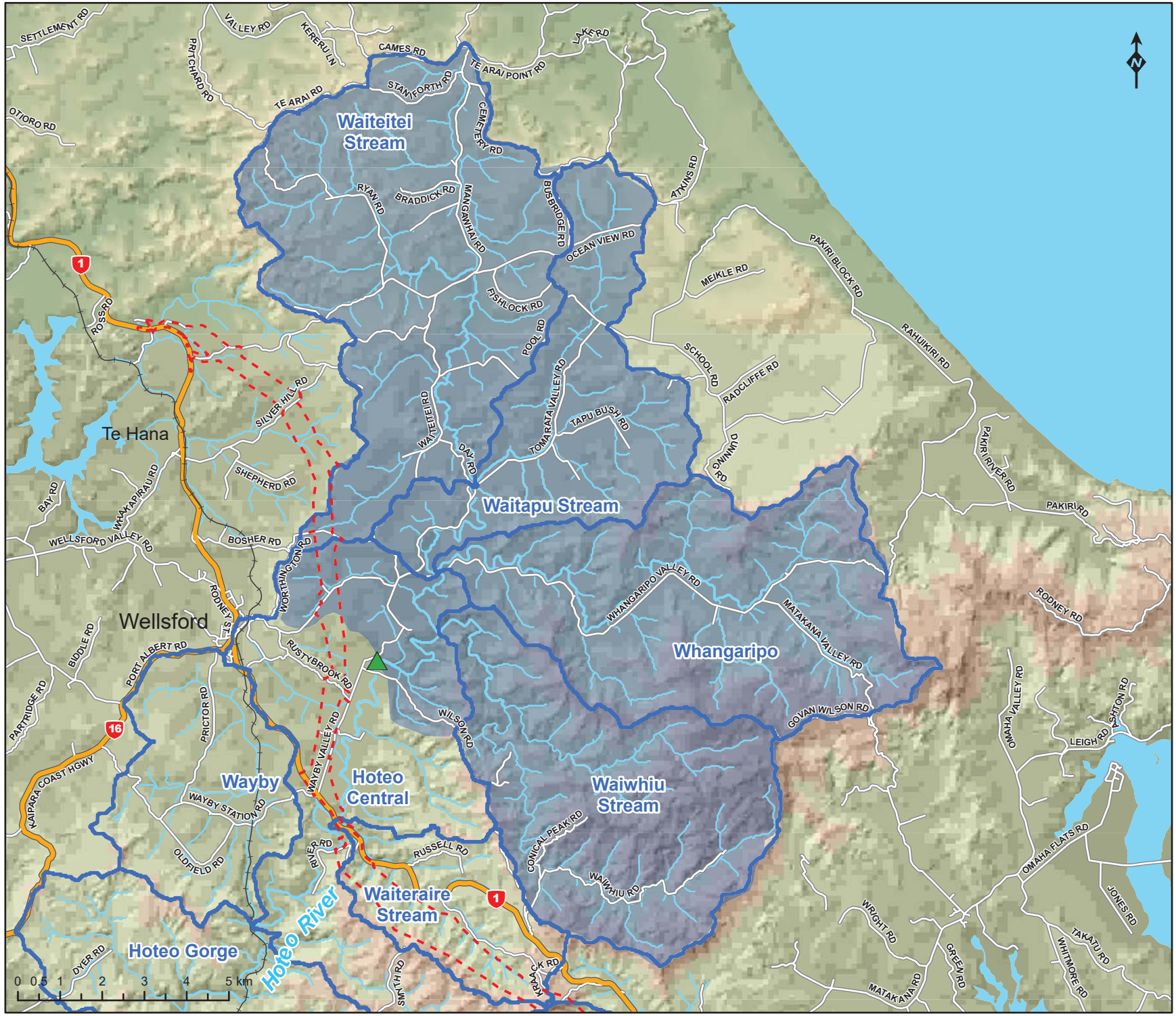


Figure 1 Process to estimate area required for additional marine mitigation planting

APPENDIX C

Watercare Intake Catchment



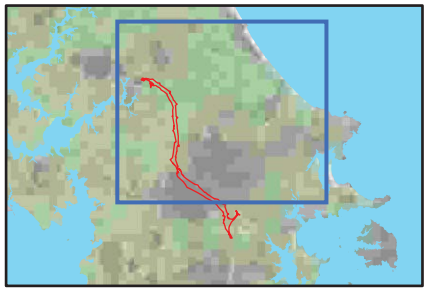
Watercare Wellsford Water Treatment Plant (Intake)

Water intake catchment

Hoteo River Subcatchments

Proposed Designation

Appendix A



WARKWORTH TO WELLSFORD

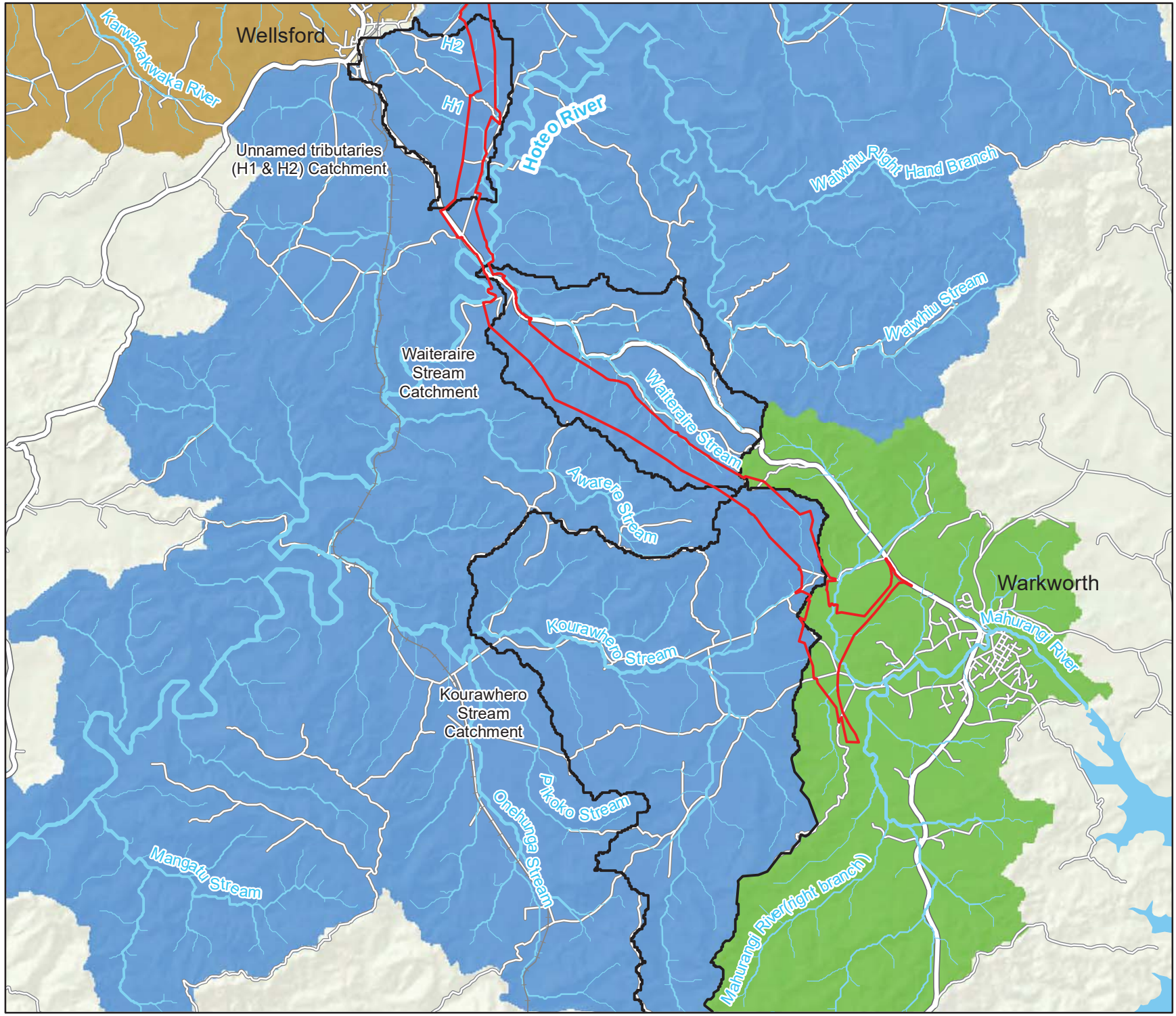
WATERCARE INTAKE CATCHMENT

Jacobs GHD

WAKA KOTAHI NZ TRANSPORT AGENCY | Warkworth to Wellsford

APPENDIX D

Unnamed Tributaries H1 and H2 of the Hōteo River



Proposed designation boundary

Minor Catchments

Major Catchment

- Hoteo River
- Mahurangi River
- Oruawharo River

N

0 1 2 3 4 km

WARKWORTH TO WELLSFORD

HOTEO TRIBUTARIES

Jacobs GHD

WAKA KOTAHI NZ TRANSPORT AGENCY

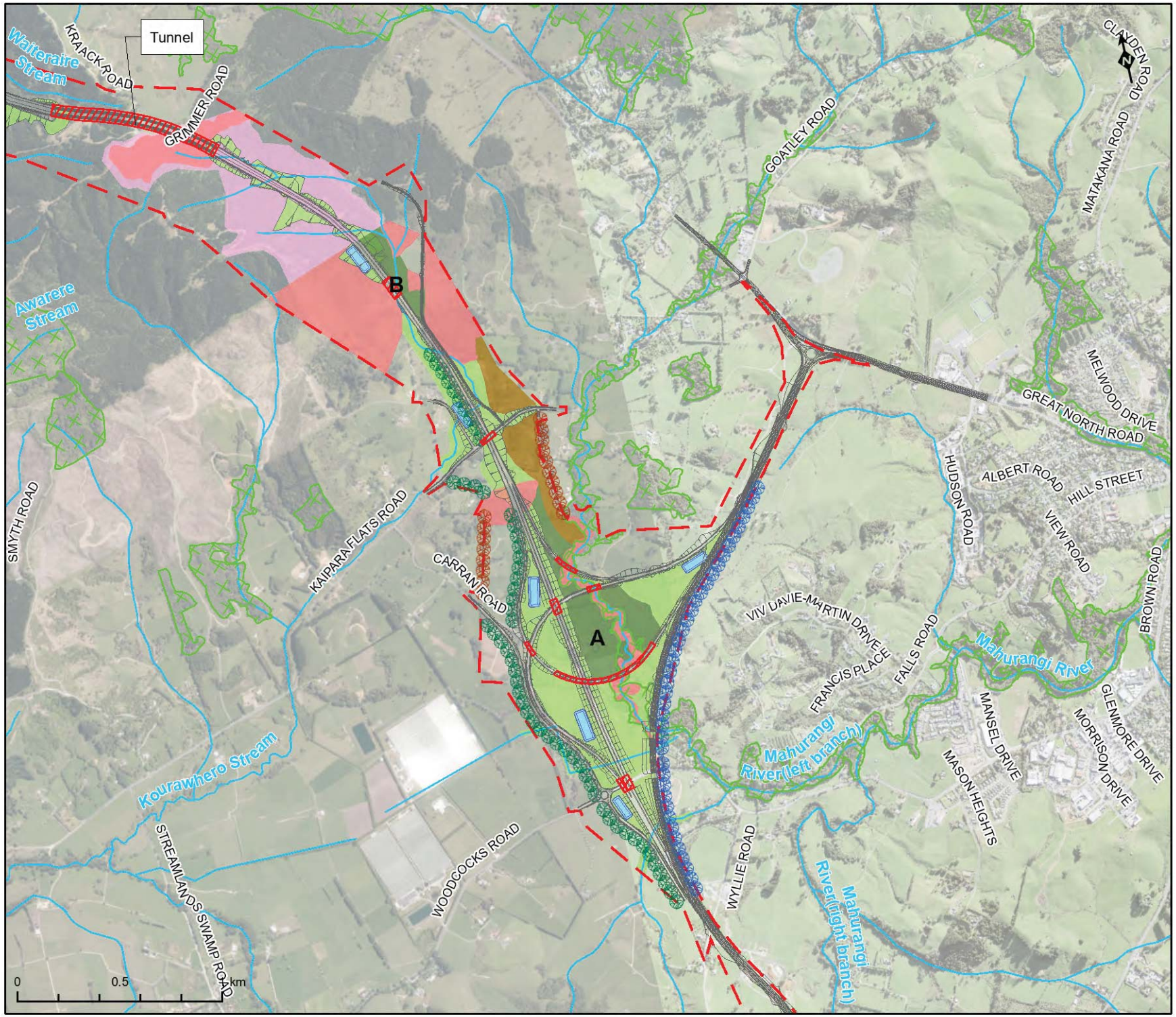
Warkworth to Wellsford

Document Path: W:\W2W Designation and Resource Consents\07 GIS\MXD\REPORT_FIGURES\CONDITIONS\A4_ConditionsReport_AppendixB.mxd

Date: 06-Oct-20

CONDITIONS MAPS

Maps 1 – 6	**Mitigation Sites**
Maps 7 – 12	**Representative Watercourses**
Map 13	**Fauna Habitat and Flyway Mitigation Area**
Map 14 – 16	**Bridge Structures in Watercourses**
Map 17	**Crossing of the Kourawhero Stream and associated wetland complex Ecological Site**
Maps 18 – 20	**Ecological Sites**
Map 21	**Escarpment Feature**



- Indicative Alignment
- Designation boundary
- Indicative bridge / tunnel
- P2W screen planting
- Screen planting
- Existing shelter belt
- Stormwater treatment wetlands - indicative locations
- Watercourse
- Landscape Mitigation Planting
- Indigenous vegetation
- Ecology vegetation mitigation
- Fauna habitat and flyway mitigation
- Mitigation for fragmentation
- Significant ecological area -Terrestrial

Conditions - Map 1

WARKWORTH TO WELLSFORD

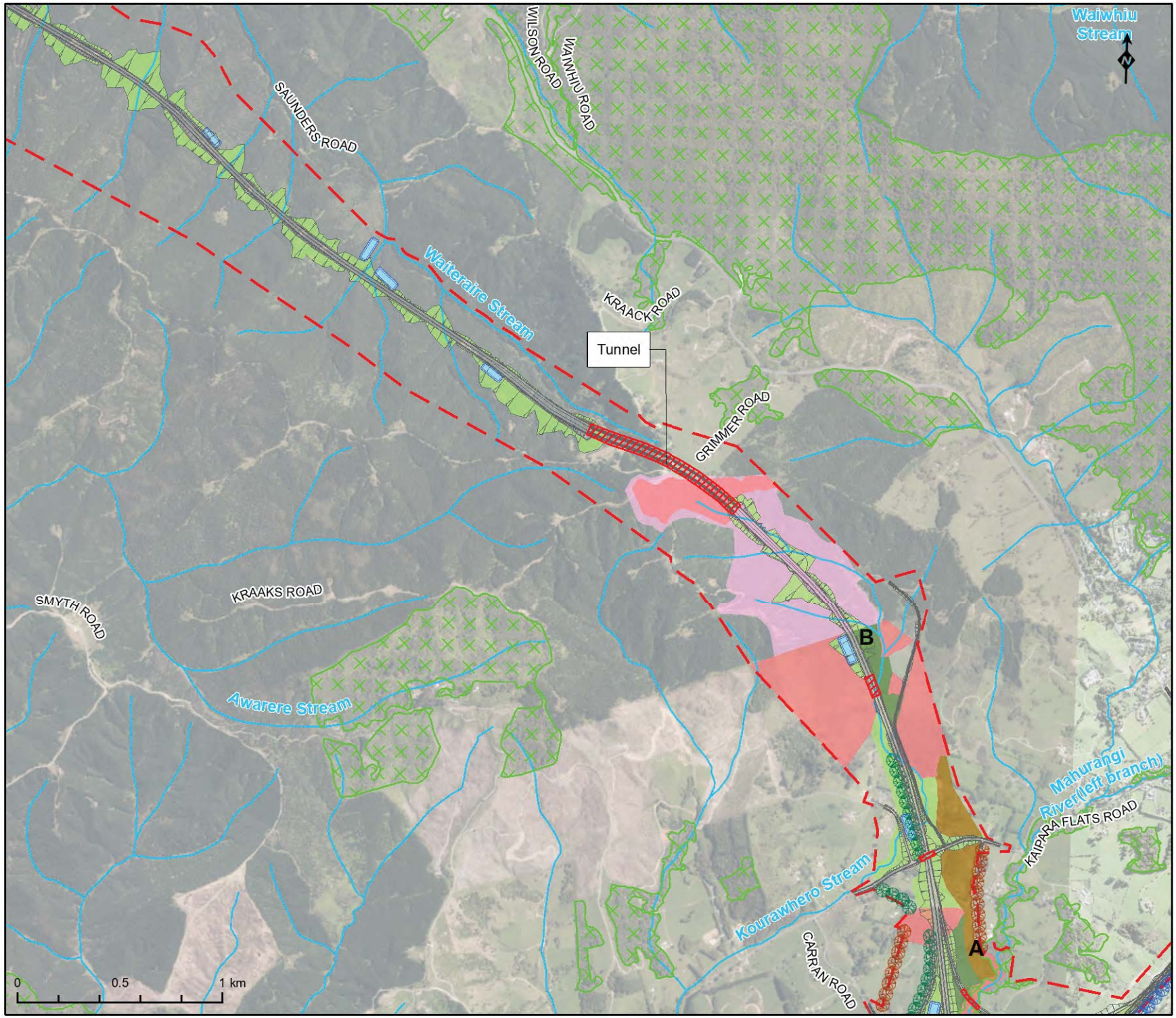
MITIGATION SITES

Jacobs GHD

WAKA KOTAHI NZ TRANSPORT AGENCY | Warkworth to Wellsford

Document Path: W:\W2W Designation and Resource Consents\07 GIS\MXD\REPORT_FIGURES\CONDITIONS\Conditions_map_sets\Conditions_map_sets.aprx

Date: 22-Oct-20



- Indicative Alignment
- Designation boundary
- Indicative bridge / tunnel
- P2W screen planting
- Screen planting
- Existing shelter belt
- Stormwater treatment wetlands - indicative locations
- Watercourse
- Landscape Mitigation Planting
- Indigenous vegetation
- Ecology vegetation mitigation
- Fauna habitat and flyway mitigation
- Mitigation for fragmentation
- Significant ecological area -Terrestrial

Conditions - Map 2

WARKWORTH TO WELLSFORD

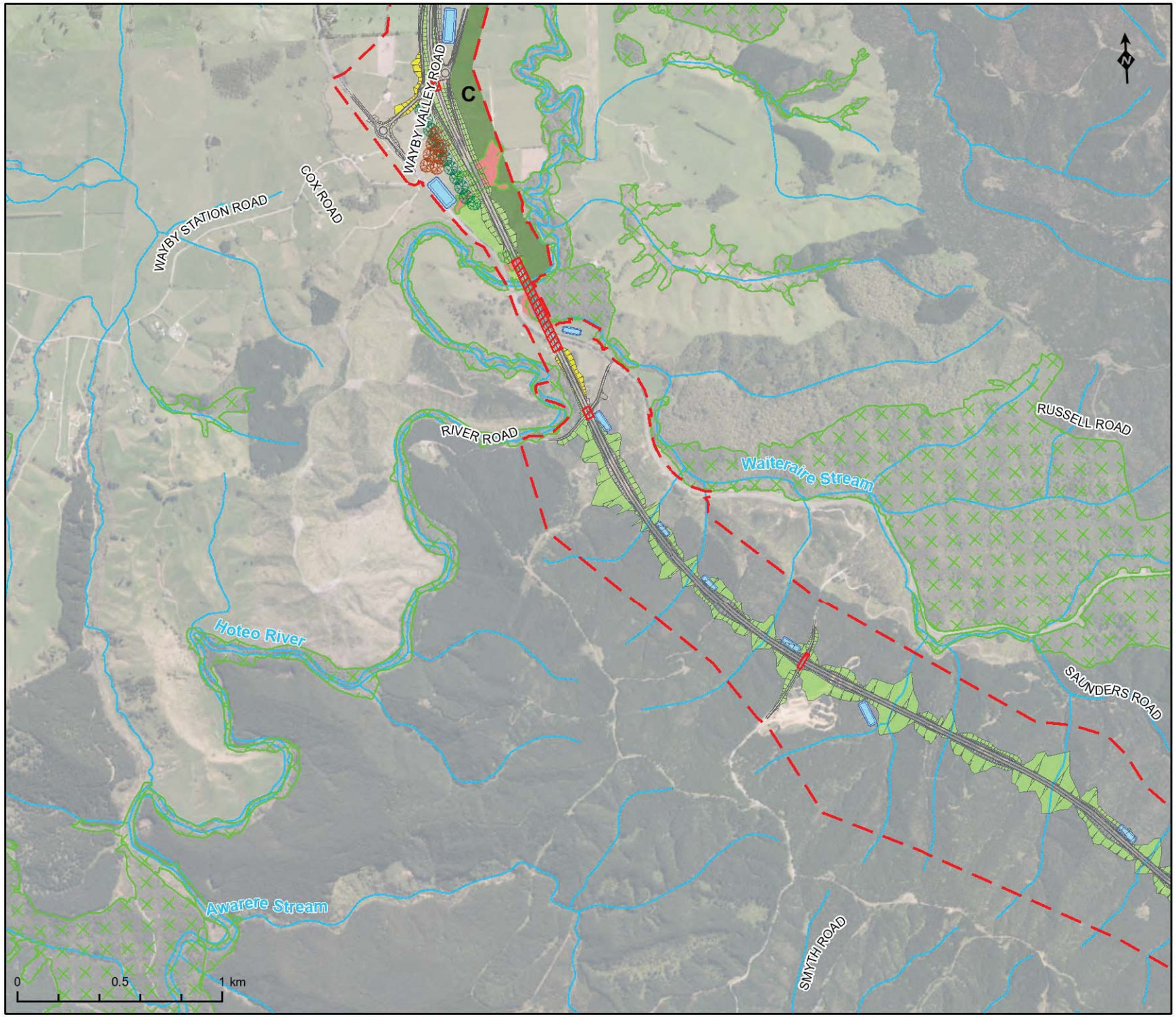
MITIGATION SITES

Jacobs GHD

WAKA KOTAHI NZ TRANSPORT AGENCY | Warkworth to Wellsford

Document Path: W:\W2W Designation and Resource Consents\07 GIS\MXD\REPORT_FIGURES\CONDITIONS\Conditions_map_sets\Conditions_map_sets.aprx

Date: 22-Oct-20



- Indicative Alignment
- Designation boundary
- Indicative bridge / tunnel
- Screen planting
- Existing shelter belt
- Stormwater treatment wetlands - indicative locations
- Watercourse
- Landscape Mitigation Planting
- Indigenous vegetation
- Ecology vegetation mitigation
- Grass batter slopes
- Significant ecological area -Terrestrial

Conditions - Map 3

WARKWORTH TO WELLSFORD

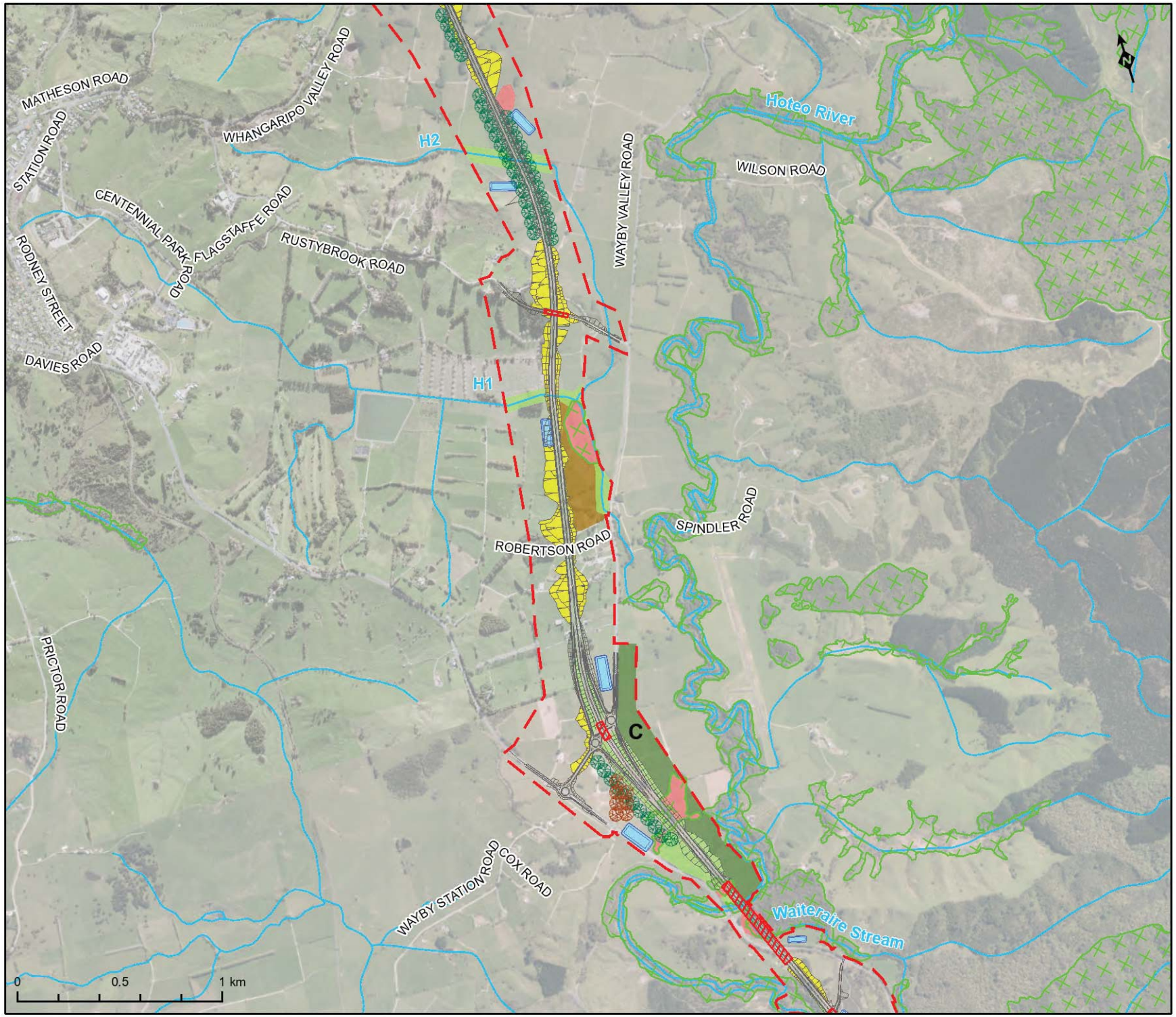
MITIGATION SITES

Jacobs GHD

WAKA KOTAHI NZ TRANSPORT AGENCY Warkworth to Wellsford

Document Path: W:\W2W Designation and Resource Consents\07 GIS\MXD\REPORT_FIGURES\CONDITIONS\Conditions_map_sets\Conditions_map_sets.aprx

Date: 22-Oct-20



- Indicative Alignment
- Designation boundary
- Indicative bridge / tunnel
- Screen planting
- Existing shelter belt
- Stormwater treatment wetlands - indicative locations
- Watercourse
- Landscape Mitigation Planting
- Indigenous vegetation
- Ecology vegetation mitigation
- Mitigation for fragmentation
- Grass batter slopes
- Significant ecological area -Terrestrial

Conditions - Map 4

WARKWORTH TO WELLSFORD

MITIGATION SITES

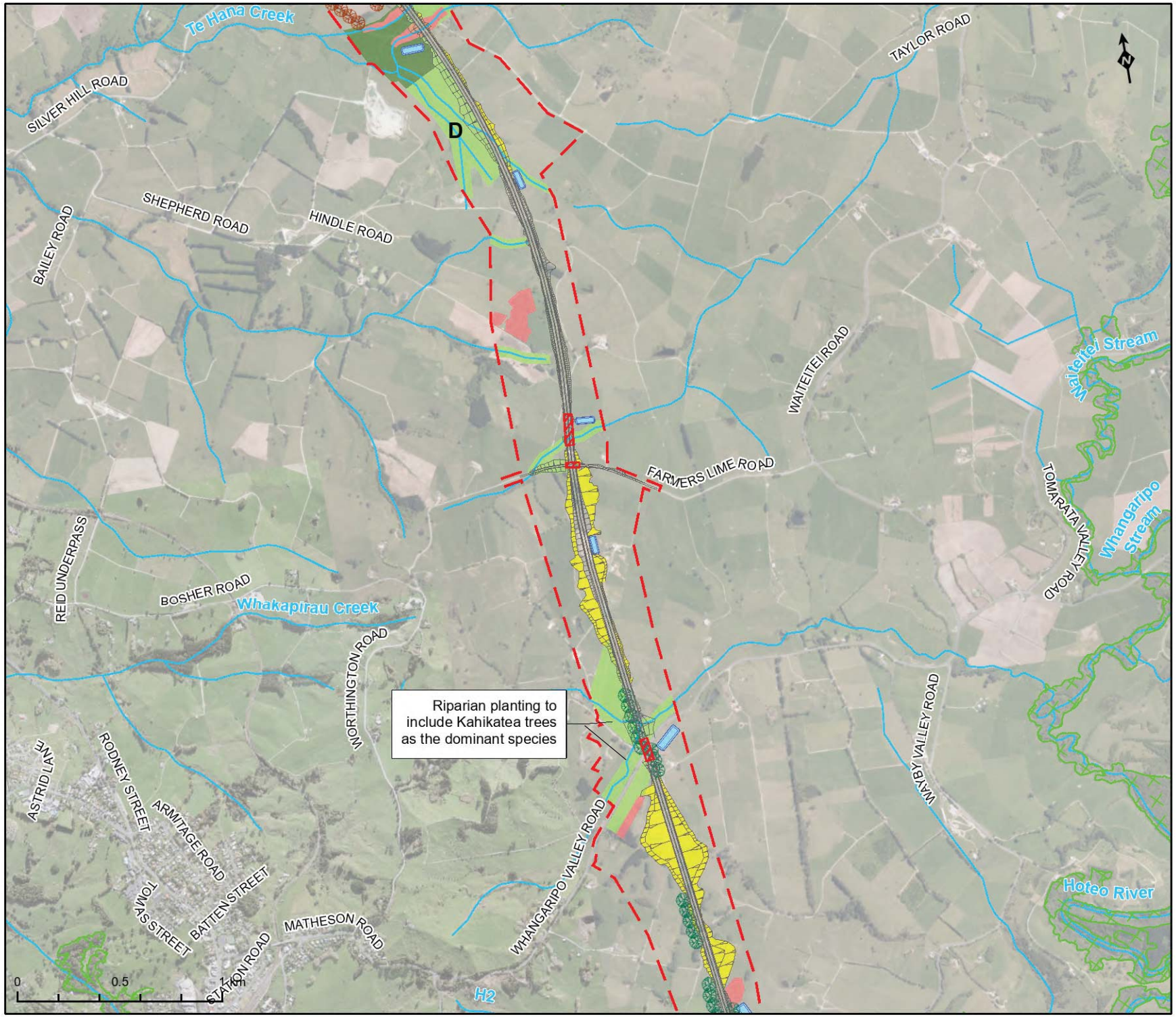
Jacobs GHD

WAKA KOTAHI NZ TRANSPORT AGENCY

Warkworth to Wellsford

Document Path: W:\W2W Designation and Resource Consents\07 GIS\MXD\REPORT_FIGURES\CONDITIONS\Conditions_map_sets\Conditions_map_sets.aprx

Date: 22-Oct-20



- Indicative Alignment
- Designation boundary
- Indicative bridge / tunnel
- Screen planting
- Existing shelter belt
- Stormwater treatment wetlands - indicative locations
- Watercourse
- Landscape Mitigation Planting
- Indigenous vegetation
- Ecology vegetation mitigation
- Grass batter slopes
- Significant ecological area -Terrestrial

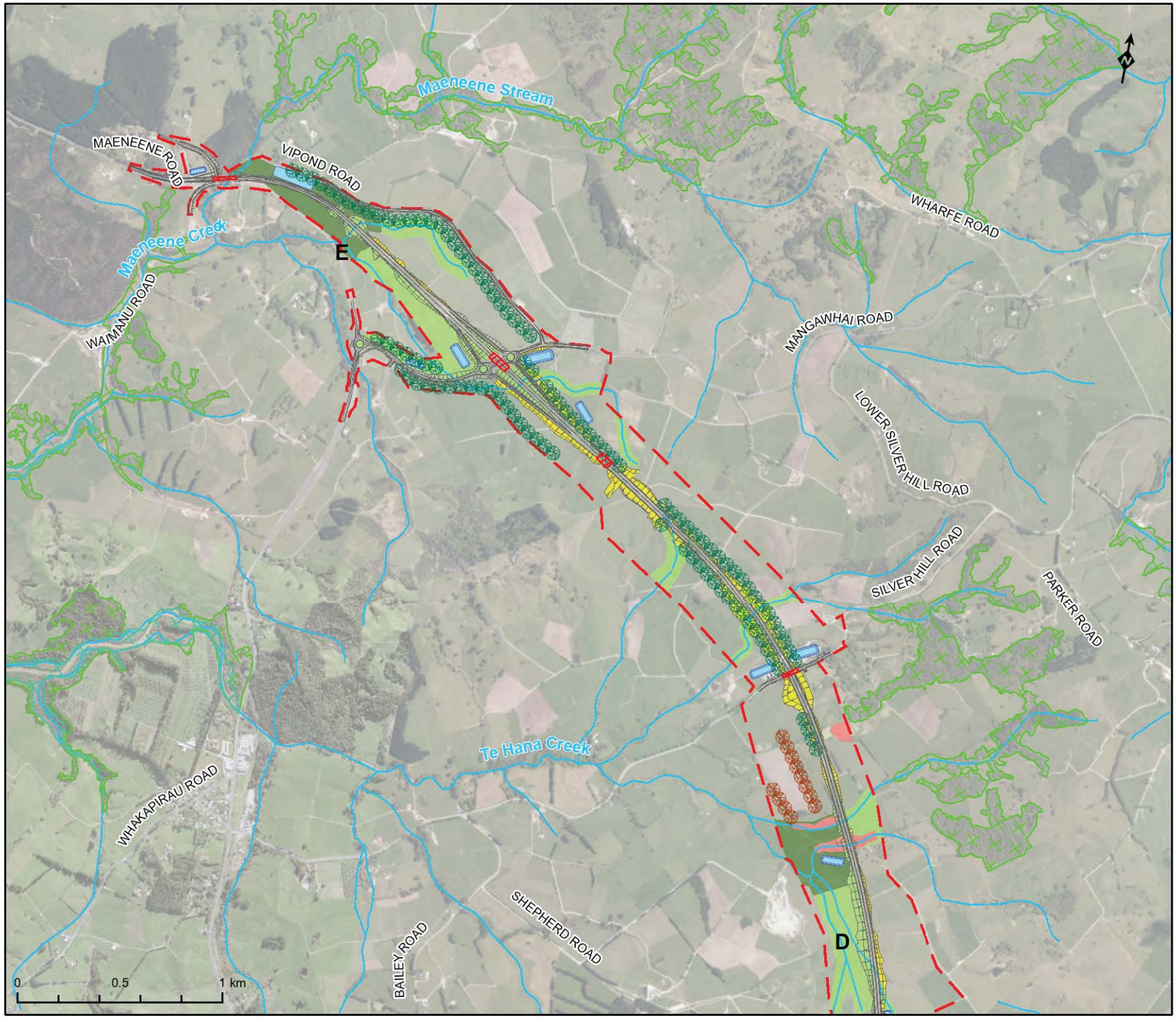
Conditions - Map 5

WARKWORTH TO WELLSFORD

MITIGATION SITES

Jacobs GHD

WAKA KOTAHI NZ TRANSPORT AGENCY | Warkworth to Wellsford



- Indicative Alignment
- Designation boundary
- Indicative bridge / tunnel
- Screen planting
- Existing shelter belt
- Stormwater treatment wetlands - indicative locations
- Watercourse
- Landscape Mitigation Planting
- Indigenous vegetation
- Ecology vegetation mitigation
- Grass batter slopes
- Significant ecological area -Terrestrial
- Significant ecological area - Marine 2

Conditions - Map 6

WARKWORTH TO WELLSFORD

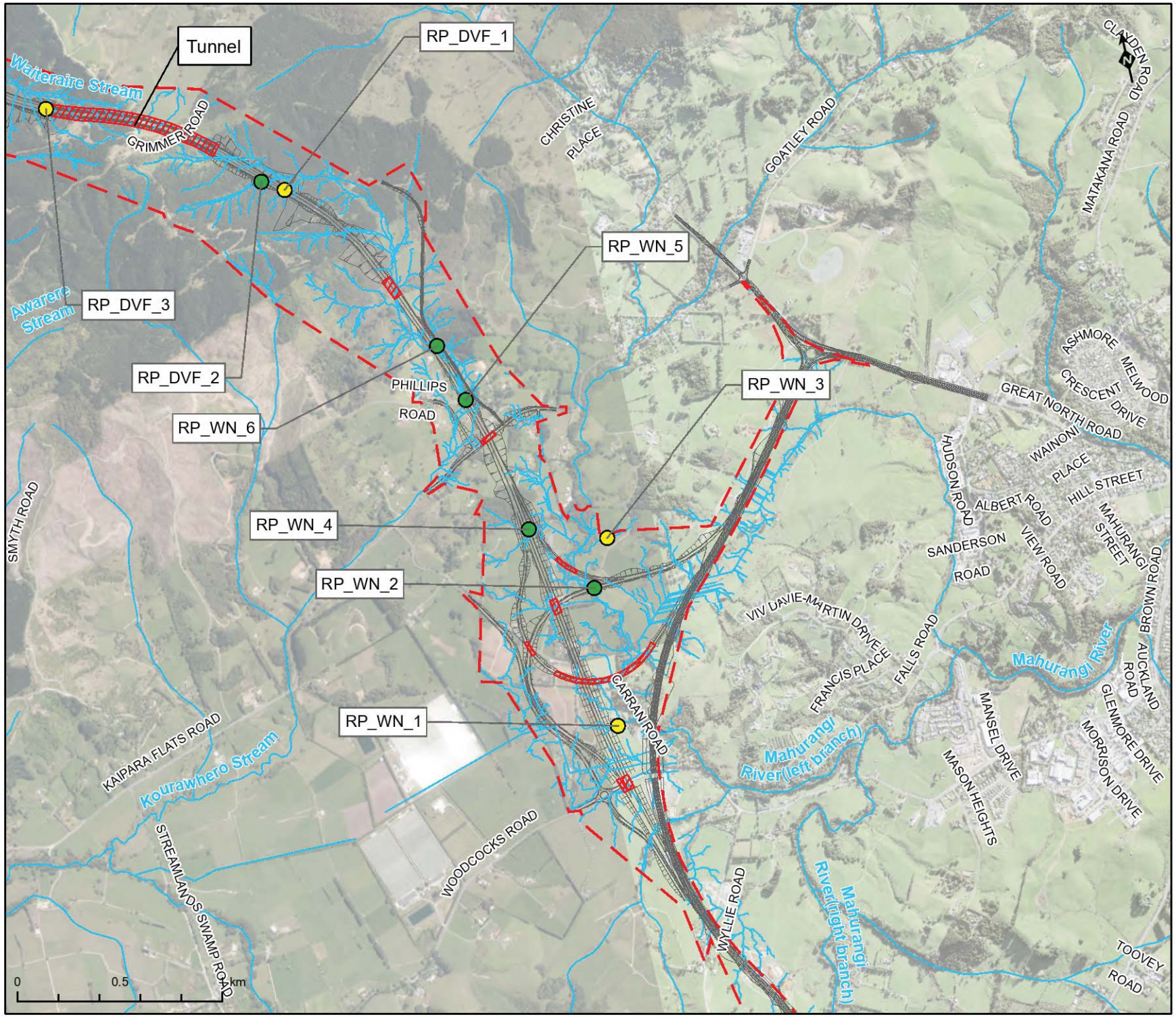
MITIGATION SITES

Jacobs GHD

WAKA KOTAHI NZ TRANSPORT AGENCY | Warkworth to Wellsford

Document Path: W:\W2W Designation and Resource Consents\07 GIS\MXD\REPORT_FIGURES\CONDITIONS\Conditions_map_sets\Conditions_map_sets.aprx

Date: 22-Oct-20



- Indicative Alignment
- Designation boundary
- Indicative bridge / tunnel
- Watercourse

Representative watercourses

- Intermittent
- Permanent

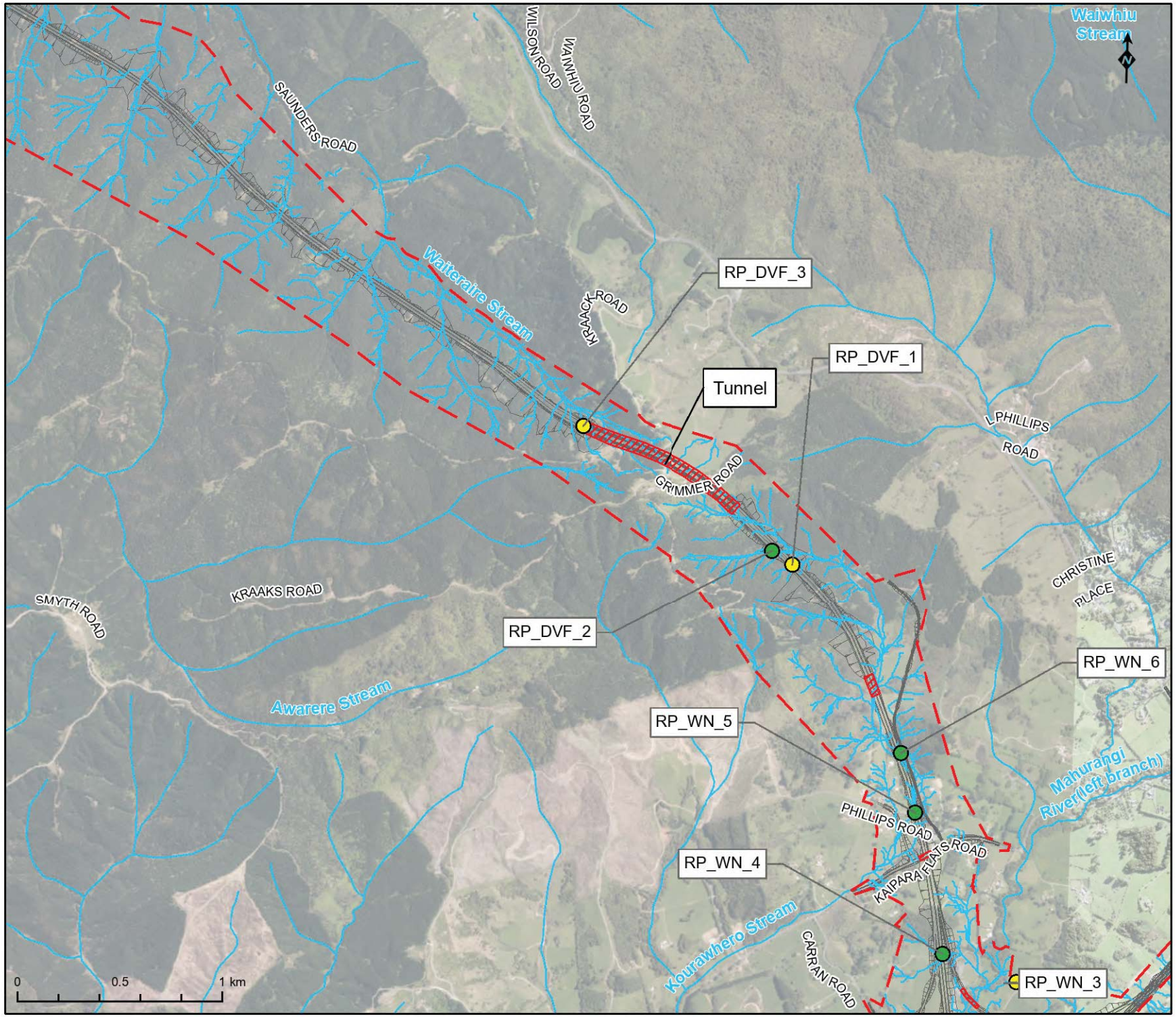
Conditions - Map 7

WARKWORTH TO WELLSFORD

REPRESENTATIVE WATERCOURSES

Jacobs GHD

WAKA KOTAHI NZ TRANSPORT AGENCY | Warkworth to Wellsford



Indicative Alignment
Designation boundary
Indicative bridge / tunnel
Watercourse

Representative watercourses

Intermittent
Permanent

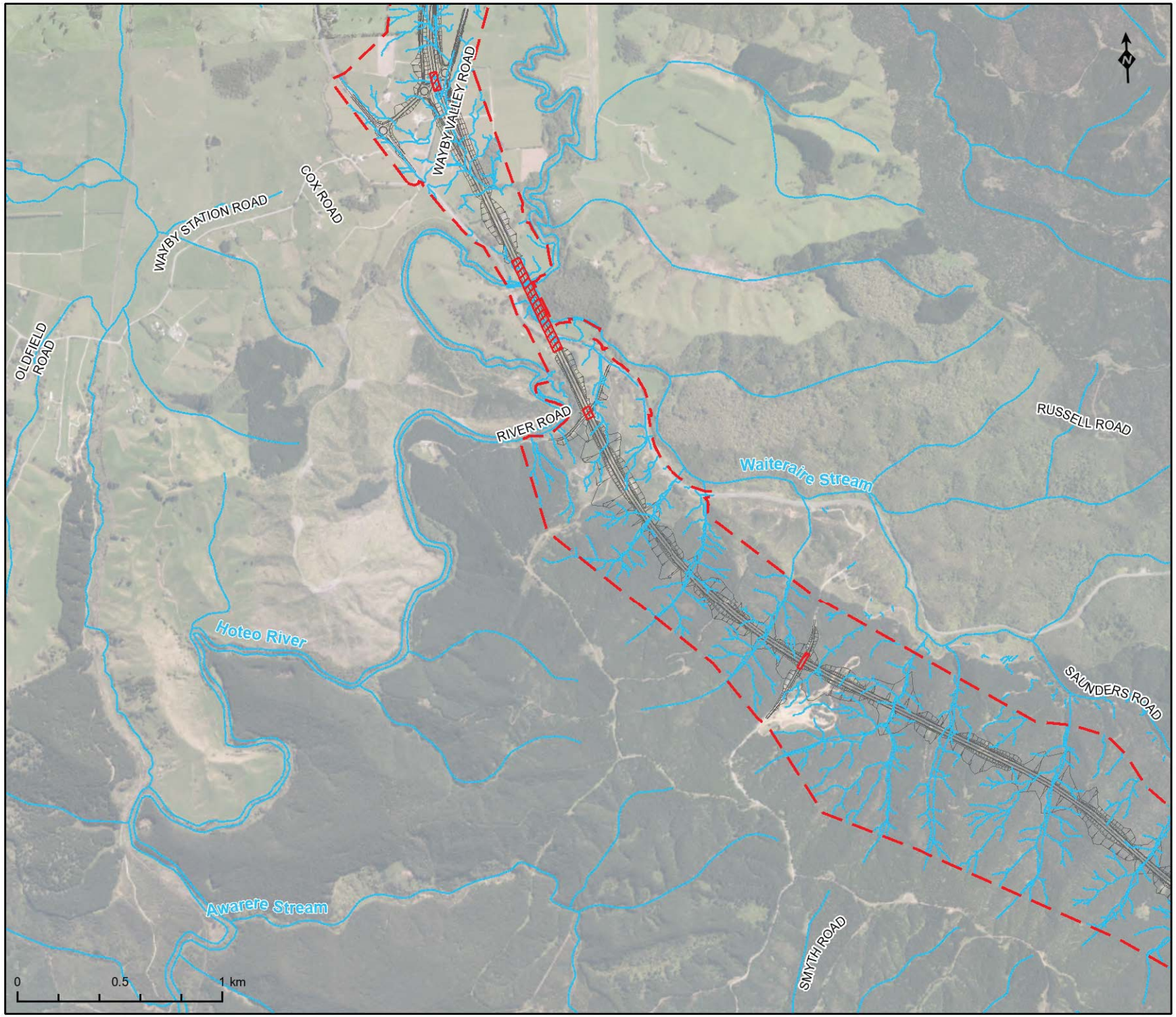
Conditions - Map 8

WARKWORTH TO WELLSFORD

REPRESENTATIVE WATERCOURSES

Jacobs GHD

WAKA KOTAHI NZ TRANSPORT AGENCY | Warkworth to Wellsford



Indicative Alignment
Designation boundary
Indicative bridge / tunnel
Watercourse

Representative watercourses

Intermittent
Permanent

Conditions - Map 9

WARKWORTH TO WELLSFORD

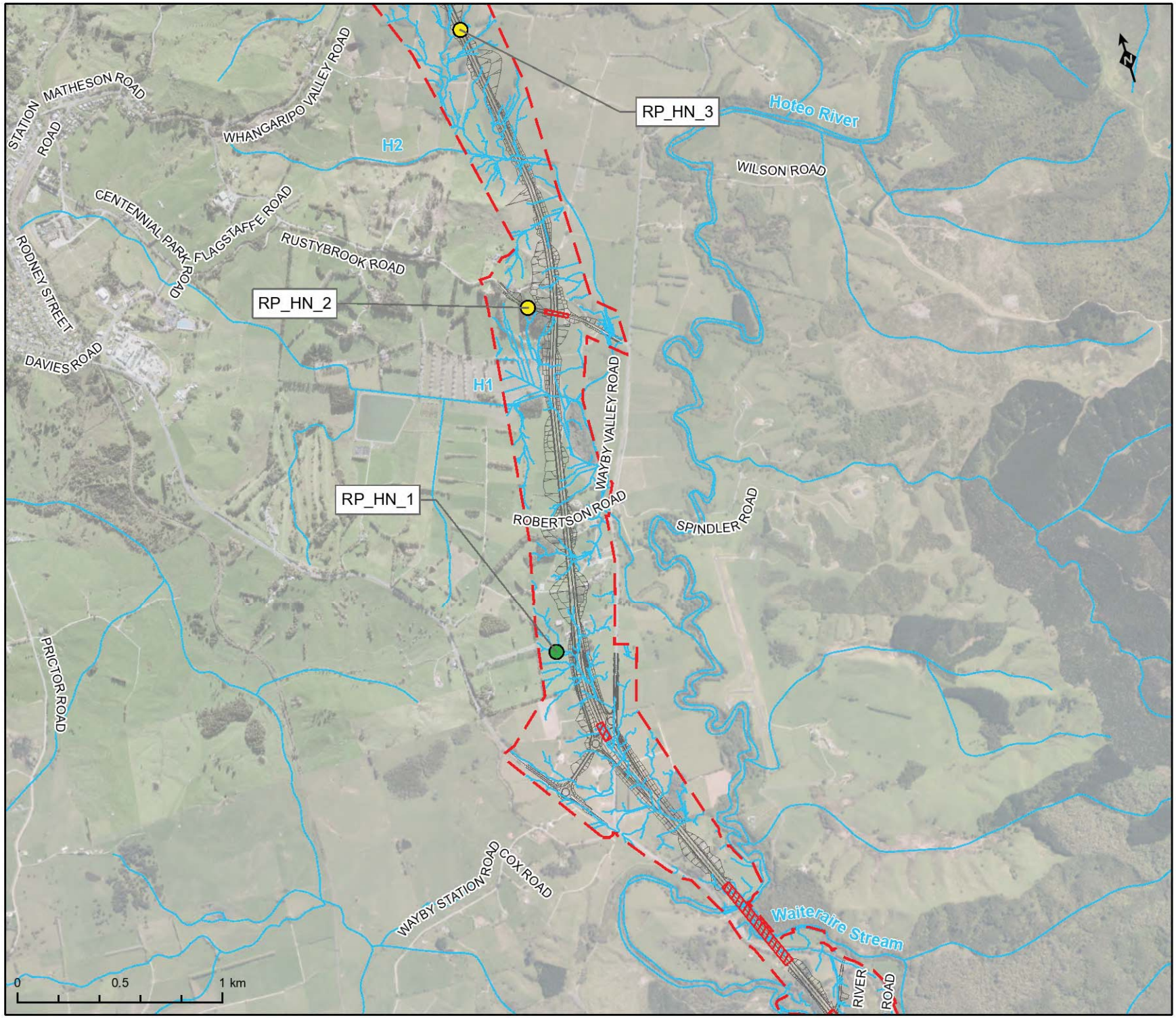
REPRESENTATIVE WATERCOURSES

Jacobs GHD

WAKA KOTAHI NZ TRANSPORT AGENCY | Warkworth to Wellsford

Document Path: W:\W2W Designation and Resource Consents\07 GIS\MXD\REPORT_FIGURES\CONDITIONS\Conditions_map_sets\Conditions_map_sets.aprx

Date: 22-Oct-20



- Indicative Alignment
- Designation boundary
- Indicative bridge / tunnel
- Watercourse

Representative watercourses

- Intermittent
- Permanent

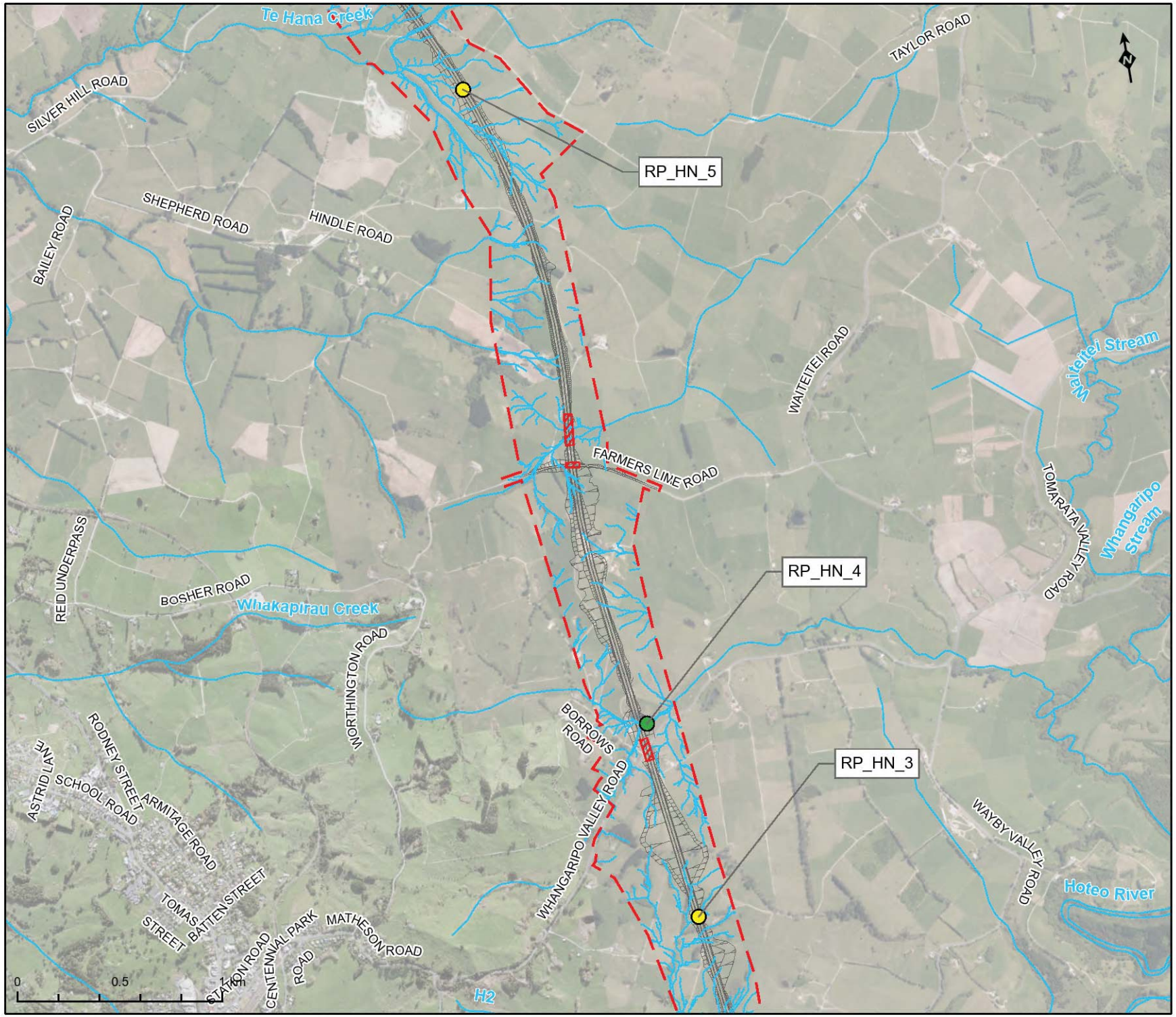
Conditions - Map 10

WARKWORTH TO WELLSFORD

REPRESENTATIVE WATERCOURSES

Jacobs GHD

WAKA KOTAHI NZ TRANSPORT AGENCY | Warkworth to Wellsford

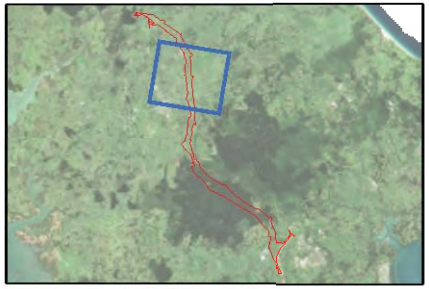


- Indicative Alignment
- Designation boundary
- Indicative bridge / tunnel
- Watercourse

Representative watercourses

- Intermittent
- Permanent

Conditions - Map 11

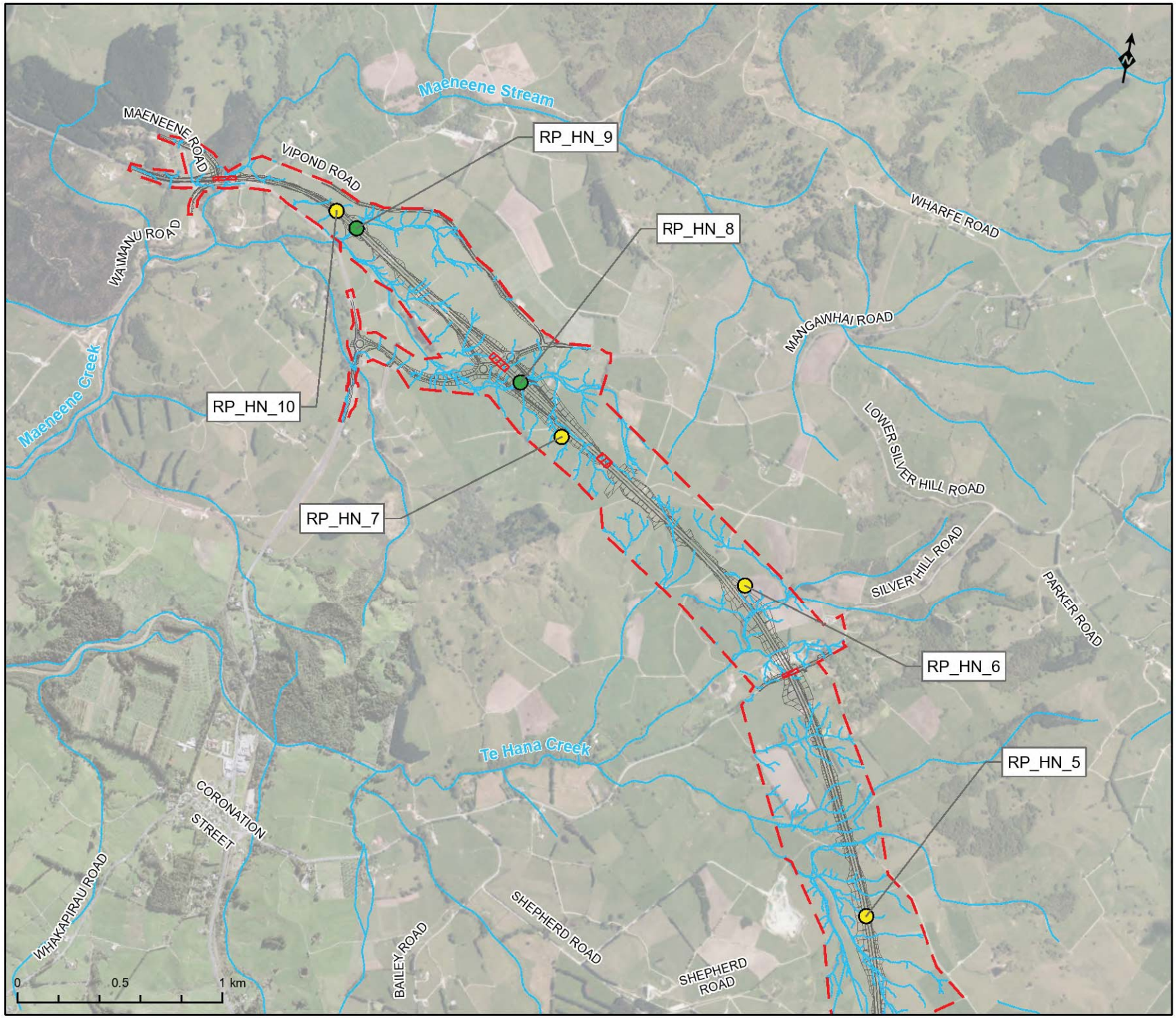


WARKWORTH TO WELLSFORD

REPRESENTATIVE WATERCOURSES

Jacobs GHD

WAKA KOTAHI NZ TRANSPORT AGENCY | Warkworth to Wellsford



- Indicative Alignment
- Designation boundary
- Indicative bridge / tunnel
- Watercourse

Representative watercourses

- Intermittent
- Permanent

Conditions - Map 12

WARKWORTH TO WELLSFORD

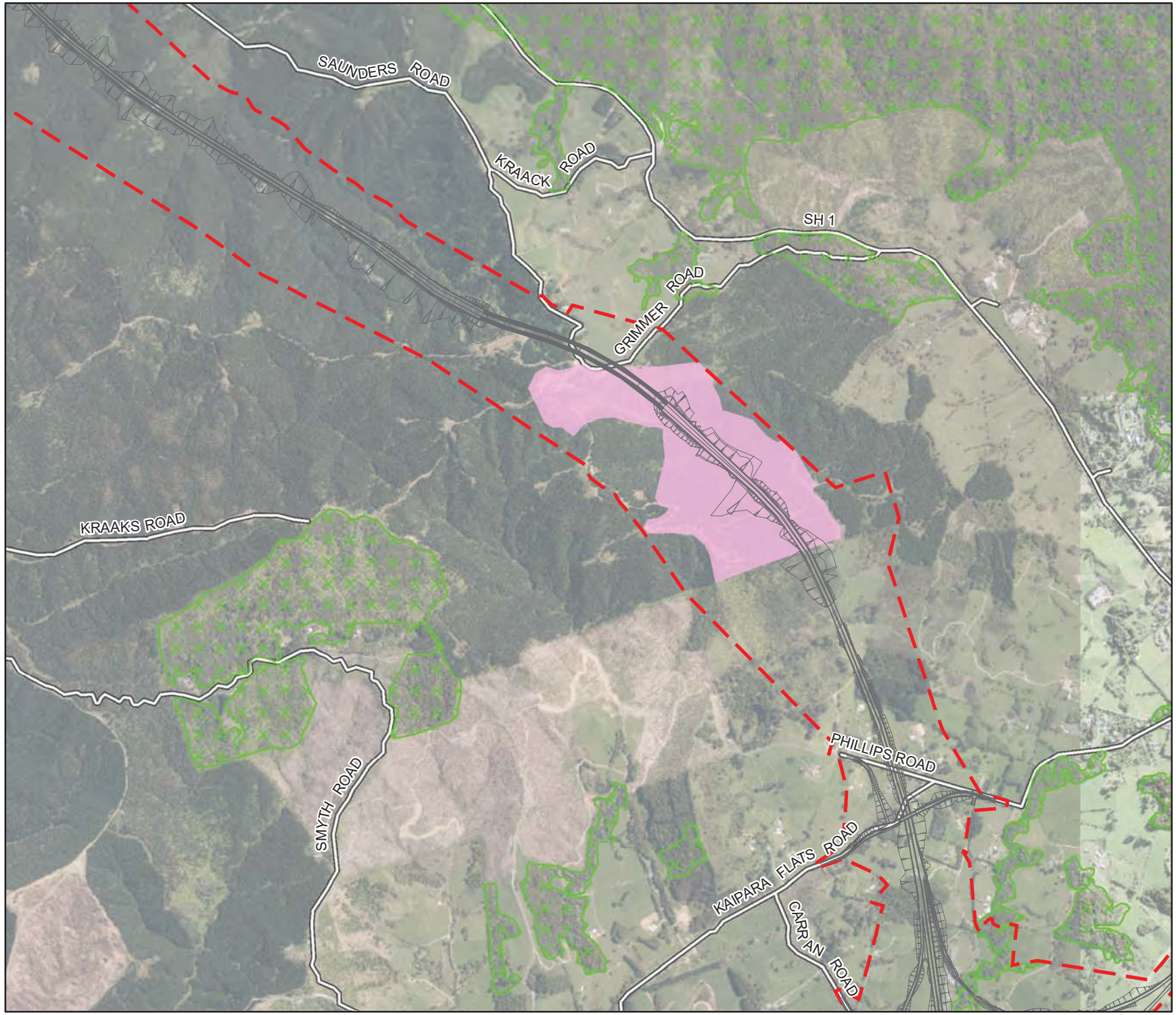
REPRESENTATIVE WATERCOURSES

Jacobs GHD

WAKA KOTAHI NZ TRANSPORT AGENCY | Warkworth to Wellsford

Document Path: W:\W2W Designation and Resource Consents\07 GIS\MXD\REPORT_FIGURES\CONDITIONS\Conditions_map_sets\Conditions_map_sets.aprx

Date: 22-Oct-20



Indicative Alignment

Designation boundary

Fauna habitat and flyway mitigation

Significant ecological area -Terrestrial

Conditions - Map 13

N

0 0.5 1 km

WARKWORTH TO WELLSFORD

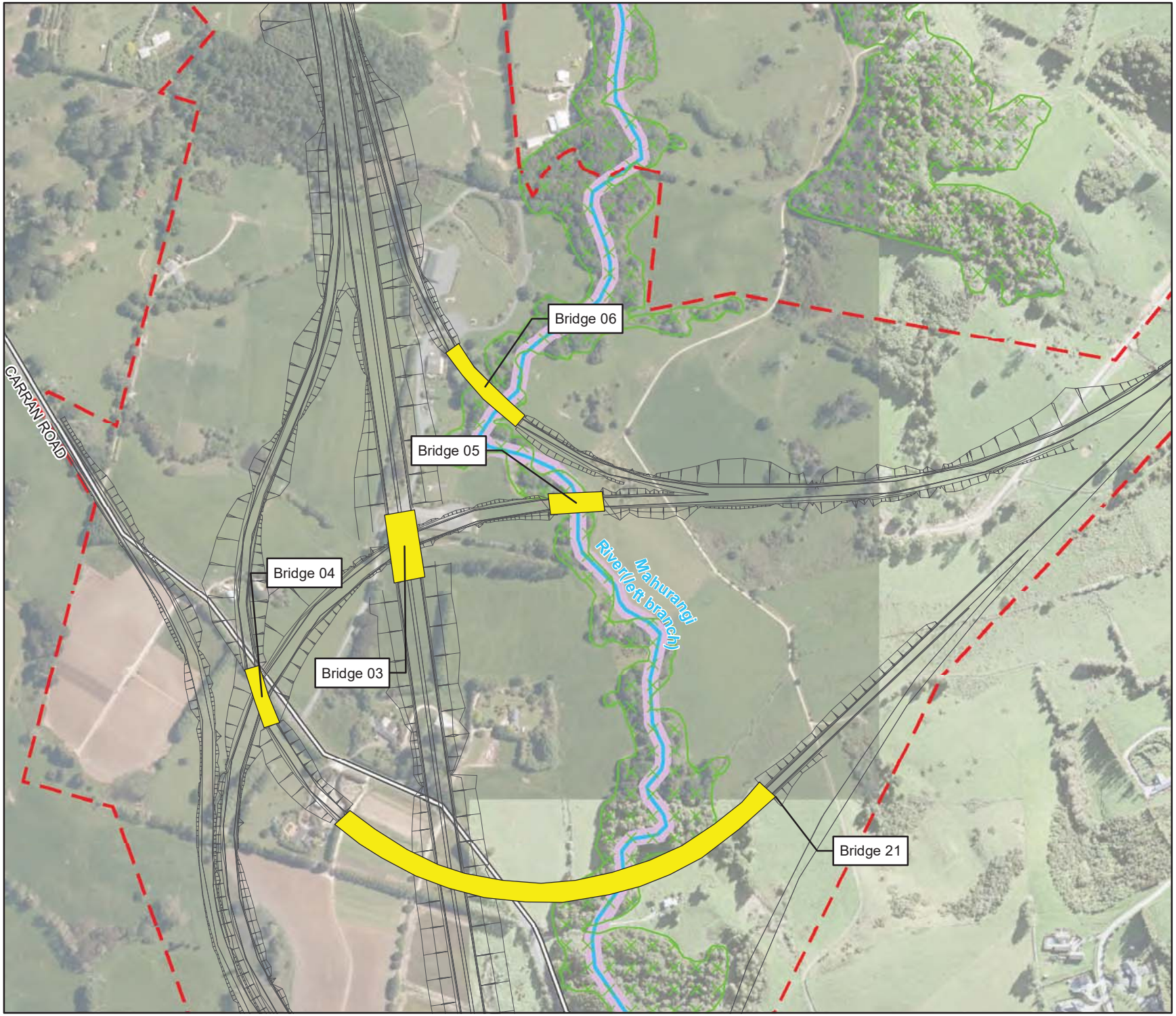
FAUNA HABITAT
AND FLYWAY MITIGATION

Jacobs GHD

WAKA KOTAHI NZ TRANSPORT AGENCY Warkworth to Wellsford

Document Path: W:\W2W Designation and Resource Consents\07 GIS\MXD\REPORT_FIGURES\CONDITIONS\A4_ConditionsReport_Map13.mxd

Date: 01-Oct-20



Designation boundary

Indicative Alignment

Indicative bridge

Mahurangi River (Left branch)

Watercourse

Significant ecological area -Terrestrial

Conditions - Map 14

N

0 100 200 300 m

WARKWORTH TO WELLSFORD

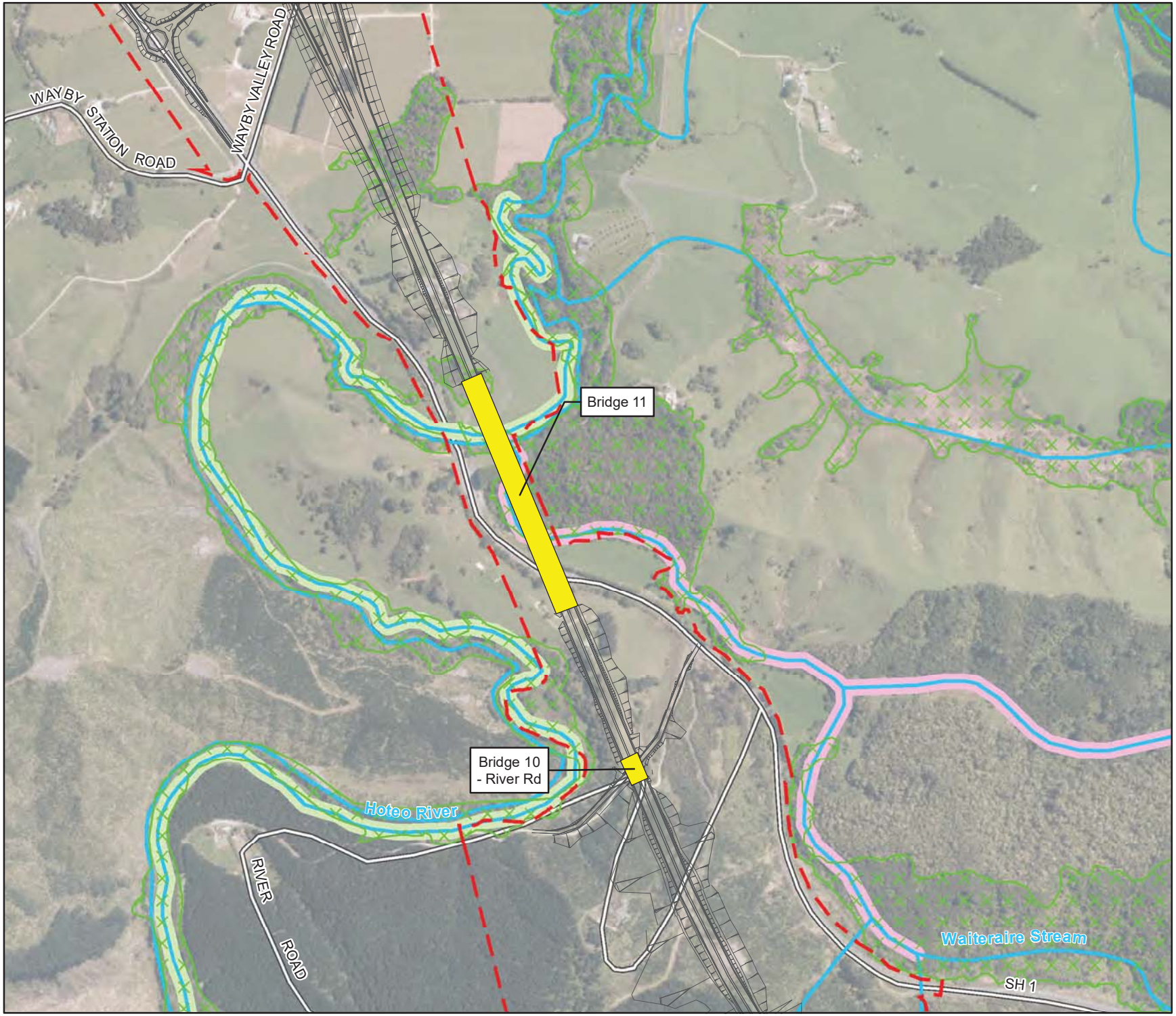
BRIDGE STRUCTURES
IN WATERCOURSES

Jacobs GHD

WAKA KOTAHI NZ TRANSPORT AGENCY | Warkworth to Wellsford

Document Path: W:\W2W Designation and Resource Consents\07 GIS\MXD\REPORT_FIGURES\CONDITIONS\A4_ConditionsReport_Map14.mxd

Date: 01-Oct-20



Designation boundary
Indicative Alignment
Indicative bridge
Hoteo River
Waiaraire Stream
Watercourse
Significant ecological area -Terrestrial

Conditions - Map 15

0 100 200 300 m

WARKWORTH TO WELLSFORD

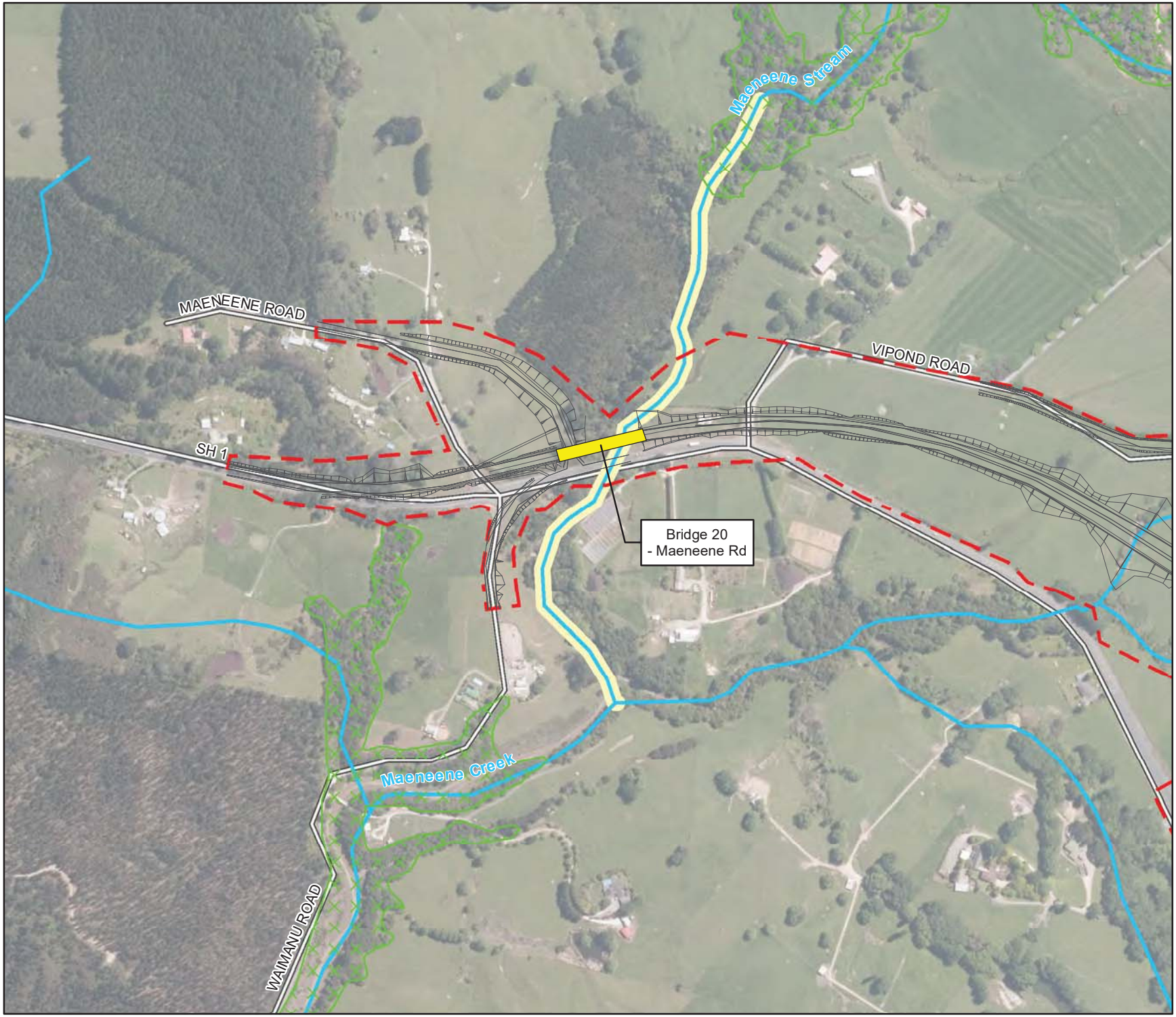
BRIDGE STRUCTURES
IN WATERCOURSES

Jacobs GHD

WAKA KOTAHI NZ TRANSPORT AGENCY Warkworth to Wellsford

Document Path: W:\W2W Designation and Resource Consents\07 GIS\MXD\REPORT_FIGURES\CONDITIONS\A4_ConditionsReport_Map15.mxd

Date: 01-Oct-20



Designation boundary
Indicative Alignment
Indicative bridge
Maeneene Stream
Watercourse
Significant ecological area -Terrestrial

Conditions - Map 16

N

0 100 200 300 m

WARKWORTH TO WELLSFORD

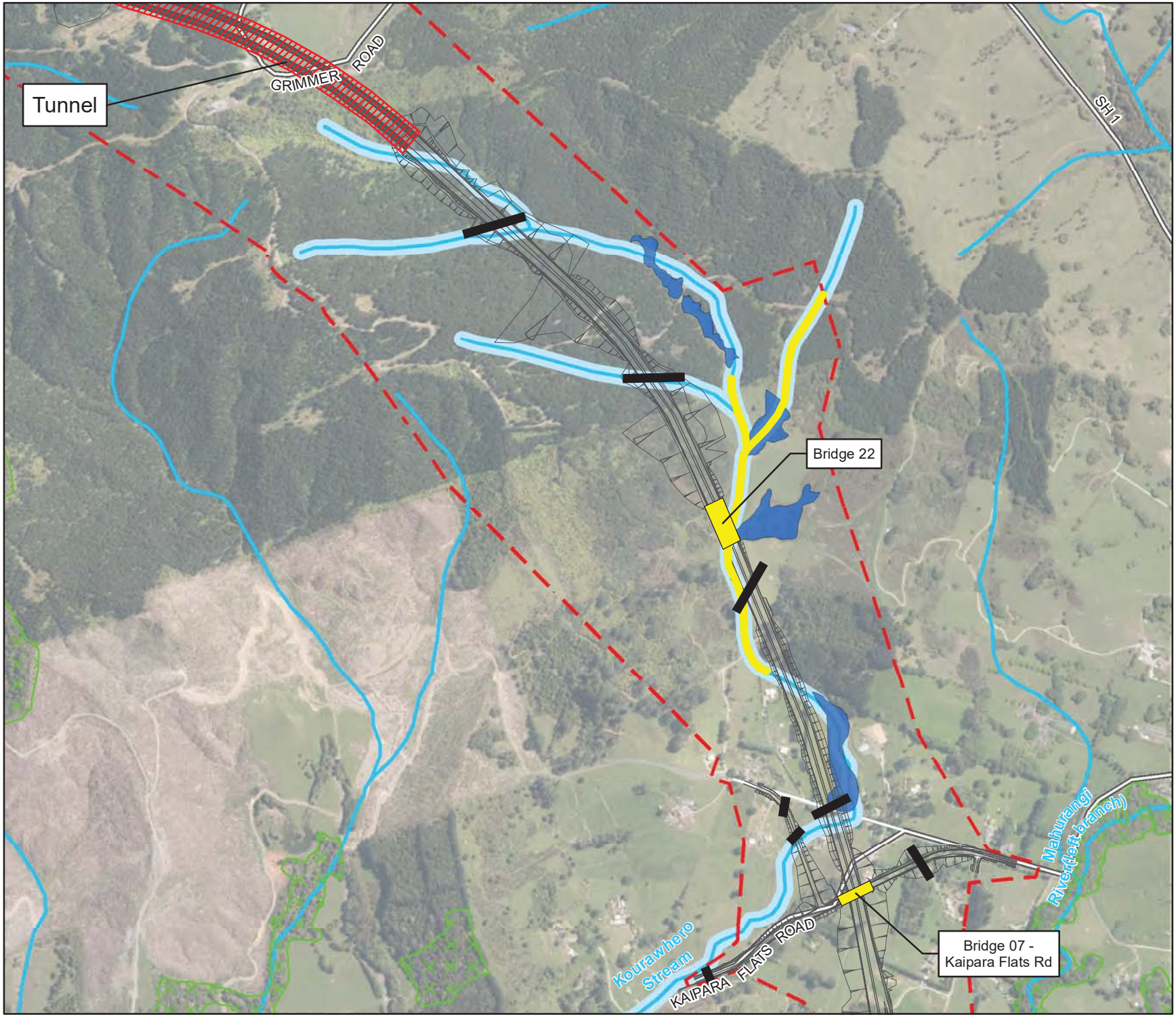
BRIDGE STRUCTURES
IN WATERCOURSES

Jacobs GHD

WAKA KOTAHI NZ TRANSPORT AGENCY | Warkworth to Wellsford

Document Path: W:\W2W Designation and Resource Consents\07 GIS\MXD\REPORT_FIGURES\CONDITIONS\A4_ConditionsReport_Map16.mxd

Date: 01-Oct-20



Designation boundary
Indicative Alignment
Indicative bridge
Kourawhero Stream
Kourowhero Stream Section to be bridged
Culvert
Wetland complex
Watercourse
Significant ecological area -Terrestrial

Conditions - Map 17

N

0 100 200 300 m

WARKWORTH TO WELLSFORD

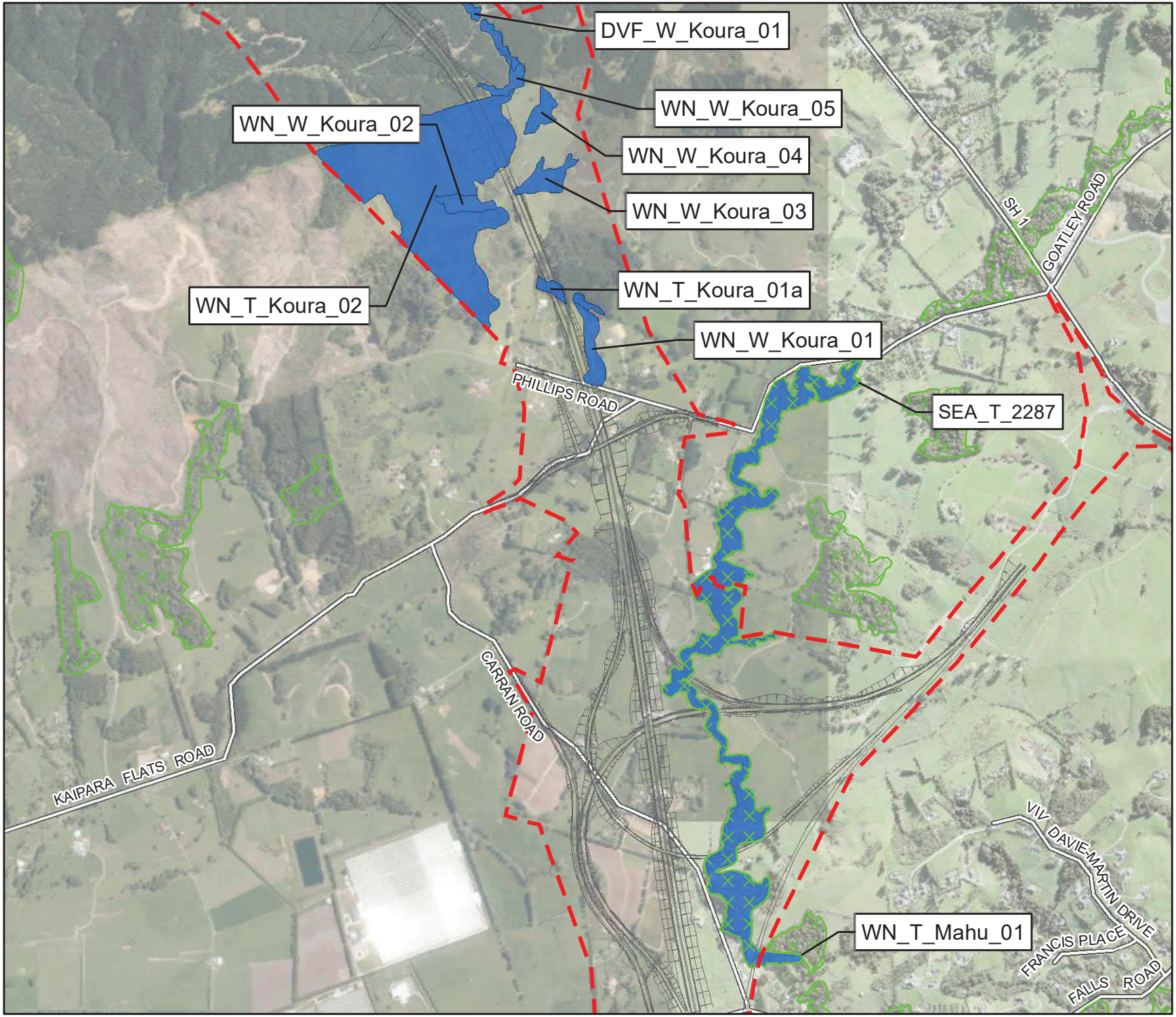
ECOLOGICAL SITES

Jacobs GHD

WAKA KOTAHI NZ TRANSPORT AGENCY | Warkworth to Wellsford

Document Path: W:\W2W Designation and Resource Consents\07 GIS\MXD\REPORT_FIGURES\CONDITIONS\A4_ConditionsReport_Map17.mxd

Date: 06-Oct-20



Indicative Alignment

Ecological sites

Designation boundary

Significant ecological area - Terrestrial

Conditions - Map 18

N

0 250 500 m

WARKWORTH TO WELLSFORD

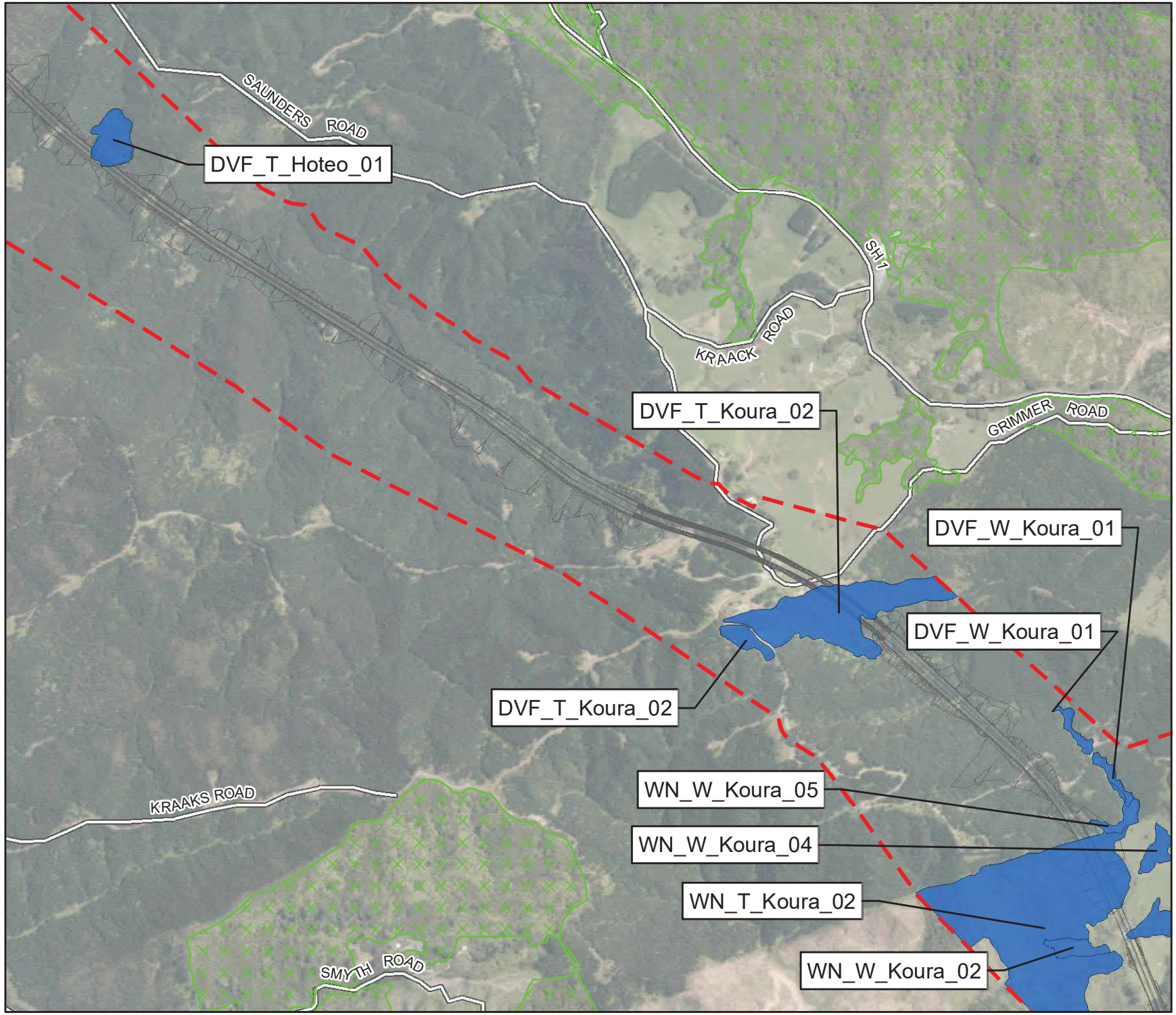
ECOLOGICAL SITES

Jacobs GHD

WAKA KOTAHI NZ TRANSPORT AGENCY Warkworth to Wellsford

Document Path: W:\W2W Designation and Resource Consents\07 GIS\MXD\REPORT_FIGURES\CONDITIONS\A4_ConditionsReport_Map18.mxd

Date: 18-Dec-20



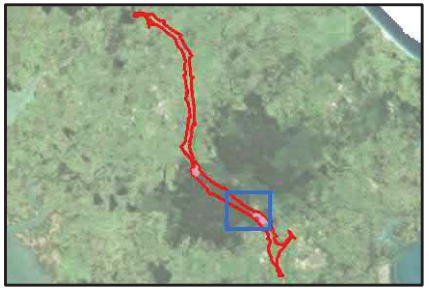
Indicative Alignment

Ecological sites

Designation boundary

Significant ecological area - Terrestrial

Conditions - Map 19



N

0 200 400 600 m

WARKWORTH TO WELLSFORD

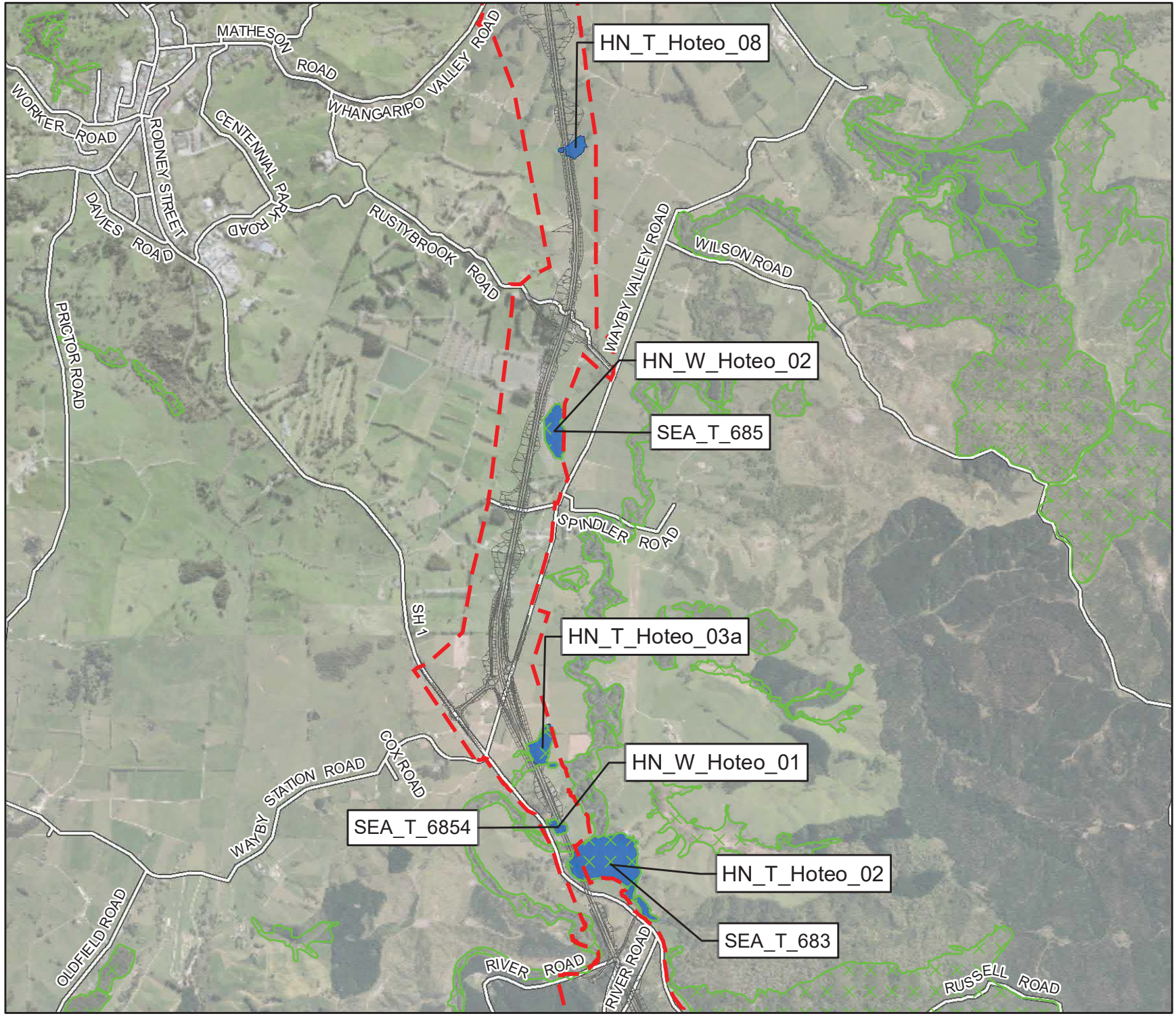
ECOLOGICAL SITES

Jacobs GHD

WAKA KOTAHI NZ TRANSPORT AGENCY Warkworth to Wellsford

Document Path: W:\W2W Designation and Resource Consents\07 GIS\MXD\REPORT_FIGURES\CONDITIONS\A4_ConditionsReport_Map19.mxd

Date: 18-Dec-20



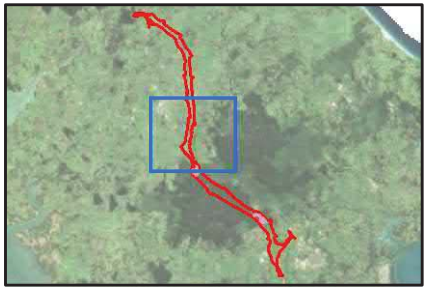
Indicative Alignment

Ecological sites

Designation boundary

Significant ecological area - Terrestrial

Conditions - Map 20



0 250 500 m

WARKWORTH TO WELLSFORD

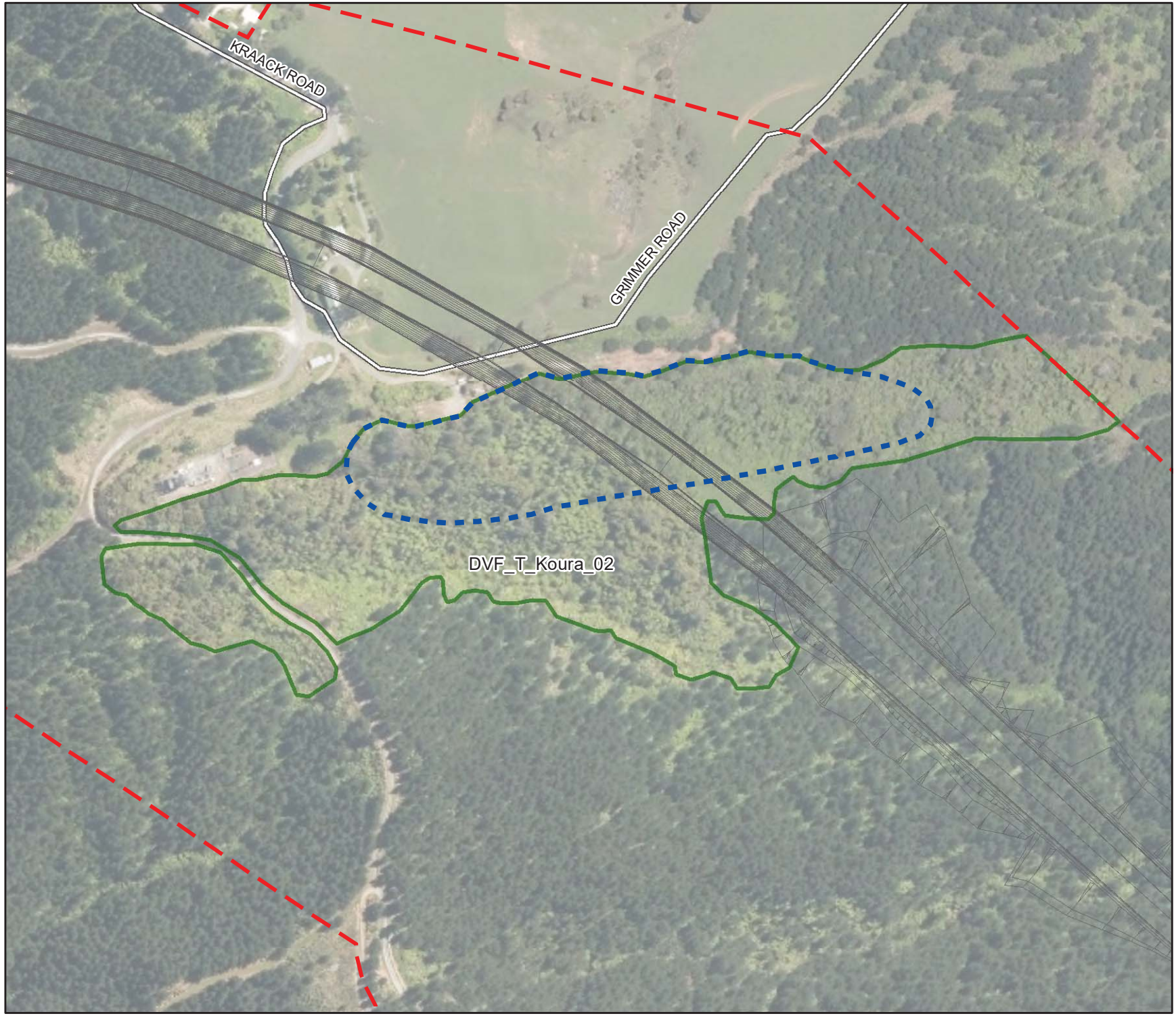
ECOLOGICAL SITES

Jacobs GHD

WAKA KOTAHI NZ TRANSPORT AGENCY | Warkworth to Wellsford

Document Path: W:\W2W Designation and Resource Consents\07 GIS\MXD\REPORT_FIGURES\CONDITIONS\A4_ConditionsReport_Map20.mxd

Date: 18-Dec-20



Indicative Alignment

Designation boundary

Ecological site

Escarpment

Conditions - Map 21

N

0 25 50 100 150 m

WARKWORTH TO WELLSFORD

ESCARPMENT FEATURE

Jacobs GHD

WAKA KOTAHI NZ TRANSPORT AGENCY | Warkworth to Wellsford

Document Path: W:\W2W Designation and Resource Consents\07 GIS\MXD\REPORT_FIGURES\CONDITIONS\A4_ConditionsReport_Map21.mxd

Date: 23-Oct-20